Technology of Empire: Telecommunications and Japanese Expansion in Asia, 1883-1945

by Daqing Yang
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In recent years, there has been a surge of historical studies on the operation, ideology, and legacies of the Japanese "empire." Building on the work of the earlier generation of scholars on the topic, these studies tend to focus on the material and technological infrastructures of imperial Japan and their interplay with political development and ideological debates.[1] With *Technology of Empire: Telecommunications and Japanese Expansion in Asia, 1883-1945*, Daqing Yang, associate professor of history and international affairs at George Washington University, is perhaps one of the pioneers of this recent group of young scholars. Based on his 1996 doctoral dissertation from Harvard University, the book focuses on the network of Japan's telegraph and telephone systems that spanned much of Asia during the first half of the twentieth century, comprising Japan, Taiwan, Korea, parts of China, and later Southeast

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1 Aaron Stephen Moore, *Constructing East Asia: Technology, Ideology, and Empire in Japan's Wartime Era, 1931-1945* (Stanford, CA: Stanford University Press, 2013); Takashi Nishiyama, *Engineering War and Peace in Modern Japan, 1868-1964* (Baltimore, MD: Johns Hopkins University Press, 2014); Hiromi Mizuno, *Science for the Empire: Scientific Nationalism in Modern Japan* (Stanford, CA: Stanford University Press, 2009).

Asia. The book is comprehensive in its coverage, even going back to the pre-Meiji period as a chronological beginning point.

In the author's words, *Technology of Empire* is "a study of Japanese imperialism from the standpoint of telecommunications" (400). It is difficult to imagine a better window through which to examine and analyze the inner workings of an empire than the vast expansion of the telecommunications network. Indeed, the importance of technology—especially communications technology—as a tool of imperialistic expansion is well known and has been heavily discussed by renowned scholars in the past. The classic on this topic is perhaps a series of books written by historian Daniel Headrick.[2] However, Yang seems to build upon Headrick's impressive scholarly corpus and take it a step further. In Yang's story, telecommunications technology is not merely a tool of imperial expansion or a reflection of the empire. Although he does not make it explicit, he seems to view the telecommunications network as *constitutive* of empire-building. From the perspective of Japanese planners at the Ministry of Communications (MOC) and elsewhere, the blueprints for the telecommunications network (334) may well have been the most concrete and explicit form of the imagined imperium in the 1930s and 1940s.

Yang opens his story with the radio speech of Emperor Hirohito on August 15, 1945, in which he announced Japan's unconditional surrender to the Allied Forces. Apart from the fact that this was the first time most ordinary Japanese people actually heard the voice of their emperor, the significance of this event was in exposing the unprecedented scale and scope of the telecommunications network the Japanese empire wielded

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[2] Daniel R. Headrick, *The Invisible Weapon: Telecommunications and International Politics, 1851-1945* (New York: Oxford University Press, 1992); Daniel R. Headrick, *The Tentacles of Progress: Technology Transfer in the Age of Imperialism, 1850-1940* (New York: Oxford University Press, 1988); Daniel R. Headrick, *The Tools of Empire: Technology and European Imperialism in the Nineteenth Century* (New York: Oxford University Press, 1981).

by war's end. As Yang notes, the speech was "relayed and broadcast simultaneously in nearly the entire Asia Pacific region," so that most of the Japanese troops and colonists heard the emperor's voice "at precisely the same moment" (2). How did Japan manage to build such a network? To answer this question, Yang goes back to the 1880s, when Japan first emerged as a nascent empire following the successful modernization campaign of the Meiji Restoration, and traces the complex processes through which the island nation gradually expanded outward—first into Taiwan in 1895 after the First Sino-Japanese War, then into the Korean peninsula and further out into the continent.

In explaining the process of network (and simultaneously, empire) building, the book's ten chapters follow a roughly chronological trajectory, beginning with the introduction of telegraph technology to Japan with the arrival of United States Navy Commodore Matthew Perry in 1854. Part I, entitled "Genesis, 1853-1931," serves as a background for understanding the early history of telecommunications technology in Japan. Expansion outside of Japan's main islands began in 1883—the year noted in the book's subtitle—when the burgeoning empire signed an agreement with the Danish firm Great Northern Telegraph Company (GNTC) to lay a submarine cable across the Korean Strait. This task required considerable skill and experience, both of which Japan lacked at the time. Thus, Japan was obliged to grant GNTC a twenty-year monopoly over the nation's overseas cables for the company's services. This must have been perceived by Japanese planners as a shackle on the emerging empire, for when Japan acquired Taiwan as its first "formal" colony in 1895 following the First Sino-Japanese War, one of its first projects was to purchase a cable-laying ship (*Okinawa maru*) from Britain to connect Okinawa and Taiwan with the main islands of Japan. By 1915, Japan owned and operated a sizable network of submarine cables connecting its main islands to Pusan, Taihoku, Dalian, Shanghai, and Fuzhou, which had important implications for warfare, colonial expansion and control, as well as commercial business operations.

