Modern Asian Studies (2025), 1–24
doi:10.1017/S0026749X24000441

CAMBRIDGE UNIVERSITY PRESS

RESEARCH ARTICLE

Wireless nation: Infrastructural politics of Tibetan and Mongolian Morse codes in China

Uluğ Kuzuoğlu

Washington University in St. Louis, St. Louis, Missouri, United States of America
Email: ulugkuzuoglu@wustl.edu

(Received 31 December 2023; revised 22 July 2024; accepted 23 July 2024)

Abstract

This article explores the history of the Tibetan and Mongolian Morse codes, devised by the Nationalist government between 1934 and 1937, by situating them within the infrastructural and political transformations that took place in China and Tibet during these four years. On the one hand, it demonstrates that the engineering of Tibetan and Mongolian Morse codes coincided with the global emergence of shortwave radio telegraphy which, for the first time, enabled communications between geographically distinct regions, such as Tibet and China. On the other hand, it also shows that the codes were devised at a critical political moment in Sino-Tibetan relations: with the death of the Thirteenth Dalai Lama in 1933 and the subsequent political ascendance of the Ninth Panchen Lama, the government believed that the Tibetan and Mongolian Morse codes would help the party rule over the Buddhist frontiers through an alliance with the Ninth Panchen Lama. This plan ultimately failed, as the Panchen Lama died in 1937, before he could take control of Tibet. In short, the government-funded coding project offers a lens into pondering the infrastructural politics of state-building in China.

Keywords: Telegraph; radio; Panchen Lama; Dalai Lama; ethnicity

Introduction

Between 1934 and 1937, the Nationalist government in Nanjing commissioned the engineers at the Mongolian and Tibetan Affairs Commission to devise two separate Morse codes for Tibetan and Mongolian scripts, rendering them into dots and dashes. This technological development was unprecedented in the history of Sino-Tibetan and Sino-Mongolian relations. Since the introduction of the telegraph and Morse code into China in the 1870s, this was the first time that the central government engineered telegraph codes for frontier languages and enabled national communication in Tibetan and Mongolian, alongside Chinese. Immediately after completing the codes in 1935–1936, the Ministry of Communications trained seven young men as the first generation of operators in Tibetan and Mongolian, ready to be dispatched to the frontiers to initiate a multilingual communications infrastructure for China. But then abruptly,

© The Author(s), 2025. Published by Cambridge University Press. This is an Open Access article, distributed under the terms of the Creative Commons Attribution licence (http://creativecommons.org/licenses/by/4.0), which permits unrestricted re-use, distribution and reproduction, provided the original article is properly cited.

Downloaded from https://www.cambridge.org/core. IP address: 13.201.136.108, on 14 Oct 2025 at 17:25:28, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S0026749X24000441

in 1937, the government decided to cancel the project. Fortunately for the historian, they archived all the materials relevant to the experiment.

This short-lived project to develop a technology for the Tibetans and Mongolians to communicate in their own languages is historically puzzling for a number of reasons. Although the telegraph network had been growing in China, the Nationalist government only cultivated an interest in Tibetan and Mongolian codes in the 1930s, 60 years after the introduction of the technology. In addition, the coding project did not extend into other non-Han ethnic groups, such as the Uyghurs, as the government was solely interested in the Tibetans and Mongolians. And after all the effort put in, the government shelved the project and never revived it again. Buried in the archives, the historical enigma of these codes invites an examination of infrastructure, ethnicity, and politics in the Republic of China's Buddhist frontiers.

The purpose of this article is to investigate the infrastructural politics of state-building on the frontiers of China. Drawing on the expanding field of infrastructure studies, this article uses the development of Tibetan and Mongolian Morse codes to argue that state-building was at once an ideological and infrastructural project; and at times, the two were indeed inseparable from one another.[1] Railroad networks, for instance, enabled the logistical distribution of commodities while generating conflicting views over the constitution of a national economy; the postal service carried letters across territories, while helping to construct a national system of communication; and ports and docks were crucial for ships to sail, but they also gave birth to regimes of control that enclosed a national population. From the Railway Protection Movement of 1911 that initiated the revolution against the Manchus to the telegraph's power to form a globally synchronic political consciousness that enabled the May Fourth Movement in 1919, infrastructures were critical to both imagining and constructing the Chinese nation and state.[2] But while contributing to the rise of Han nationalism, infrastructures also posed challenges and opportunities for imagining the state beyond the Han.

The invention of Tibetan and Mongolian Morse codes in the 1930s stood at the intersection of two major transformations, one infrastructural and the other political. As the first section of this article explains, the government engineered these codes during the global age of shortwave radio telegraphy. Longwave radio was brought to China by foreign companies in the early 1900s, but the domestic growth of a radio network only began in the 1920s with the commercialization of shortwave radio, which was cheaper and easier to manufacture. Shortwave radio served as a decisive technology during the Nationalist Party's (Kuomintang, KMT) Northern Expedition and the subsequent Nanjing decade (1927–1937) that witnessed an ambitious programme of party- and state-building under the Nationalist government. Until then, the telegraph was the only medium of electrical communication in the late-nineteenth and early twentieth centuries, and it had its limitations. Establishing and maintaining a telegraph network necessarily involved erecting poles and extending overland, underground, or

[1]Brian Larkin, 'The Politics and Poetics of Infrastructure', *Annual Review of Anthropology*, no. 42, 2013, pp. 327–343.

[2]Elisabeth Köll, *Railroads and the Transformation of China* (Cambridge, MA: Harvard University Press, 2019); Guo Shuanglin, 'Dianbao yu zhengzhi shijian', Paper presented at Global May Fourth: A Hundred Years, Columbia University, New York, 4 May 2019.

Downloaded from https://www.cambridge.org/core. IP address: 13.201.136.108, on 14 Oct 2025 at 17:25:28, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S0026749X24000441

undersea cables to connect long distances. But cables were fragile. Animals could eat them, humans could cut them, and, depending on the environmental circumstances, they could freeze or break. The physical obstacles to establishing telegraph lines that traversed the harsh geographies standing between Chinese cities and Tibet was a major reason for the absence of a direct telecommunications channel between Beijing and Lhasa during imperial times, and Nanjing and Lhasa under Nationalist rule. In contrast, the infrastructure for wireless radio telegraphy only involved radio stations that could bridge any two points, regardless of the geographical terrain in between. The Nanjing decade thus witnessed an exponential increase in the establishment of wireless radio stations across China, including Inner Mongolia, Xinjiang, and Tibet. The government's success in frontier state-building, in other words, was aided by the new communications technologies at its disposal. Wireless communications enabled the state to reach new geographies and re-evaluate the place of ethnicity and politics in its new network.

The invention of Tibetan and Mongolian codes also coincided with an important political moment in Sino-Tibetan history. In December 1933, the Thirteenth Dalai Lama (1876–1933), who had been ruling a de facto independent Tibet since the fall of the Qing empire in 1912, suddenly passed away. Prior to his death, the Thirteenth Dalai Lama and the Ninth Panchen Lama (1883–1937), the two highest political and religious figures in Tibet, had been embroiled in a power struggle since the former's state-building efforts challenged the latter's status. Eventually, the Panchen Lama was forced to leave Tibet for eastern China in 1923. Developing a close relationship with the Buddhists in Inner Mongolia and China as well as the higher echelons of the KMT, the Panchen Lama eventually became a major figure who positioned himself as the cultural bridge between the Chinese, Tibetans, and Mongolians under the growing power of the Nationalist government. The Dalai Lama's death in 1933 therefore served as a pretext for the KMT-supported Panchen Lama to return to Tibet and rule it with the aid of the party and the government in Nanjing.[3] Indeed, the government-led coding project began shortly after the Panchen Lama embarked on his journey from Beiping to Lhasa via Inner Mongolia in August 1934; and it ended with his untimely death in Amdo in December 1937, before he concluded his journey. The rise and fall of the Tibetan and Mongolian Morse codes, in short, was the technological complement to this brief period of alliance between the Panchen Lama and the Nationalist government.

Since the first contact between the Panchen Lama and the KMT, racial-cum-ethnic unity among the Han, Tibetans, and Mongolians had become a common agenda for both sides. This was part of an earlier republican discourse promoted by Sun Yat-sen (1866–1925), variously called 'the Great Harmony of the Five Races' (*wuzu datong* 五族大同) or 'the Harmonious Unity of the Five Races' (*wuzu gonghe* 五族共和), which sought to unify under a new flag of the Han, Manchus, Mongols, Tibetans, and Turco-Muslims, who had all been the subjects of the Qing.[4] This ideology of unity was a

[3]Hsiao-ting Lin, *Modern China's Ethnic Frontiers* (New York: Routledge, 2011); Fabienne Jagou, *The Ninth Panchen Lama (1883–1937): A Life at the Crossroads of Sino-Tibetan Relations* (Paris: Ecole Fracaise d'Extreme, 2011).

[4]Edward Rhoades, *Manchus and Han: Ethnic Relations and Political Power in Late Qing and Republican China, 1861–1928* (Seattle and London: University of Washington Press, 2000), p. 156.

