

CHAPTER 9

Systemic Integration

The belief in the connection between communications and imperial unity is not new. Charles Bright, a British electrical engineer at the end of the nineteenth century, was acutely aware of the great distance that lay between Britain and its overseas colonies. His solution was an imperial telegraphic network. "Being a highly individualistic people both by temperament and by tradition," Bright reasoned, "we have, unfortunately, no *bushido* here to fall back upon."¹ Bright's observation was typical of many of his contemporaries in the West who believed that Japanese society was tightly knit thanks to its traditional values. Thus, to Bright, the modern technology of instant communications was the only effective way to compensate for the lack of a collective ethos on the part of the individualistic Anglo-Saxons.

Nearly four decades later, as Japan launched its own imperial telecommunications network in Asia, few Japanese would take comfort in the naturally endowed traits commonly attributed to their society. To meet the needs of an imperium extending over a vast area in East Asia, Japan created the largest physical network spanning the region. By the end of the 1930s, Japan had added numerous cable and wireless links to telecommunications facilities under its control in Japan, Manchukuo, occupied China, and the South Sea islands. In the meantime, this rapidly expanding imperial communications system, like the imperium itself, became increasingly complex in terms of internal structure. In real life, complexity is not simply a function of multiplication of links; nor was the problem confined to technology. It was largely organizational

1. Bright, *Imperial Telegraphic Communication*, 99.

and political, since telecommunications service continued to operate under separate chains of command in Japan's home islands, its colonies of Korea and Taiwan, and Manchukuo and China. As we saw in Chapter 7, even in the same area, such as Manchukuo, facilities for serving the public, military, police, and railway were often managed by different agencies. As advocates of integrated operations repeatedly warned, this situation threatened to undermine the effectiveness of the entire imperial telecommunications network.

The solution seemed obvious: if multiple agencies created greater risk of conflict and miscommunication, better organization and coordination thus became the key to establishing greater control. As one MOC official aptly put it, "To fully realize the potential of telecommunications, it is necessary not only to have facilities that embody superior technology but also to create an equally superior communications system to regulate the use of communications."² The creation of the ITC in 1938 and its subsequent reorganization (Chapter 6) represented a major step in that direction, but it stopped short of unifying all telecommunications in East Asia. Since it was charged primarily with construction and maintenance of facilities for interregional communications, business operations (*gyōmu*) involving interregional traffic continued to be decentralized. Integrating separate Japanese-controlled telecommunications operations throughout East Asia into a cohesive single system, or an "East Asian telecommunications bloc" as it was sometimes called, remained one of the greatest challenges for the Japanese.

ORGANIZING THE IMPERIAL NETWORK

The East Asian Telecommunications Conference

As Japan began to extend its telecommunications network into its newly controlled territories after 1931—first Manchuria, then China, and later Southeast Asia—organizational complexity as much as distance became an increasingly obvious problem. Following the example of coordination for military transportation by railway between Manchuria

2. Mokuji Fujizō, "Daitōa denwa tsūshinken no kakudai," *TDTZ* 3 (March 1943): 14.

and Korea, the Kwantung Army proposed in 1934 to convene a similar meeting in Manchukuo to coordinate communications matters between Manchukuo, Korea, and Japan proper. The MOC's response was predictably cool; it suggested consultation among the MOC and other proper authorities before deciding whether such a meeting was necessary.³ From Tokyo's perspective, devolution of authority was as worrisome as disruption of communication.

For those who were actually operating telecommunications in Japan's empire, lack of coordination among different operators had serious consequences. The NCTT discovered this problem the hard way. As Japan's long-distance NLC to Manchukuo neared completion, the NCTT proposed extending the cable to North China so as to open direct telephone service with Japan. In its ambitious five-year business plan, the NCTT was to build telecommunications cables connecting Tianjin, the largest commercial city in North China, with Shanhaiguan, an important city on the border with Manchukuo, in anticipation that the MTT would extend its own cable to the same location to form a critical interregional link. In this way, the two regional telecommunications systems would be connected with secure and powerful cables. After completing the first phase of construction, the NCTT was understandably proud of its own contribution to the cause of "advancing the frontier of East Asian telecommunications." However, the NCTT discovered that the MTT's priorities had shifted toward development of northern Manchuria in response to demands from the Kwantung Army. Lack of coordination left the NCTT's grand design only partially fulfilled.⁴

The NCTT attempted to salvage the situation but soon encountered a different problem, even after the cable construction was completed. As NCTT officials discovered, agreeing on a formula for tariff and payment allocations among several telecommunications operators was no easy task. At the end of 1939, the NCTT entered into discussions with both the MTT and the MOC for leasing one circuit on the Japan-Korea-Manchukuo long-distance cable. The MTT agreed to lease a circuit but demanded a hefty fee—over 6,000 yen per month—to compensate for its loss of revenue on the circuit. By the NCTT's calculation,

3. "Man-Sen-Naichi kan no tsūshin tōsei kaigi no ken" (February 1934), Riku Man Dainikki 1934-3/32, Imperial Japanese Army and Navy Archives (1868-1945).