Part II ("Technology, 1931-1940") focuses on the interplay between technological and political imaginations of the Japanese empire in the 1930s—the period of rapid expansion of the network. Japan's expansion of its "informal" empire in Manchuria, unlike the "formal" colonies of Taiwan and Korea, brought about new challenges to managing the telecommunications network in the area. The key player was the Manchurian Telegraph and Telephone Company (MTT), which was a unique "semi-private, joint-venture enterprise" (95). Considering the parallel development of railway and telegraph technologies in other parts of the world, it was not surprising that the Southern Manchuria Railway Company, as well as the Kwantung Army, was closely involved in the operation of MTT. The challenge was to maintain Japanese control over the strategically important telecommunications network, while projecting to the outside world the image of a voluntary and friendly relationship with the new Manchurian state. As many scholars have pointed out, Manchuria in the 1930s served as a unique laboratory for untried colonial policies, the experience of which sometimes fed back into the metropole.[3] The organizational experiment of the "national policy company" in the field of telecommunications was no exception to this general observation.

If Japanese bureaucrats tinkered with the appropriate institutional framework to govern its expanding telecommunications network, the engineers did so with electrical technologies that made long-distance communication possible. The early twentieth century was a period of rapid technological change, especially in electrical technologies, not only in Japan but around the world. The Japanese engineering community was by this time a close contender for world leadership, based on the

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[3] See, for example, Louise Young, *Japan's Total Empire: Manchuria and the Culture of Wartime Imperialism* (Berkeley, CA: University of California Press, 1998); Prasenjit Duara, *Sovereignty and Authenticity: Manchukuo and the East Asian Modern* (Lanham, MD: Rowman & Littlefield, 2003).

successful Western-style modernization campaign since the late nineteenth century. After World War I, however, the Japanese engineers realized the importance of science and technology "independent" from those of the West.[4] The rise of such nationalistic sentiment in various fields of technology among Japanese engineers served as an important background for the story of the "non-loaded cable" (NLC) that Yang discusses in great detail in Chapter 4. The NLC was a solution not only to the economic problem of increasing "demand on [Japan's] limited foreign reserves" (125), but also to the political and ideological need to display the superiority of Japanese technology over its Western counterparts. Furthermore, spreading NLC technology throughout Japan's sphere of influence in Asia served as an integral component in legitimizing the informal empire by displaying the superiority of "Japanese" technology. In short, the notion of the "Co-Prosperity Sphere" found material embodiment in the telecommunications technology NLC.

As the Japanese empire further expanded into China after 1937 and to Southeast Asia after 1940, governing the complex telecommunications network emerged as a central issue—which is the main topic of Part III ("Control, 1936-1945"). In order to be effective, the technological imperative of telecommunications required some level of standardization and centralized control by the MOC. As the MOC bureaucrat Matsumae Shigeyoshi argued, "Electricity travels at the same speed as light. Clearly…something that transmits at such a high speed must be handled as a single entity. As the most important issue for the construction of Greater East Asia at the hands of Japan, it is a matter of course that [all telecommunications companies] must be absorbed into the nerve system of Japan" (315). This imperative came into colorful conflict with the

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[4] Tetsu Hiroshige, *Kagaku no shakaishi: Kindai Nihon no kagaku taisei* [Social History of Science: The Scientific Structure of Modern Japan] (Tokyo: Chūō kōronsha, 1973), 84-106.

colonial agencies, especially the Government-General of Korea, which wished to claim autonomy and control over the infrastructure installed within the Korean peninsula. Various new institutional arrangements were made to ensure effective governance of the network, such as the International Telephone Company, North China Telegraph and Telephone Co., and Japan Telegraph and Telephone Construction Co., among others. Throughout the 1930s and early 1940s, MOC's vision was to create a "single corporation to manage all trunk cables and circuits in the empire" (314), which remained an elusive dream given the conflict of interests (with colonial agencies as well as the military) and organizational complexities associated with a unified entity. The result, by the late 1930s, was a patchwork of regional organizations, each controlling their spheres of influence within the growing Japanese empire. Just as this empire expanded in a haphazard manner with no master blueprint, the telecommunications network also developed in an ad-hoc fashion.