Downloaded from https://www.cambridge.org/core. IP address: 13.201.136.108, on 14 Oct 2025 at 17:25:28, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S0026749X24000441

politically pragmatic discourse for a new republic that had to come to terms with its multi-ethnic imperial past, and it was utilized more by the Han than any of the other post-Qing ethnic groups. In the early 1930s, as Gray Tuttle noted, the Panchen Lama also began to strategically employ the same discourse during the rapprochement with Nanjing, even though the language of unity did not feature prominently in his political speeches.[5] Nevertheless, in 1934, the convenience of this 'unity' became entangled with the death of the Dalai Lama and the expanding wireless infrastructure. The Tibetan and Mongolian Morse codes were born in this critical moment when the alliance between the Nationalist government and the Panchen Lama generated the possibility of instituting a multilingual infrastructure for governmental communications.

How, then, can the Tibetan and Mongolian Morse codes help us ponder the relationship between infrastructure, ethnicity, and coding in the Chinese frontiers? The entanglements of code and race have been the subject of critical studies in the United States since the 1990s, although the focus has mostly been on the digital age. Since the pioneering works of Wendy Chun, Tara McPherson, and Lisa Nakamura, scholars have consistently pointed out how digital technologies and infrastructures entrench racial and social inequalities by encoding them into softwares and hardwares.[6] The arguments about race and code in the United States cannot be transposed to the historically distinct conditions of China—even the word 'race' has distinct connotations in Chinese. But they nevertheless suggest a methodology to probe the infrastructural politics of frontier state-building and to reconsider codes as more than technical objects that enable electrical communications. Even before the age of computerized algorithms, codes were social and political artefacts as much as technical ones. As such, from the people who engineered them to the people who were trained in them, codes were inescapably attached to social, political, and ideological forces. What reigns true for the United States today was also true for China in the 1930s: the Tibetan and Mongolian Morse codes were political before they were technological. These forgotten codes, in short, stand as a reminder of the infrastructural possibilities and limitations of building a state that rose out of the ashes of a multi-ethnic and multilingual empire.

The wire and the wireless in Tibet and China

From the early 1900s to the 1930s, the history of wired and wireless communications across the Tibetan plateau was intertwined with larger forces that extended from British India to the Dalai Lama's government in Lhasa to Republican China. Examining the infrastructural and political entanglements between Britain, Tibet, and China over three decades demonstrates the significance of communications technologies for imperialism and nationalism, while challenging the existing historical narrative concerning the instalment of the first wireless station in Lhasa in 1934. Installed by the Nationalist government during Huang Musong's 黃慕松 (1884–1937) condolence

[5]Gray Tuttle, *Tibetan Buddhists in the Making of Modern China* (New York: Columbia University Press, 2005), pp. 146–147, 181.

[6]For a representative volume of this literature, see the contributions to Lisa Nakamura and Peter Chow-White (eds), *Race After the Internet* (New York: Routledge, 2012).

Downloaded from https://www.cambridge.org/core. IP address: 13.201.136.108, on 14 Oct 2025 at 17:25:28, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S0026749X24000441

mission to Lhasa following the Thirteenth Dalai Lama's death in 1933, the wireless station in Lhasa is often portrayed as a diplomatic victory of the Nationalist government.[7] A longer history of telegraphy and radio, however, suggests that the Lhasa station was the outcome of rivalries between British India, Lhasa, and Nanjing, in which the Thirteenth Dalai Lama played a more crucial role than previously imagined. The following pages will first describe the politics of wired telegraphy in central Tibet, and then explain how wireless technologies transformed the relationship between Lhasa and Nanjing, resulting in the first Tibetan Morse code in 1932, invented by a Tibetan working under the Panchen Lama.

In 1904, Colonel Francis Younghusband (1863–1942) installed the first telegraph line in Tibet during his invasion of the region. The line posed a major challenge to a centuries-old status quo in Inner Asia, as it connected Gyantse, a Tibetan city 144 miles south of Lhasa, to Calcutta, the capital of British India. Until then, Tibet had been loosely connected to the Qing empire (1644–1912), ruled by the Manchus who had inherited the earlier Mongolian policy of maintaining a system of Buddhist patronage with Tibet. The Manchus emulated and employed the thirteenth-century patron-priest relationship between Khubilai Khan (r. 1260–1294) and Phagspa Lama (1235–1280) to incorporate Tibet into the Qing from the seventeenth century onwards. In contrast to their conquest of Mongolia and Xinjiang in the eighteenth century, the Manchus never annexed Tibet due to the logistical difficulties posed by its mountainous terrains. Instead of military colonies, they installed two Manchu officials (*amban*) in Lhasa and exercised a considerable degree of political power while also drawing legitimacy from Tibetan Buddhism, which was practised not merely in the environs of Lhasa but across the lands that extended from Tibet to Mongolia.[8] In return, the Dalai Lama enjoyed a semi-autonomous position and continued influence in the Buddhist lands, including the Manchu capital. The physical distance between the two centres was instrumental in determining the contours of their political relationship.

The telegraph line from Calcutta to Gyantse in 1904 posed new challenges to defining Tibet's place in the Manchu world. The British invasion of Tibet came after decades of warfare and unequal treaties between the British and Qing empires, starting with the First Opium War (1839–1842). As the treaty ports opened the Qing to foreign capital, British involvement in China grew larger, and Tibet acquired geopolitical significance as it constituted a buffer zone between British India, Russian Central Asia, and the Qing. Colonel Younghusband's invasion was thus meant to ensure both trading privileges and a new semi-autonomous position for Tibet. During the negotiations that followed, the legal status of Tibet came under scrutiny, as the British aimed to define it as 'Chinese suzerainty'—'a conveniently vague word', as one British officer

[7]Melvyn Goldstein, *A Modern History of Tibet* (Berkeley: University of California Press, 1989), p. 245. For a more nuanced study that explains Tibetan political conditions during the Chinese mission, see Hsiao-ting Lin, 'The 1934 Mission to Tibet: A Re-examination', *Journal of the Royal Asiatic Society*, 3rd series, vol. 12, no. 3, 2002, pp. 327–341.

[8]Peter Schwieger, *The Dalai Lama and the Emperor of China: A Political History of the Tibetan Institution of Reincarnation* (New York: Columbia University Press, 2014); Patricia Berger, *Empire of Emptiness: Buddhist Art and Political Authority in China* (Honolulu: University of Hawai'i Press, 2003); Max Oidtmann, *Forging the Golden Urn: The Qing Empire and the Politics of Reincarnation in Tibet* (New York: Columbia University Press, 2018).

Downloaded from https://www.cambridge.org/core. IP address: 13.201.136.108, on 14 Oct 2025 at 17:25:28, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S0026749X24000441

commented decades later.[9] In response, the Manchus sent an army to Tibet under General Zhao Erfeng 趙爾豐 in 1908 to reclaim it as a 'sovereign' part of the empire, and Zhao devised his own plans for wiring Tibet into the Qing. In 1909, the Qing's telegraph offices reached Chamdo in Kham, most likely with an ambition to reach Lhasa in the following years, but once the Qing empire fell apart in 1911, the telegraph lines were destroyed by the local people of Kham.[10] Even after the collapse of the Qing in 1912 and the emergence of Tibet as a de facto independent state, the disputed legal terminologies of suzerainty and sovereignty continued to define Tibet's international position, since the nascent Chinese nation-state still claimed sovereignty over it.[11] The British telegraph line into Tibet along with the Qing's unsuccessful attempt to build one stood as a metaphor for the unclear place of Tibet in the world of Western and Chinese imperialisms—still physically distant from China, but connected to it via British India.

The Thirteenth Dalai Lama benefitted from a strategic alliance with the British empire. After a few years of forced exile in British India during General Zhao Erfeng's military expedition, the Dalai Lama returned to Tibet in 1912 and initiated a state-building project. As part of his plans to build modern infrastructures, he requested permission from the British to extend the telegraph line from Gyantse to Lhasa in 1920. The Indian Posts and Telegraphs Department supplied the necessary material for the project, and in 1922 the Dalai Lama sent the first telegram to King George V in London and made the first phone call to Gyantse. The young Tibetan engineer Kyipook, who had studied at Rugby School in England and received a year's training in telegraphy in Kalimpong, was appointed as the director of the Telegraph and Telephone in Tibet; and the British engineer William P. Rosemeyer visited Lhasa on an annual basis to maintain the telegraph lines.[12]

The instalment of the telegraph in Lhasa and its yearly maintenance by the British served the new imperial status quo well. The British were invested in Tibet as long as the latter could maintain its autonomous status, and Tibet's limited technological development was beneficial for them. While the Thirteenth Dalai Lama was interested in Western technologies for state-building, the reach of large-scale infrastructural change was limited due to the small number of engineers. Even the telegraph network did not grow larger than the one line that connected Lhasa to the outside world via British India, and the British were content to keep it that way. Furthermore, all cable communication was conducted in English. The British, following their imperial policies in India, never entertained the possibility of adapting Morse code for the Tibetan script. The absence of Tibetan language combined with the absence of a telegraph network that could link Lhasa to other Tibetan cities limited the telegraph's use to

[9]O. K. Caroe, 'External Affairs Department', 8 May 1944, The National Archives, Kew (hereafter TNA), FO/371/41587. Amanda J. Cheney, 'Tibet Lost in Translation: Sovereignty, Suzerainty and International Order Transformation, 1904–1906', *Journal of Contemporary China*, vol. 26, no. 107, 2017, pp. 769–783.

[10]Huasha Zhang, 'The Sedan Chair vs the Steamboat: The Sichuan Route and the Maritime Route in the Making of Modern Sino-Tibetan Relations', *Modern Asian Studies*, vol. 56, no. 1, 2022, p. 294.

[11]Maria Adele Carrai, 'Learning Western Techniques of Empire: Republican China and the New Legal Framework for Managing Tibet', *Leiden Journal of International Law*, no. 30, 2017, pp. 801–824.