4. Hokudenkai, *Kaboku den den jigō shi*, 91.

some 670 units of telephone calls per day—an impossible target—would be needed to generate enough income simply to pay the MTT's fee under this arrangement. This made the leasing arrangement “ridiculous,” as one disappointed NCTT executive put it. Stressing the public utility nature of this interregional connection, the NCTT's president, who had been an MTT director, asked the MTT to reconsider, but with little success. The MOC, while sympathetic to the NCTT, added a condition that further complicated the problem: it demanded that the tariff for calls over the proposed North China–Tokyo telephone circuit be equal to the MOC's rate for Shanghai–Tokyo calls. Although it made sense for the MOC to standardize all telephone rates between China and Japan, at 7.50 yen, the rate was too low for the NCTT to meet its operating costs. As a result, even after all cable connections had been tested and found in working order, interregional service was delayed due to disagreement over the rate. The negotiations dragged on for several months before the three parties finally ironed out their differences.⁵ Instead of such ad hoc negotiations, something more regular and permanent was apparently needed.

Not surprisingly, Watanabe Otojirō, the energetic ex-MOC official who headed business operations for the NCTT in Beijing, became an early advocate of an interregional telecommunications forum. To cope with the new developments in East Asia, Watanabe noted, Japanese business groups were already calling for greater organizational integration in the region. For instance, the heads of Japan's chambers of commerce in Osaka, Kobe, Keijō, Dalian, Tianjin, and Qingdao were discussing a pan–Yellow Sea economic federation. In early 1939, Watanabe proposed to convene a regional coordination conference at which representatives from telecommunications companies in Manchukuo, China, and Mongolia would discuss common principles for a Japan–Manchukuo–China communications network as well as joint efforts to build it. According to his proposal, the four regional operators on the continent—the NCTT, CCTC, MTT, and MTFC—would meet twice a year to discuss their annual operation plans as well as to make arrangements to facilitate interregional communications. As Japan gradually consolidated its control on the Asian continent, Watanabe argued, there

5. NCTT, Eigyōbu, Gyōmuka, “Ka-Nichi tsūwa no kaitsū ni itaru made” (July 1939), NCTT Records 2028/1493.

was a need for telecommunications operators there to formulate a common position based on their shared circumstances and common interests vis-à-vis Japan's East Asian communications policy; in the meantime, they also needed to resolve their conflicting interests through mutual coordination and deeper understanding. An ex-MOC official himself, Watanabe did not leave the MOC completely in the dark. In sending his proposal to Tokyo, Watanabe invited the MOC to send an observer to the first meeting, which was to be convened shortly in Beijing.⁶

After some discussion within the ministry, Tamura Kenjirō, director of the MOC's Telecommunications Bureau, responded to Watanabe's invitation by emphasizing that “the relationship among Japan, Manchukuo, and China in communications requires an inseparable, unified system.” To strengthen the East Asian communications bloc, Tamura suggested, it was imperative to set up “an East Asian communications forum consisting of *all* concerned agencies [in these countries].” In other words, important issues about telecommunications on the continent should be discussed not only among the newly established companies there but also with concerned parties in Japan and elsewhere. The “continental forum” proposed by the NCTT, Tamura pointed out, appeared to conflict with such a goal by marginalizing Japan. But since preparations were already under way, the MOC would allow a one-time-only gathering for the sole purpose of “creating an atmosphere for the future East Asian communications forum.”⁷ In addition to such lukewarm response from Tokyo, Watanabe found that support from telecommunications operators in Manchukuo was not forthcoming.⁸ In the end, the NCTT abandoned the proposed forum altogether.

The MOC's objection to Watanabe's proposal was understandable because it had its own plans for such a forum. As the MOC began planning the East Asian telecommunications network, systemic coordination assumed greater urgency. Always considering itself the center of

6. “Man-Ka-Mō tsūshin renraku kaigi an” (1939), appended to NCTT Head of Business Department (Watanabe) to MOC Directors of Telecommunications and Engineering (March 11, 1939), MOC Records I, 200.

7. Tamura to Watanabe (March 39, 1939), MOC Records I, 200.

8. MTT Director of Telecommunications to NCTT Director of Operations (April 8, 1939), NCTT Records 2028(2)/49.

the East Asian telecommunications network, the MOC in Tokyo was not pleased with local initiatives that seemed to undermine its role in empirewide telecommunications matters. As we have seen, the MOC had tried to influence the new telecommunications operators in Manchukuo and China. Although its explicit concern was China, the MOC's Committee on Administration of Communications in China was a major organizational step toward coordinating communications policies throughout the empire.⁹ In an internal memo dated June 1938, the MOC went a step further and proposed an "East Asian telecommunications conference under MOC guidance" to "secure cooperation from other concerned agencies to carry out the East Asian communications policies adopted by the MOC."¹⁰ To underscore the importance of its leadership, the MOC noted Britain's leading role in the European bloc and America's influence at international conferences and in the formation of a pan-American bloc. To realize Japan's communications policy toward the East Asian region, including Manchukuo, North China, and Central China, the MOC argued, Japan should establish a permanent council on East Asian communications and serve as its leader in order to "maintain inseparable connections with countries on the continent and to form an Asian bloc occupying one third of the world."¹¹