How this diversified governance structure for the imperial telecommunications network fared during and after the final showdown of the Pacific War is the topic of Part IV ("Network, 1939-1945"). That total war would seriously disrupt the fragile technological system was perhaps not difficult to expect. Indeed, by late 1943, telecommunications within the Japanese empire slowed down substantially due to "severe congestion problems" (367)—eventually leading to a "nervous breakdown" and, by war's end, a complete "meltdown" of the system. However, the total failure of the telecommunications network in the final stages of the war did not necessarily mean that it left no postwar legacies. A large part of the remaining infrastructure, institutional models for system governance, and trained technical and bureaucratic personnel was carried over into postwar Japan and set the stage for its postwar recovery. For example, the MTT served as a useful model of a public corporation when the General Headquarters of the Supreme Commander of Allied Powers planned for the Japan Telegraph and Telephone Public Corporation in 1952. Perhaps more significantly for Japan's former

colonies (both formal and informal), the telecommunications network of the failed empire was revived to a great extent during the postwar years, a process in which Japanese engineers played important roles in China and Southeast Asia. As Yang points out, "the total defeat and disintegration of the empire did not wipe the slate of Japan's techno-imperialism clean" (397).

As *Technology of Empire* makes clear, the story of Japan's telecommunications network during the age of empire is not just about the cables and electrons passing through them. In a real sense, tracing how the communication function was achieved, maintained, and ultimately failed is to examine the emergence and downfall of the Japanese empire. On the one hand, the network was a tool of imperial expansion; on the other hand, it also provided political and ideological legitimacy for the Japanese expansion. In this sense, the telecommunications network was both a tool and ideology of the Japanese empire—the language of "techno-imperialism" is intended to make this point (400). The book convincingly shows that a close examination of technological infrastructure, its operation, and its surrounding rhetoric can reveal much about the political history of empire. This should be seen as the main contribution of Yang's work.

This hefty volume, in all of its 446 pages, covers a diverse array of topics, from technical details and bureaucratic infighting to institutional innovations and the role of telecommunications in modern warfare. As such, the book will have something to offer for a broad set of audiences. Those in the fields of history of science and technology (especially communications technology), Japanese history (both imperial and postwar), and history of war immediately come to mind. Those with some background knowledge in the conventional history of the Japanese empire would surely be able to appreciate how the story could be told from the unique perspective of the telecommunications network. Historians of modern Korea will realize that colonial Korea played a pivotal role in the development of the telecommunications network in

imperial Japan. Also, this book will be beneficial to readers interested in the methodological issues of transnational or global history, an approach that has been in vogue among professional historians for some time. The manner in which Yang exhaustively covers primary and secondary sources for a full scope of the Japanese empire over an extended chronology is truly something to be admired.

A final word for scholars who aim to use this book as a springboard for further investigation: *Technology of Empire* potentially sets the stage for future works on the history of technical infrastructure in Taiwan, Korea, China, and Southeast Asia, and how the legacies of formal and informal colonies were felt in the postcolonial era. Yang touches upon these issues in his final chapter (Chapter 10), but more detailed research would certainly be required to gain an estimation of the full extent of their ramifications—both good and bad. Korean readers may be particularly interested in the subtle imprint that the Japanese empire left in post-liberation Korea in the field of telecommunications.[5] Korean scholars may be quick to dismiss the Japanese influence by pointing to the Korean War that leveled most of what existed before 1950. However, technical infrastructure—be it telecommunications cables, electrical systems, transportation infrastructure (roads, bridges, tunnels), or water and sewage systems—are especially well known for their obduracy. For example, the extensive experience civil engineers and technicians had with hydroelectric dams during the colonial period influenced the preference of postcolonial South Korean engineers for dams over the thermoelectric alternative.[6] Also, it is worth noting that the Internet trunk

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[5] Korean readers may be interested in reading Yang's chapter in a book that focuses on colonial Korea. See Daqing Yang, "Colonial Korea in Japan's Imperial Telecommunications Network," in *Colonial Modernity in Korea*, ed. Gi-Wook Shin and Michael Robinson (Cambridge, MA: Harvard University Asia Center, 1999), 161-190.

[6] Aaron Stephen Moore, "The Yalu River Era of Developing Asia: Japanese Expertise, Colonial Power, and the Construction of Sup'ung Dam," *The Journal of Asian Studies* 72, no. 1 (2013): 115-139.

line between South Korea and Japan still runs through the very spot in Pusan that once crossed the Korean Strait in 1883 via a submarine cable.[7] Thus, paying closer attention to the continuities and discontinuities of technological infrastructures through the colonial and postcolonial periods in Korean history may lead to a true understanding of the transnational history of the environment we live in and largely take for granted. The reviewer hopes that Yang's book will stimulate further investigations in this direction by Korean scholars.

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[7] For the readers' amusement, a global map of submarine (Internet) cables is readily available on the web. See http://www.submarinecablemap.com/ to browse the location of the Korea-Japan Cable Network.