[12]W. H. King, 'The Telegraph to Lhasa', *The Geographic Journal*, vol. 63, no. 6, June 1924, pp. 527–531; W. H. King, 'The First Telegram from Lhasa', *The Listener*, issue 450, 25 August 1937, p. 394.

Downloaded from https://www.cambridge.org/core. IP address: 13.201.136.108, on 14 Oct 2025 at 17:25:28, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S0026749X24000441

mere international communication that always had to pass through the British Indian telegraph offices.

As such, the Lhasa line served as the sole, yet indirect, telegraph link between China and Tibet. The telegraph network in China had been growing since the first line between Shanghai and Nagasaki was laid in 1872.[13] Mirroring the rest of the colonized and semi-colonized world, telegraph offices mushroomed in the coastal cities that facilitated the entry of Western capital, but the number of offices in the inner provinces and frontiers remained low. Part of the problem was the extremely high cost of construction and maintenance that the telegraph demanded. Particularly because of the geographical circumstances of Tibet and the political rivalry with China, the Chinese telegraph never entered Lhasa.[14] As a result, any telegram exchanged between China and Tibet was relayed through British India, which ensured British knowledge of all communications in Chinese. The telegraph, in short, was a convenient instrument of information control and surveillance in a wired world.

But *wireless* was a different matter, as it enabled communications without the interference of physical geography. Wireless radio was invented in 1896 by the Italian engineer Guglielmo Marconi (1874–1947), and in 1904, the French installed a longwave radio station in Qinhuangdao, Hebei province. Although a wireless technology training seminar was held in Beijing the following year, the use of radio technologies was very limited during the late Qing, as it was predominantly employed for military purposes. The number of radio stations began to increase only after the fall of the Qing, as German, British, French, American, and Japanese companies raced with each other to build stations in China. By the early 1920s, there were several longwave radio stations, mostly in major commercial centres such as Wuchang, Nanjing, Shanghai, Wusong, Fuzhou, and Canton, or geopolitically strategic locations such as Urga (present-day Ulanbataar), Dihua (present-day Urumchi), Kashgar, and Kunming.[15] In the mid-1920s, however, foreign dominance in the Chinese radio market began to dwindle, partly as a result of the commercialization of shortwave radio. Until then, radio companies believed that shortwaves were not convenient for international communications, but when amateur radio users in the West proved that shortwaves could also be used for long-distance communications, the landscape of wireless transmission changed globally, almost overnight.[16]

With the first shortwave radio transmitter built by the German Telefunken Company in Shenyang in 1924, Chinese engineers began building the technology for themselves shortly afterwards, which had a considerable impact on military communications. Indeed, the global transformation of wireless technologies coincided with a key military and political moment in China—the start of the Northern Expedition. In 1926, under the command of the future Generalissimo Chiang Kai-shek

[13]Erik Baark, *Lightning Wires: The Telegraph and China's Technological Modernization, 1860–1890* (Westport: Greenwood Press, 1997).

[14]*Zhongguo dianxiantu* (Xuantong yuannian [1909]).

[15]Chu Chia-hua (Zhu Jiahua), *China's Postal and Other Communication Services* (Shanghai: China United Press, 1937), p. 174; Huang Hesheng (ed.), *Zhongguo tongxin tushi* (Guangzhou: Nanfang ribao chubanshe, 2009), pp. 104–107.

[16]James Wood, *History of International Broadcasting* (Stevenage: Institution of Engineering and Technology, 1994), pp. 21–23.

Downloaded from https://www.cambridge.org/core. IP address: 13.201.136.108, on 14 Oct 2025 at 17:25:28, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S0026749X24000441

(1887–1975), the Revolutionary Army commenced its northbound military expansion from Guangzhou to unify China under one party and one army. While it remains as an unexplored subject, it is likely that shortwave radio transmitters turned out to be critical for Chiang's military expansion. The military value of this technology was clear to Chiang himself, who ordered the establishment of the Wireless Machinery Production Factory, operated by the Columbia-educated Li Fanyi 李范一 (1891–1976), along with a Wireless Training Department.[17]

As the Northern Expedition drew to a close, the National Reconstruction Commission (*Zhongyang jianshe weiyuanhui* 中央建設委員會) was founded in February 1928 to oversee the construction of a domestic and international wireless network. Its founder, Zhang Jingjiang 张静江 (1877–1950), was a classmate of Chen Lifu 陳立夫 (1900–2001), the founder of the KMT's first espionage unit; and just like Chen, he was a major figure in the CC clique, an extreme right-wing faction of the KMT. Under Zhang's watch, the number of wireless stations grew dramatically, and Shanghai became China's new international centre for radio transmission and broadcast. In January 1929, the Shanghai–Manila radio circuit was opened, which allowed the transmission of messages to the United States and Europe via Manila. The Shanghai–Hong Kong circuit opened in July of the same year. The following year, new circuits with Java, United States, Berlin, and Paris were in effect. From 1931 to 1935, Geneva, Moscow, San Francisco, London, Tokyo, and Rome also joined China's international circuit.[18]

The growth of the domestic radio network was also breathtakingly fast during this period, although it was not without problems. Between 1929 and 1935, the number of shortwave radio stations across the country increased from 27 to 60, as the Ministry of Communications opened new circuits between distant cities, especially along the coast and major commercial centres.[19] But even with the increasing numbers, the national unification of a radio network was difficult to achieve. In the aftermath of the Northern Expedition, the country was still militarily and politically divided among regional warlords, some of whom had their own radio networks and were not willing to succumb to Nanjing. In Manchuria, for instance, Zhang Zuolin 張作霖 (1875–1928) built his own network, which rivalled that of Nanjing until the Japanese invasion in 1931, and the rival warlord regime in Guangzhou also resisted the use of nationally standardized call signs.[20] Nevertheless, despite the political and technological hindrances in certain regions, the National Reconstruction Commission's plans to develop the national radio network expanded to include Inner Mongolia, Xinjiang, Qinghai, and Tibet, as the wireless turned out to be a technology that promised to overcome the extant infrastructural difficulties in state-building.[21] Until the 1930s, for instance, radio service between the inner provinces and Xinjiang were subject to constant interruptions; and in some cases, telegrams were transmitted via international routes with higher fees. Radio changed this state of affairs in 1933, when a new station in Lanzhou

[17]Wang Chongzhi, *Wuxiandian yu zhongguo* (Beijing: Beijing xiantuofang keji fazhan youxian gongsi, 2012 [1932]), pp. 98–100.

[18]Chu, *China's Postal and Other Communication Services*, pp. 160–161.

[19]Ibid., p. 175.

[20]John Alekna, *Seeking News, Making China: Information, Technology, and the Emergence of Mass Society* (Stanford: Stanford University Press, 2024), pp. 74–78.

[21]Wang, *Wuxiandian yu zhongguo*, pp. 101–103.

Downloaded from https://www.cambridge.org/core. IP address: 13.201.136.108, on 14 Oct 2025 at 17:25:28, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S0026749X24000441

was established to form a secure connection between Dihua and Tianjin. In addition, new stations were built in Chengdu and Kunming as well. And in Inner Mongolia alone, by 1936 there were 11 new shortwave stations, with the largest one installed in Bailingmiao, which was directly linked to Nanjing.[22] As radio waves were slowly conquering the frontiers, Tibet's place within the Nationalist government's communications network also began to change. The expanding radio network bolstered the government's vision to incorporate Tibet into the national territories by turning it from an indirectly wired space into an integral part of the domestic radio circuit.[23]

The Nationalist government's aim was in fact shared by the Thirteenth Dalai Lama, whose representative in Nanjing, Köncho Chungne (Tib. dkon mchog 'byung gnas; Ch. *Gongjue zhongni* 貢覺仲尼 [1883–1944]), was the first to propose in 1931 the instalment of a shortwave radio station in Lhasa, which compels a reconsideration of the history of the first wireless station in the city, installed eventually in 1934. Köncho Chungne had been the Dalai Lama's representative in China since 1923. He was first appointed by the Dalai Lama as the Tibetan abbot of the Yonghegong Monastery in Beijing, which had been a centre of contact between the Manchus and the Tibetan Buddhists since the eighteenth century. At Yonghegong, he managed the Dalai Lama's affairs with the Beiyang government until 1928, when he met Chiang Kai-shek for the first time at the close of the Northern Expedition during Chiang's visit to the monastery. The following year, he met with Chiang again in Nanjing and agreed to serve as the intermediary between the Nanjing government and the Tibetan government to initiate a new diplomacy.[24]

The Dalai Lama's decision to open a new diplomatic channel with the Chinese came at a time when he was concerned over the growing power of the Panchen Lama under the KMT. The Ninth Panchen Lama was the second most powerful figure in Tibetan politics, and he and the Dalai Lama had been engaged in a power struggle since the latter had intensified his efforts in state-building, planning to institute new taxes to raise revenues for a central army. In 1917, the Dalai Lama imposed a new tax on the Panchen Lama's Tashilhunpo Monastery, which had traditionally not been taxed. The subsequent dispute between the two ultimately resulted in the Panchen Lama's flight from Tibet to China in 1923, whence he began cultivating new political relations with the Chinese.[25] It did not take Chiang Kai-shek long to realize the political power of the Panchen Lama. In February 1928, as Chiang Kai-shek was discussing the possibility of a new diplomacy with the Dalai Lama, he also founded the Tibetan Panchen Lama Bureau in Nanjing (*Xizang banchan zhujing bangongchu* 西藏班禪駐京辦公處). The Panchen Lama thus became a critical figure in the Nationalist government's project to bring Tibet and China politically closer to one another.[26] But the KMT was not the only party that the Panchen Lama was ingratiating himself with. He also made contact with the British in 1927 to inform them of his plans to return to Tibet, and

[22]Chu, *China's Postal and Other Communication Services*, p. 175.

[23]Huasha Zhang, 'Left to Their Own Devices: Radio, Radiomen and Radio Stations in the Making of Tibet's Modern Political Landscape', *Past & Present*, no. XX, 2023, pp. 10–17.

[24]Xiraonima, *Jindai zangshi yanjiu* (Lasa: Xizang renmin chubanshe, 2000), pp. 181–184.

[25]Jagou, *The Ninth Panchen Lama*, pp. 32–57.

[26]Zhongguo zangxue zhongxin and Zhongguo di er lishi dang'anguan (eds), *Jiushi banchan neidi huodong ji fanzang shouzu dangan xuanbian* (Beijing: Zhongguo zangxue chubanshe, 1992), p. 9.

Downloaded from https://www.cambridge.org/core. IP address: 13.201.136.108, on 14 Oct 2025 at 17:25:28, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S0026749X24000441

in response, the British noted the possibility of supporting him if the circumstances allowed.[27]

By the late 1920s, the Dalai Lama thus found himself in a difficult situation since the Panchen Lama's new diplomacy could ultimately undermine his own political power in Lhasa. In 1929, his representative Köncho Chungne informed Chiang Kai-shek that the Dalai Lama was no longer on good terms with the British, and that he was prepared to talk about the future of China and Tibet. The following year, Köncho Chungne visited Nanjing again to speak further about Sino-Tibetan relations, including the Panchen Lama's plan to return to Tibet.[28] While the two sides were unlikely to come to a quick agreement, both Nanjing and Lhasa were willing to keep the diplomatic channels open. In August 1931, Köncho Chungne was appointed as the main representative of the newly founded Tibet Bureau Office in Nanjing (*Xizang zhujing banshichu* 西藏駐京辦事處), which was established to counterbalance the Panchen Lama's influence.[29]

It was in the context of these complex and strained relationships between the Dalai Lama, the Panchen Lama, British India, and Nanjing that Köncho Chungne presented his proposal in 1931 for a wireless station in Lhasa to the Mongolian and Tibetan Affairs Commission (MTAC). In his proposal, apart from mentioning the difficulties of building a telegraph line to Tibet, Köncho Chungne also noted the expensive nature of sending messages to Lhasa, since they were relayed via India and were thus subject to international fees. The charge for each word was 2.95 yuan, which was five to six times more than the price for domestic telegrams. In total, each telegram would cost more than a hundred yuan to send. In addition, the international route of messages was a concern for national security: when messages were sent in plaintext, the British were privy to them; and if they were encrypted, the British interrupted them, shelving them away with political excuses.[30] A wireless Lhasa–Nanjing circuit was thus desirable both for Nanjing *and* Lhasa to circumvent the British.[31]

Clearly, the Dalai Lama was searching for a new form of communication with Nanjing that would bring the two governments closer without accepting Chinese sovereignty over Tibet. Not surprisingly, Chiang Kai-shek immediately saw the value in this proposal, and ordered the Ministry of Communications to inquire into the process of building a Lhasa station. Ba Wenjun 巴文峻, the adviser to the MTAC, and Cai Xiaosu 蔡孝肅, a member of the MTAC, were sent to the Ministry of Communications to draft a budget proposal for the Lhasa station. In May, the Minister of Communications Wang Boqun 王伯群 informed the MTAC that a 20-kilowatt station in Lhasa and a smaller one in Kangding could be erected.[32]

[27]Goldstein, *A Modern History*, pp. 252–254.

[28]Ibid., pp. 215–218; Xiraonima, *Jindai zangshi yanjiu*, pp. 185–186.

[29]Goldstein, *A Modern History*, pp. 214–219; Jagou, *The Ninth Panchen Lama*, p. 63; Xiraonima, *Jindai zangshi yanjiu*, p. 129.

[30]Zhongguo zangxue yanjiu zhongxin and Zhongguo di er lishi dang'anguan, *Minguo shiqi xizang ji zangqu jingji kaifa jianshe dang'an xuanbian* (Beijing: Zhongguo zangxue chubanshe, 2005), pp. 212–213.

[31]The proposal was translated into Chinese and presented to the MTAC by Wu Mingyuan 巫明遠, who had been a translator for Tibetan officials in China, and who in 1934 joined Huang Musong's mission, which finally brought the wireless radio to Tibet. Goldstein, *A Modern History*, p. 225.

[32]*Minguo shiqi xizang ji zangqu jingji kaifa jianshe dang'an xuanbian*, pp. 212–214.

Downloaded from https://www.cambridge.org/core. IP address: 13.201.136.108, on 14 Oct 2025 at 17:25:28, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S0026749X24000441

It was only in 1934, a year after the Dalai Lama's death, that a shortwave radio transmitter was finally installed in Lhasa by the Chinese authorities. Brought there by Huang Musong, who led a condolence mission to Lhasa, this wireless set has long been regarded as 'an enormous tactical success' for the KMT.[33] Yet, as the chronology makes clear, installing a wireless station in Lhasa had in fact been initiated by the Dalai Lama in 1931, which partly explains the Tibetans' acceptance of the Chinese wireless set in 1934, even while rejecting Huang's proposal to incorporate Tibet as an integral part of the Chinese nation. Although he did not live to see it, the 'success' as such should be attributed to the Thirteenth Dalai Lama instead of the KMT.

Regardless of who deserves the praise, the year 1931 was thus significant. The MTAC and the Ministry of Communications took Köncho Chungne's proposal seriously, but a wireless set was not immediately dispatched to Lhasa. The three-year delay in sending the set most likely stemmed from the military clashes on the Sino-Tibetan border that began in 1931 as well as the political hostility between the Dalai Lama and the Panchen Lama. At the time, there were effectively two different Tibetan bureaus in Nanjing—one for the Dalai Lama and one for the Panchen Lama—and the Nationalist government was careful to keep the Panchen Lama close. The same year, as the MTAC was discussing Köncho Chungne's proposal, the government allowed the Panchen Lama to have his own wireless set in his Bureau in Nanjing.[34] Just like the Dalai Lama, the Panchen Lama was also excited at the possibilities that wireless technology enabled; but unlike the Dalai Lama, he already had a wireless set at his personal disposal.

It was this wireless set that inspired a Tibetan radio operator to invent the first unofficial Tibetan Morse code. The Nationalist government at this point was not officially committed to inventing Morse codes for Tibetan and/or Mongolian languages, but the Tibetan radio operator working for the Panchen Lama's station in Nanjing, Tsering Wangdu (Tib. tshe ring dbang 'dus; Ch. Wang De 汪德), saw the possibilities of inventing a telegraph code solely for Tibetan, and authored a small pamphlet in 1932 explaining his method for encoding Tibetan syllables. Tsering Wangdu's biography is hard to come by, but the long explanation he wrote about wireless radio makes it clear that he was an aficionado of Marconi and the wireless. Residing in Nanjing, he was exposed to the new scientific and popular knowledge surrounding radio in China, and the word he introduced into Tibetan for 'wireless radio'—*ushantan* ཨུ་ཤན་ཏན་—was a transliteration of the Chinese term for it, *wuxiandian* 無線電. Wangdu was possibly one of the first Tibetans to encode the Tibetan script, and his technical engagement with the Tibetan Morse code demonstrates the involvement of the Tibetans themselves in rethinking the place of language and telecommunications in the Nanjing-led state-building.

At the time that Tsering Wangdu was penning his pamphlet, an official standard for encoding Tibetan did not exist, and the only script used for telegraphy in Tibet was English. 'Right now,' he noted, 'there are translations and instructions that exist in Tibet for [telegraphic] exchange that is used for communicating with other countries,

[33]Goldstein, *A Modern History*, p. 245.

[34]Han Jingshan, 'Mianmian yongli jiujiu weigong, jiushi banchan neidi kangri licheng', *Pengpai (The Paper)*, 8 December 2015; available at https://www.thepaper.cn/newsDetail_forward_1406315, [last accessed 28 May 2022].

Downloaded from https://www.cambridge.org/core. IP address: 13.201.136.108, on 14 Oct 2025 at 17:25:28, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S0026749X24000441

[but they are only] in the universally known English language.' In order to break free from English, he wrote, the Tibetans could create a unified codebook for Tibetan to facilitate the exchange of messages. Just like Morse code for English, Tsering Wangdu argued that, given the phonetic quality of the script, Tibetan could also be directly encoded into dots and dashes. His pamphlet was thus an attempt to invent a coding standard that converted syllables into a series of dots and dashes, and offered a variety of abbreviated codes not only for increasing the speed of electric communication among the Tibetans, but also enabling different forms of encryption that would help them send secret messages: 'If a booklet that instructs as many abbreviated codes as possible can be made, not only will there be faster communication, but it will also make it harder for others to decipher our secret words.'[35]

Tsering Wangdu was aware of the technical difficulties that might accrue during the transmission of messages, and he attempted to come up with a structure that could alleviate these problems. He gave a different code to 30 syllables (e.g. ཀ .- ཁ -.- *ga* ག –.-, etc.), four vowels (ི .-.-.- ུ ..-.. ེ -.-.-. ོ .-..-..), some letters of the extended alphabet used in Sanskrit (ཌ .—. ཛ -...– ཊ .–.- ཋ —. ཙ –...- ཚ ..—..), and subjoined letters (ྭ –.-. ར .-.– ཡ –.– ཤ..– ཥ .-.-) (see Figure 1). He then continued with a detailed explanation for other necessary codes, such as a code for separating syllables (….), for signalling one's name (..–.-), or a mistake (……..) or the end of transmission (.-.-.). And on the last 16 pages of his pamphlet, he provided shorthand codes for 114 common phrases, such as *garaka?* གཨག? 'What is your name?'; *garaka* གཨག 'My name is X'; *garaca?* གཅག? 'What is your exact wave number?'; *garaca* གཅག 'My exact wave number is X'; *garatsa* གཙག 'Please wait for a while'; *gara.a* གཨཨ 'I am in a hurry, please be considerate.'

Wangdu's design of the Tibetan code was precocious, and it did not grow into a larger project. It was true that the Panchen Lama's ties to the Nationalist government had already grown strong by then. In 1932, the year that Tsering Wangdu wrote his pamphlet, the Panchen Lama was appointed as the Emissary in Charge of Spreading Values in the Western Region (*Xichui xuanhuashi* 西陲宣化使), which granted him the right to have his own military force and wireless stations, the equipment for which was going to be supplied by Nanjing.[36] Building wireless stations was an ongoing project for the Nationalist government, and as the Panchen Lama's new title suggested, Nanjing was determined to support the radio network that he would build in the near future. But still, despite the increase in the number of wireless stations in the frontiers, there was barely any mention of a telegraph code for non-Han languages during these years. In the eyes of the Nationalist government, Inner Mongolia, Xinjiang, and Tibet were at the forefront of all geopolitical concerns, especially in the midst of fighting the communists and the Japanese. Inner Mongolia was under heavy Soviet and Japanese influence; similarly, Xinjiang, although nominally under the Nationalists, was politically influenced by the Soviet Union; and Tibet was de facto ruled by the Thirteenth Dalai Lama. In a politically, ethnically, and geographically fractured space,

[35]Academia Historica (hereafter AH) 207/559, Tsering Wangdu (Tshe ring dbang 'dus, Ch. Wang De 汪德), *Glog gis brda sprod tshul u shan tan gyi rnam bzhag bsam 'phel dbang rgyal bzhug so* ([Nanjing] 1932), pp. 10 and 12.

[36]Xiraonima and Faxiang Su, *Mengzang weiyuanhui dang'an zhong de xizang shiwu* (Beijing: Zhongyang minzu daxue chubanshe, 2006), pp. 186–187.

Downloaded from https://www.cambridge.org/core. IP address: 13.201.136.108, on 14 Oct 2025 at 17:25:28, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S0026749X24000441

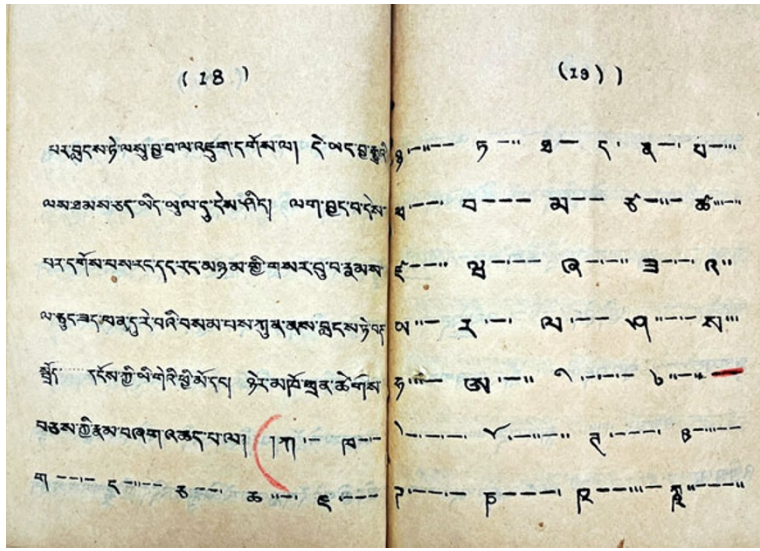

Figure 1. Sample page from Tsering Wangdu's Tibetan Morse code. *Source:* Tshe ring dbang 'dus, *Glog gis brda sprod tshul u shan tan gyi rnam bzhag bsam 'phel dbang rgyal bzhug so* ([Nanjing] 1932).

the Nanjing government was silent with regard to the use of non-Han Morse codes. Tsering Wangdu's Tibetan Morse code in 1932 thus did not have a considerable political impact, nor was it implemented to any degree. It seems unlikely that the Nanjing government was even aware of its existence at the time, and whether the Panchen Lama saw value in the code is difficult to ascertain due to the paucity of the documents. The government became aware of the code only in 1936, when Tsering Wangdu submitted a copy of his pamphlet to the Ministry of Communications.[37] But by that time, the Ministry had its own Tibetan code-maker, and Tsering Wangdu's coding scheme did not factor into the making of Nanjing-backed codes, as will be described below. Nevertheless, this brief experiment in 1932 demonstrated the Tibetan interest in building a telecommunications technology for Tibetan use.

The following year, however, a major political development turned the tables in the development of frontier communications infrastructures. The Thirteenth Dalai Lama suddenly passed away in 1933, leaving a power vacuum in central Tibet. Political factions quickly mushroomed, and the Panchen Lama found himself in a serendipitous position to lay claim to legitimate power over the Tibetan community. With a growing wireless communications infrastructure across China, the death of the Dalai Lama and

[37]Tsering Wangdu submitted a copy of his design to the Ministry in March 1936, just a few months after the Ministry trained the first two radio operators in Tibetan. In his letter, he noted that he had heard of the success of the first Tibetan coding class and informed the Ministry of the telegraph code he had devised in 1932. He also wrote that he put it to repeated use with Tibetan students at the radio station in Nanjing. This was probably the first time that the Ministry saw Tsering Wangdu's design. AH 207/559, 'Wang De's (Tsering Wangdu) Report to the Ministry of Communications (March 18, 1936)', received by the Ministry on 21 April 1936.

Downloaded from https://www.cambridge.org/core. IP address: 13.201.136.108, on 14 Oct 2025 at 17:25:28, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S0026749X24000441

the rise of the Panchen Lama offered an entirely new way to think about governance and communications in the frontiers of the Chinese state.

The history of Sino-Tibetan relations through an infrastructural lens thus demonstrates that both wired and wireless communications played a significant role in defining the place of Tibet in the aftermath of the Qing empire. From Younghusband's telegraph line in 1904 to the Sino-Tibetan negotiations in the early 1930s about a potential wireless station in Lhasa, communications infrastructures were never simply about communication; they were instead entangled with British imperialism, Chinese and Tibetan state-building projects, and political factionalism in Tibetan governance. The complex web of techno-political relations became even more intricate with the increasing presence of radio stations in China and the death of the Dalai Lama. In 1934, the Nationalist government changed its infrastructural policies from installing radio stations to engineering Tibetan and Mongolian Morse codes, and the following three years witnessed for the first and the last time the development of a multilingual communications infrastructure in Republican China.

Code and ethnicity under the Nationalist government

The engineering of Tibetan and Mongolian Morse codes in 1934 by the Nationalist government's Ministry of Communications was a significant techno-political moment in the history of Sino-Tibetan relations. As the previous section described, wired and wireless communications played an important role amid the unclear place of Tibet within the nexus of British imperialism, Chinese state-building, and Tibetan autonomous governance. But until 1934, the Nationalist government did not seek to invent a Tibetan or a Mongolian Morse code. Indeed, the only Tibetan code invented in 1932 in Nanjing was never put to official use. Why, then, did the government attempt to invent Tibetan and Mongolian Morse codes in 1934, immediately after the death of the Dalai Lama?

The response lies in the historically contingent place of the Panchen Lama in Sino-Tibetan politics. Since his flight from Tibet in 1923, the Panchen Lama had been diligently building new alliances. On route from Shigatse to Beijing, he passed through Anxi, Lanzhou, Xian, and Taiyuan, where he was warmly received both by the Mongolian and Chinese Buddhists. Meeting with Mongol princes, Chinese warlords, Republic of China officials, and initiating Tantric ceremonies for the Buddhists in China, the Panchen Lama quickly demonstrated his power as a religious and political figure. Soon after he arrived in Beijing, he also distinguished himself as the harbinger of Sun Yat-sen's vision for the Republic. Invited to the National Reconstruction Conference convened in Beijing in 1925, the Panchen Lama gave a speech in which he underlined the 'Unity of the Five Races', which referred to Sun Yat-sen's nationalist discourse of unifying the Han, Manchus, Mongolians, Tibetans, and Turco-Muslims within one republic.[38] The exact content of this 'unity' had always been elusive, and the Panchen Lama was taking advantage of this to build alliances with the northern warlords and the Beiyang government. But once the KMT concluded its Northern

[38]Jagou, *The Ninth Panchen Lama*, pp. 65–80.

Downloaded from https://www.cambridge.org/core. IP address: 13.201.136.108, on 14 Oct 2025 at 17:25:28, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S0026749X24000441

Expedition in 1928, *wuzu gonghe* turned into a political discourse that the KMT could also conveniently capitalize on to endorse the Panchen Lama.

Once the KMT established Nanjing as the ROC's capital, the alliance between the KMT and the Panchen Lama proved to be crucial for both sides. The Tibetan and Mongolian frontiers were far from unified, and the Panchen Lama's appeal to the Tibetan and the Mongolian Buddhists was critical for the KMT's plan for territorial consolidation. Similarly, the Panchen Lama needed military and financial support from the Nationalists to return to Tibet and reclaim the lands that he believed belonged to him. Even though the actual terms of the 'unity' were still not clear, the two sides were of one mind regarding infrastructural development in the frontiers, especially in transportation and communications.

The poignance of the alliance became even clearer as the tension between the Dalai Lama and the Panchen Lama grew in the early 1930s. As mentioned, when the Panchen Lama became the Emissary in Charge of Spreading Values in the Western Region in 1932 the Nationalist government granted him the right to have his own military force, composed of Chinese officers. This empowered him to confront the Dalai Lama both politically and militarily. In 1933, while the Dalai Lama's representatives, including Köncho Chungne, were in Nanjing, the Panchen Lama issued Sixteen Articles that laid out the principles for his return to Tibet, which included, among other things, the Tibetan government's acceptance of the political and military authority of the Nationalist government and the separation of the Tibetan territories into two, in which central Tibet (*qianzang* 前藏) would be governed by the Dalai Lama and the outer Tibetan territories (*houzang* 后藏) by the Panchen Lama.[39] Even though the Panchen Lama's proposed conditions were utterly unacceptable to the Dalai Lama, his articles made it clear that he was planning to return to Tibet, either peacefully or by force.

The death of the Dalai Lama in December 1933 strengthened the alliance between the Nationalist government and the Panchen Lama even more, as the two moved one step closer to claiming authority across the Tibetan plateau and Inner Mongolia. As such, Huang Musong's condolence mission to Lhasa in 1934 and the establishment of a wireless station in the city was one component of a greater frontier project. Indeed, along the way, Huang met with local merchants, leaders, and elites, and made topographical surveys in each city to see whether airports could be constructed.[40] The wireless set that he eventually installed in Lhasa, together with a Chinese radio operator, was also part of a similar infrastructural vision that encompassed the frontiers in general. Installing a station in Lhasa opened the communications channels with Nanjing as well as other stations in the inner provinces. Even if Huang's mission was a political failure, it was historically remarkable: for the first time in Sino-Tibetan history, the time required for the delivery of a message was reduced from months to days.

The wireless set also challenged the British presence in Tibet, for their monopoly over Tibetan communications was finally broken. The British, it should be mentioned, never installed a wireless station in Tibet, even though the technology was used

[39]Xiraonima and Su, *Mengzang weiyuanhui dang'an zhong de xizang shiwu*, p. 199.

[40]Hsiao-Ting Lin, *Tibet and Nationalist China's Frontier: Intrigues and Ethnopolitics, 1928–1949* (Vancouver: UBC Press, 2006), p. 75.

Downloaded from https://www.cambridge.org/core. IP address: 13.201.136.108, on 14 Oct 2025 at 17:25:28, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S0026749X24000441

throughout India. Wired communications, after all, was a convenient technology for British control, whereas the wireless would have caused its weakening. The only time that the British entertained the possibility of a radio station in Lhasa was in 1919, when it was proposed as a countermeasure to Japanese imperialism in China. The year prior, the Beiyang government had signed a telegraph loan agreement with the Japanese company Mitsui to build a stronger radio and telegraph circuit that could reach Batang 巴塘 in western Sichuan. A potential Japanese station in Batang alarmed the British, for they believed that the Japanese would then have access to Tibet as well. In 1919, as the British were seriously considering the instalment of a longwave station in Lhasa, the Sino-Japanese project was cancelled due to the conflicts that it had precipitated between other foreign cable and radio companies.[41] The British immediately shelved the plan and never brought it up again until the instalment of the Chinese wireless station. But when the Chinese station was installed in Lhasa on August 26, 1934, the British did not wait long to build one of their own. The following year, they installed a station in the same city.[42]

The Chinese wireless set in Lhasa was part of a larger plan in the development of frontier communications infrastructures. In 1934, when Huang Musong began his journey, the MTAC also dispatched Kelsang Tsering (Tib. bskal bzang tshe ring; Ch. Wang Tianhua 王天華, also *Gesangzeren* 格桑澤仁 [1905–1947]) to the northwestern provinces of Gansu, Ningxia, and Qinghai to investigate the conditions and conduct surveys in the Tibetan and Mongolian areas.[43] Born in Sichuan, Kelsang Tsering received his education in Kunming in Chinese and Tibetan, and enrolled in the Xikang Academy for Army Officers (*Xikang lujun junguan xuexiao* 西康陸軍軍官學校) in 1926. Leaving the academy the following year, he instead started to work as a translator for the Panchen Lama's Tibetan inspector in Sichuan, Gongdengzhaxi 貢登札西, which brought him under the purview of the Panchen Lama. Quickly thereafter, the Panchen Lama recommended Kelsang Tsering to the MTAC as a Tibetan translator, and in 1928, he was appointed head of the Tibetan Affairs Office (*zangshichu chuzhang* 藏事處處長) and the vice-editor of the MTAC's journal, *Mongolian and Tibetan Affairs Weekly* (*Mengzang zhoubao* 蒙藏週報).[44] In 1934, he was the chief investigator in Gansu, Ningxia, and Qinghai, and upon his return, he submitted a report that proposed a five-point programme to develop frontier infrastructures, one of which called for the invention of a Tibetan Morse code to improve communications.[45]

It should be noted that Kelsang Tsering's proposal coincided with the instalment of a wireless station in Lhasa and the Panchen Lama's return journey to Tibet, which he had embarked upon in August 1934. As we have seen, after the Dalai Lama's death, the Panchen Lama rose to fame as a leader who could exert immense influence across

[41]TNA, FO 371/3684, 'Japanese Wireless Telegraph Loan: Copy of English Translation from Chinese Text', 28 June 1919; and 'Wireless Telegraphy in Tibet', 12 July 1919, pp. 425–428 and 459.

[42]TNA, FO 371/18106, 'Telegram, 28 August 1934', p. 210; Hugh Richardson, *Tibet and Its History* (London: Oxford University Press, 1962).

[43]Ziyu Tian and Dehui Liu (eds), *Zhongguo jindai junfashi cidian* (Beijing: Dangan chubanshe, 1989), p. 463.

[44]Xieraoyixi, 'Jindai kangxu zhuming zhengzhi huodongjia—gesengzeren', *Kangding minzu shifan gaodeng zhuanke xuexiao xuebao* (Journal of the Kangding Nationality Teachers College), vol. 14, no. 6, December 2015, pp. 8–11.

[45]AH 207/559, 'From MTAC to the Ministry of Communications', 17 November 1934.

Downloaded from https://www.cambridge.org/core. IP address: 13.201.136.108, on 14 Oct 2025 at 17:25:28, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S0026749X24000441

the Tibetan and Mongolian lands. The technological power of the wireless combined with the political and religious authority of the Panchen Lama thus precipitated a new infrastructural vision that could in principle grant the Mongolians and Tibetans the right to communicate via the wireless *in their own languages*. As long as they remained under the rule of the Panchen Lama, communicating in Tibetan and Mongolian alongside Chinese could expedite the transmission of information in the frontiers, while still remaining under the power of Nanjing.

In November 1934, just a month after the Panchen Lama embarked on his return journey, the Ministry of Communications agreed with the plan to devise a Tibetan Morse code and requested from the MTAC a pupil with knowledge of Tibetan and Mandarin. The MTAC thus sent the secretary of the Commission, Xiao Bida 蕭必達, to lead the project.[46] A few months later, in March 1935, the Ministry decided to expand the project to include a Mongolian Morse code as well, and again requested from the MTAC a member with a good knowledge of Mongolian.[47] A few weeks later, Bai Fengzhao 白鳳兆, the department head of the Mongolian Affairs Bureau's First Department (*Mengshichu di yi ke kezhang* 蒙事處第一科科長), was dispatched to the Ministry to start devising the Mongolian Morse code. Very little information is available about these two figures. Xiao Bida was a Tibetan who grew up in Lhasa and worked as the secretary of the MTAC between 1929 and 1939; and Bai Fengzhao was a Mongolian from Inner Mongolia.[48]

Xiao and Bai's codes were ready for use in May 1935. The Tibetan code was composed of 59 units, as each syllable was given a corresponding combination of dots and dashes (Figure 2). What set Xiao's code apart from Tsering Wangdu's was the extended number of syllables and vowels. For instance, in addition to all the syllables in Tsering Wangdu's pamphlet, Xiao added the rest of the extended alphabet for representing Sanskrit (ཀྵ …-.- ཪྀ ..-. ཪཱྀ -.-… ཬྀ .-..-. and ཬཱྀ .-.-..) and included *lha* ཨྷ ..-..- as a separate sign. He also added additional signs for superscripts, subscripts, and subscripts with vowels, along with *tseg* ་ and *shad* ། as the only marks for punctuation. The Mongolian code, on the other hand, was significantly longer, with 113 discrete units. Mongolian letters, much like the Arabic letters, are composed of several glyphs that depend on their position in a word, and consonants and vowels are combined in several different ways—hence the large number of units (Figure 3).

While the invention of the codes ran smoothly, their implementation did not. The operators studying these codes, it turned out, had difficulty memorizing the number of combinations, especially in Mongolian, because they were not proficient enough in

[46] Ibid.

[47] AH 207/559, 'Telegram from the Ministry of Communications to the MTAC', 2 March 1935.

[48] AH 207/559, 'Telegram from the MTAC to the Ministry of Communications', 14 March 1935. According to the online *Zhonghua Minguo zhengfu zhiguan ziliao ku* (The ROC Government Post database), Xiao Bida served as the secretary of the MTAC between the dates mentioned. See https://gpost.lib.nccu.edu.tw/view_career.php?name=蕭必達, [accessed 16 November 2024]. His son Xiao Chongqing was a Muslim, as his personal file indicates; as such, Xiao Bida might have been a Tibetan Muslim, too. See AH 129000006173A, 'Xiao Chongqing'. The Xiao family seems to have been strongly connected with the KMT. Xiao Bida's son was once the chief of the Lhasa station under the BIS and one of the few people to own a camera in Tibet. See 'Xiao Duojie: Zuotian yijing xiaoshi (Xiao Duojie: Yesterday has already disappeared)', *Zhongguo Xizang Wang*, 22 June 2017, http://media.tibet.cn/wap//special/b/xszr/zlwz/1498014417533.shtml, [accessed 14 November 2024].

Downloaded from https://www.cambridge.org/core. IP address: 13.201.136.108, on 14 Oct 2025 at 17:25:28, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S0026749X24000441

Figure 2. The first page of the Tibetan Morse code. *Source: Mengzang wen dianma*, Academia Historica Archives, 207/559.

the language. When Wu Baofeng 吳保豐, the Nanjing Telegraph Bureau chief, visited the training sessions, he noted the following:

> First of all, in writing the Mongolian script, [the letters in] the beginning, the middle, and the end of a word each have their differences. The transcribers [of a message] need to have a decent level of Mongolian as well as excellent skills in sending and receiving [messages]; only then can they start overcoming these difficulties with a high level of proficiency. For example, the two operators, He Tingkun 何廷焜 and Ba Zhanyuan 巴占元, each have excellent skills in sending and receiving messages in Chinese and Western scripts (*hua yang wen*

Downloaded from https://www.cambridge.org/core. IP address: 13.201.136.108, on 14 Oct 2025 at 17:25:28, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S0026749X24000441

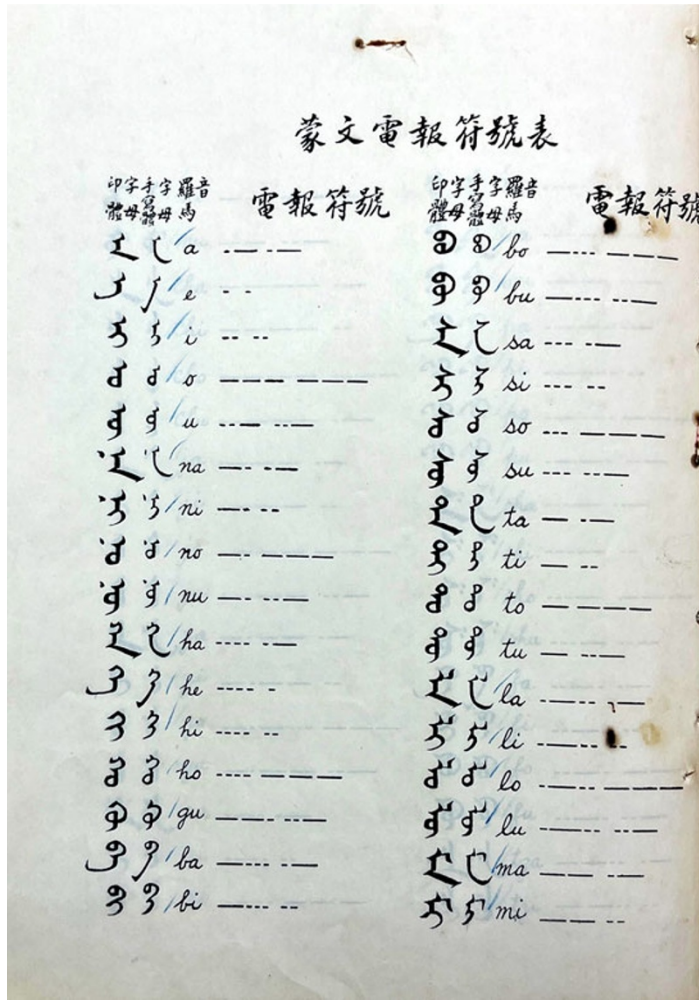

Figure 3. The first page of the Mongolian Morse code. *Source: Mengzang wen dianma*, Academia Historica Archives, 207/559.

華洋文), but because they have only studied Mongolian for a year, they are still unaccustomed to sending and receiving messages in Mongolian.[49]

Indeed, the operators-in-training were all Han and, with the exception of code-makers Xiao Bida and Bai Fengzhao, even the trainers themselves were all Han, which indicated the deeper problems in the government's plan for frontier infrastructures. The government was prepared to invent non-Han codes, but the absence of non-Han

[49] AH 207/559, 'Telegram from the Ministry of Communications Nanjing Telegraph Bureau to the Telecommunications Department', 10 September 1935.

Downloaded from https://www.cambridge.org/core. IP address: 13.201.136.108, on 14 Oct 2025 at 17:25:28, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S0026749X24000441

operators demonstrated the ethnic and linguistic hierarchy within the institutional structure of the government itself. The future radio operators were all selected from the Chief of General Staff Institute for Frontier Research (Canmou benbu bianwu yanjiusuo 參謀本部邊務研究所) and the Training Center for Frontier Languages in the recently established Mongolian and Tibetan School (Mengzang xuexiao bianjiang yuwen jiangxisuo 蒙藏學校邊疆語文講習所).[50] These operators, however, all learnt Tibetan and/or Mongolian as their second language—since Chinese was the dominant language in domestic communications, the radio operators were expected to be fluent in Chinese. Yet, this posed a structural problem because there were few Tibetans or Mongolians who were literate in Chinese to begin with, and as such, Chinese speakers had to be trained in frontier languages. Ironically, as Wu Baofeng wrote in his report in 1935, neither of the two instructors, Wen Dao 溫燾 and Lu Xuqin 陸許湊, who trained the operators in Tibetan and Mongolian codes, knew Tibetan or Mongolian well enough.[51] The linguistic problems, to put it differently, reflected the deeper ethnic hierarchies that were institutionalized in the Nationalist government.

These hierarchies posed a problem for the coding project itself. During the training session in 1935, none of the students of the Mongolian code passed the proficiency test.[52] Part of the problem, in the eyes of the Ministry, was the exorbitant number of discrete units an operator had to memorize for Mongolian, so new proposals were made to facilitate the process. One was devised by a certain Zhang Huazhou 張華胄 who reduced the number of units from 113 to 49 by eliminating more than half of the glyphs.[53] Another proposal was made by Liu Zhihan 劉之漢, a student of the Mongolian language, who reduced the glyphs to a mere 30 signs.[54] Possibly building on these two proposals, Bai Fengzhao and Huang Musong devised a new system in April 1936, which only counted the glyphs at the start of the word (*zitou* 字頭) and the end of it (*ziwei* 字尾), which totalled 48 (Figure 4).[55] In July, new students and officials began training in the Mongolian code, and five of them finally received their diplomas on 22 March 1937.[56]

Tibetan code fared better, although not significantly. Out of the ten students who joined the training session in 1935, only two of them received diplomas in November.[57] One of them, Min Xiancun 閔賢村, was very enthusiastic about his new mission to join the Panchen Lama as his radio operator in Tibetan. After he successfully completed

[50]AH 207/559, 'Telegram from the Ministry of Communications to the Mongolian and Tibetan School', 30 March 1935; and 'Telegram from the Advisory Institute for Frontier Research to the Ministry of Communications', 18 April 1935.

[51]AH 207/559, 'Telegram from the Ministry of Communications Nanjing Telegraph Bureau to the Telecommunications Department', 10 September 1935.

[52]Ibid.

[53]AH 207/559, 'Mongolian Morse code (*Mengwen dianbao ma*) by Zhang Huazhou'.

[54]AH 207/559, 'A Draft Proposal for Mongolian Telegraphic Symbols (*Mengwen dianbao fuhao caoni jianyi shu*), compiled by Liu Zhihan', 22 October 1935.

[55]An earlier version sent to the Ministry by Huang Musong counted 47 units, but in the final version, it was 48. AH 207/559, 'MTAC to the Ministry of Communications', 4 April 1936.

[56]The names of the operators were Huang Donglou 黃東樓, Wang Yizhi 汪漪之, Li Zili 李自立, Zhang Shulin 張書麟, and Zhang Jincheng 張金城. Noted in AH 207/559, 'Diplomas (*zhengshu*)', 22 March 1937.

[57]AH 207/559, 'Telegram from the Ministry of Communications Nanjing Telegraph Bureau to the Telecommunications Department', 6 September 1935.

Downloaded from https://www.cambridge.org/core. IP address: 13.201.136.108, on 14 Oct 2025 at 17:25:28, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S0026749X24000441

Figure 4. The updated Mongolian Morse code by Bai Fengzhao and Huang Musong. *Source: Mengzang wen dianma*, Academia Historica Archives, 207/559.

the training session, he submitted a request to the Nanjing Telegraph Bureau to be dispatched to Lhasa as the Panchen Lama's Tibetan-language radio operator, and work towards concretizing the government's 'great plan for the frontiers' (*choubian daji* 籌邊大計).[58] Shortly after his petition, the Ministry of Communications informed the Lhasa station that Min Xiancun would be joining the Panchen Lama in Lhasa.[59] In October, the Ministry even shared a copy of the code with the Panchen Lama, showing him the possibilities that were going to be available once he reached his destination.[60] In other words, the operators were trained and the code was ready, and its implementation awaited the Panchen Lama's final return to Tibet.

By the time the Panchen Lama received a copy of the code, it seemed that he was about to reach an agreement with the central Tibetan government in Lhasa. Following the death of the Dalai Lama, the Tibetan authorities had slowly started to change their attitude regarding the Panchen Lama. After the latter began his journey in late 1934 with a small military force of his own, the Tibetan government became even more proactive in supporting his return. In November 1935, they even agreed to return many of the Panchen Lama's confiscated possessions from the Tashilhunpo Monastery and to reduce the new taxes that were levied by the former Dalai Lama. The Panchen Lama, it seemed, was soon to be home.

The following year witnessed an increased exchange of envoys between Lhasa and the Panchen Lama, who was waiting for a resolution in Jyekundo (Ch. Yushu 玉樹) in

[58]Ibid.

[59]AH 207/559, 'Telegram to the Lhasa Station', 26 September 1935.

[60]AH 207/559, 'Telegram to the Emissary in Charge of Spreading Values in the Western Region', 14 October 1935.

Downloaded from https://www.cambridge.org/core. IP address: 13.201.136.108, on 14 Oct 2025 at 17:25:28, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S0026749X24000441

southern Qinghai. His military escort was the main obstacle between him and Lhasa, and the Tibetan Council of Ministers and the Tibetan National Assembly were already divided on the issue. The Panchen Lama's desire to enter Tibet with his small army was sure to result in a military clash. In fact, at the beginning of 1937, when the Panchen Lama made his move to enter Tibet, the Tibetan army retaliated. A few months later, realizing the dwindling power of their own disorganized forces, the Tibetan authorities grew more amenable, and in May 1937, the Council of Ministers allowed the Panchen Lama's entry into Tibet with the Chinese escort as long as the escort agreed to leave immediately afterwards. In the following months, the two sides even agreed on the exact time frame for the arrival and departure of the Chinese escort, and on 18 November 1937, they finally reached an agreement on all terms. But by then, the Panchen Lama's days were numbered. Nanjing's military and political support combined with a Tibetan code that could have changed the future of communications were not enough to fight an illness he had been suffering from in Jyekundo. On 1 December, the Panchen Lama passed away before he could enter Tibet.[61]

With the Panchen Lama's death, the Nanjing-backed infrastructural plan quickly faded away. The immediate shelving of the codes and the absence of any discussion surrounding them in the years that followed make it clear that the success of the Tibetan and Mongolian Morse codes hinged upon the contingent alliance between the Nationalist government and the Panchen Lama. 'Unity of the Five Races' was a convenient discourse that both sides could capitalize on, but in reality, infrastructural and political plans regarding the non-Han frontiers were under the heavy surveillance of the Nationalist government, including the two codes. Even before the death of the Panchen Lama, the government was searching for ways to expand wireless technologies in Tibet that were closely tied to the growing intelligence network of the KMT. Indeed, while the Ministry was working on the codes, 'Spymaster' Dai Li (1897–1946), the head of the Bureau of Investigation and Statistics (BIS), was busy building a large and secretive wireless network in China, with 198 radio stations installed by 1938. The first radio operator in Lhasa, Zhang Weibai 張威白, who stayed there after Huang Musong left in 1934, was indeed an intelligence officer. Zhang's classmate Hu Chunming, who later became the head intelligence officer in Tibet, had entered Tibet with a portable radio which he was careful to hide. Another intelligence officer, Tan Xingpei, had earlier accompanied the Panchen Lama on his return journey to Tibet. In short, the frontier communications infrastructure planned by the government even while the Panchen Lama was still alive was under the heavy monitoring of the party and the BIS.[62] In fact, Xiao Chongqing 蕭崇清, the son of Xiao Bida who had invented the Tibetan Morse code in 1935, later became the chief of the BIS's Lhasa Station, and fled to Hong Kong after the KMT's defeat in China.[63] Given that the Tibetan and Mongolian Morse codes were enmeshed within the political networks of the KMT, BIS, and the Panchen Lama, they are best considered as an unexpected product of the government's greater plan to control the frontiers. When the only person who made the codes a politically meaningful project died, they were swiftly forgotten,

[61]Jagou, *The Ninth Panchen Lama*, pp. 153–157.

[62]Chen Xizhang, 'Xizang congzheng jilüe', in *Xizang wenshi ziliao xuanji, di san ji* (Lasa: Xizang renmin chubanshe, 1984), pp. 117–119.

[63]'Xiao Duojie: Zuotian yijing xiaoshi', *Zhongguo Xizang Wang*.

Downloaded from https://www.cambridge.org/core. IP address: 13.201.136.108, on 14 Oct 2025 at 17:25:28, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S0026749X24000441

and the Nanjing government continued its underground operations to consolidate its power in the frontiers without any further promise for a multilingual communications infrastructure.

Coda

The death of the Panchen Lama in 1937 brought the engineering of the Tibetan and Mongolian Morse codes to an abrupt end. The Panchen Lama's death also coincided with the Japanese invasion of China and the outbreak of more than a decade of war, during which Chiang Kai-shek's increasingly assimilationist policies obviated the political vision to encode Tibetan and Mongolian.[64] The codes were never implemented, and all the relevant materials were shelved in the archives. The patriotic radio operator Min Xiancun was probably devastated, and all the other operators most likely sought employment in regular telegraph offices. The government's first and only experiment in building non-Han codes never saw the light of day, and Chinese remained as the sole language of communications on the frontiers. The infrastructural dominance of Chinese persisted under the People's Republic of China as well. The Tibetans and Mongolians, just like the other minority nationalities, were not granted the right to use the telegraph in their own languages until the 1980s, at which point the telegraph was quickly becoming an obsolete technology, superseded by computers.[65]

The telegraphic experiment of the 1930s is still significant for recognizing the infrastructural politics of Chinese state-building in the aftermath of a multi-ethnic empire. It particularly demonstrates the discrepancies between infrastructural possibilities precipitated by wireless communications and the entrenched ethnic politics in the Nationalist government's frontier development projects. While the Tibetan and Mongolian codes at first glance suggested the possibility of a multilingual and multiethnic nation-state, the engineering of the codes were in fact highly contingent upon the serendipitous political moment in which the government found itself in 1933, when the Dalai Lama passed away and the Panchen Lama emerged as a potential spiritual leader of the Tibetans and the Mongolians. But even with the Panchen Lama under Nanjing's influence, the government was cautious about installing a multilingual communications system. After all, Tibetan Morse code was ready for use in late 1935 and the Mongolian Morse code in early 1937, but the government held onto them until it was sure that the Panchen Lama was safely back in Tibet and prepared to rule under Nanjing's control. The delay between the finalization of the codes and their implementation makes one doubt whether Nanjing would have allowed communications in Tibetan and Mongolian even if the Panchen Lama had survived his illness. Furthermore, the delay also suggests that the codes were most probably going to be employed solely for governmental and official communications. There is no evidence

[64]Chiang Kai-shek, *China's Destiny*, (trans.) Wang Chung-hui (New York: The Macmillan Company, 1947).

[65]The only brief period during which the Tibetans did have a telegraph codebook of their own was after the KMT lost the civil war and the officials in Tibet were ousted in 1949. The first Tibetan telegraph codebook, *Manual for Use in Sending Tibetan Telegraphic Wireless Messages* (Tib. *Rlun 'phrin gton deb ses byakunkhyab*), was printed in Lhasa in the same year. Surprisingly, its format was taken directly from the Chinese telegraph codebook. For an analysis of the codebook, see Zhang, 'Left to Their Own Devices', pp. 25–28.

Downloaded from https://www.cambridge.org/core. IP address: 13.201.136.108, on 14 Oct 2025 at 17:25:28, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S0026749X24000441

to suggest that the larger Tibetan and Mongolian populations were going to benefit from the new infrastructure.

As such, the engineering of the codes and the training of radio operators revealed the deeper ethnic hierarchies surrounding multilingual communications in China. Given that the majority of the trainees at MTAC were of Han origin, one wonders whether the government ever considered the possibility of having Tibetans and Mongolians as operators themselves. Although the Unity of the Five Races was employed as a strategic populist discourse both by the Nationalist government and the Panchen Lama, in practice it was a policy of ethnic containment for Nanjing, and the codes were meant to serve as technologies of governance. From the start, the development of Tibetan and Mongolian Morse codes was embedded in the pre-existing ethnic and linguistic hierarchies of governmental rule in China. To put it differently, the infrastructural possibilities of a wireless nation were curtailed by Nanjing's own governmental predicament.

Acknowledgements. I would like to thank Elizabeth Reynolds and Tsering Wangmo for helping with Tibetan translations, and the anonymous reviewers of *Modern Asian Studies* for their incisive comments on an earlier version of this article.

Competing interests. The author declares none.

Cite this article: Kuzuoğlu, Uluğ. 2025. 'Wireless nation: Infrastructural politics of Tibetan and Mongolian Morse codes in China'. *Modern Asian Studies*, pp. 1–24. https://doi.org/10.1017/S0026749X24000441

Downloaded from https://www.cambridge.org/core. IP address: 13.201.136.108, on 14 Oct 2025 at 17:25:28, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S0026749X24000441