Under MOC auspices, the East Asian Telecommunications Conference finally met for the first time in Tokyo in late November 1939. In addition to MOC officials, there were representatives from Japanese government agencies in the colonies and in the mandate territories, as well as from the "joint venture" telecommunications companies in Manchukuo and occupied areas in China. Representatives from facilities companies, such as the JTCC and the ITC, were also present, as were broadcasting operators from Japan and its colonies, for consultations on technical matters. Despite its claim to be an East Asian gathering, almost all the delegates were Japanese, a phenomenon that sparked mixed reactions even among the attendees. Some delegates

9. Kubo Odō, "Tai-Shi teishin gyōsei shori no shin kikō," *TKZ* 354 (February 1938): 2-4.

10. "Hokushi oyobi Chūshi ni okeru tsūshin kaisha ni taisuru tōsei yōryō" (draft, June 1, 1938), MOC Records I, 264.

11. "Tōa ni okeru denki tsūshin kaigi jochi ni kansuru ken" (n.d.), MOC Records I, 200.

welcomed this as an unmistakable sign of Japan's unchallenged strength; others felt that Japan's mission in Asia would be better served by the inclusion of some non-Japanese delegates. This can be seen as an early indication of the lack of agreement over the definition of the East Asian community.¹²

There seemed to be ready agreement, however, on the mission of the meeting. Participants signed a prospectus (*shūisho*) that declared:

Responding to the new situations in East Asia, it is of utmost urgency at this moment to strengthen business and technical ties in telecommunications between Japan, Manchukuo, and China, and to fulfill most thoroughly its comprehensive functions, in order to fully accomplish telecommunications' mission in building the East Asian New Order. It is essential to set up an appropriate agency of liaison and consultation and to maintain mutual organic ties among telecommunications operators in Japan, Manchukuo, and China.¹³

An annual East Asian Telecommunications Conference, with the explicit purpose of promoting coordination among all telecommunications operators in areas under Japanese control, hence would become the main vehicle for ensuring the smooth operation of a single telecommunications system in East Asia. Membership in the conference eventually included four types of participants: (1) the MOC and other Japanese government agencies in charge of telecommunications matters; (2) telecommunications companies from Manchukuo and China; (3) the ITC and JTCC, which were involved in facilities construction and maintenance in the empire; and (4) the NHK and other agencies in charge of broadcasting in the colonies and China. Not all of them had an equal presence. Judging from the number of proposals put forward by the participating entities, the MOC was predominant, with nearly one third of all proposals. The MTT, the oldest national policy company in imperial telecommunications, came next; but its two regional cousins in China, the NCTT and CCTC were also active, as was the ITC (see Table 12).

12. "Tōa ni okeru denki tsūshin kaigi jochi ni kansuru ken" (n.d.), MOC Records I, 200.

13. "Tōa denki tsūshin kyōgikai shūisho," in Tōa denki tsūshin jimukyoku, *Tōa denki tsūshin kyōgikai dai-1-kai kaigi gijyōku*, appendix, 1.

Table 12
Participants and Proposals at the
East Asian Telecommunications Conferences, 1939–43

Participants	Total proposals
Ministry of Communications (MOC)	64
Manchurian Telegraph and Telephone Co. (MTT)	38
North China Telegraph and Telephone Co. (NCTT)	20
International Telecommunications Co. (ITC)	17
Central China Telecommunications Co. (CCTC)	15
Korea Government-General (GGK) Communications Bureau	12
Inner Mongolia Telecommunications Facility Co. (IMTFC)	10
Japan Telegraph and Telephone Construction Co. (JTCC)	7
Inner Mongolia Postal and Telecommunications Administration	6
Korea Broadcasting Society	5
Taiwan Government-General (GGT) Communications Bureau	3
Japanese Broadcasting Corporation (NHK)	3
South Seas (Nan'yō) Agency	2
China Broadcasting Corporation	2
Karafuto Communications Bureau	0
Taiwan Broadcasting Corporation	0
North China Broadcasting Corporation	0

SOURCE: Tōa denki tsūshin jimukyoku, *Tōa denki tsūshin kyōgikai kaigi gijiroku* (various years).

The East Asian Communication Bloc in Action

Early indications suggested considerable progress with the organization. Beginning with the second conference in 1940, for instance, the MOC initiated annual consultation among participants concerning their proposed expansion of connecting circuits. In order to ensure smooth communications within Japan's newly expanded sphere of influence, conference participants drafted an "East Asian Telecommunications Agreement" in late 1940. An elaborate document containing 49 articles, the agreement dealt with matters ranging from the composition and operation of both cable and wireless communications circuits to tariff setting and tariff payments. It also included measures for rerouting traffic in case of interruptions in service due to accidents. The agreement was supposed to replace all existing bilateral agreements among its members, including the broadcasting associations and facilities companies. A permanent secretariat was set up in Tokyo; its expenses were

to be shared by all members. The secretariat was charged with coordinating correspondence and publishing a journal devoted to East Asian telecommunications. It was also responsible for organizing general assemblies for future revisions of the agreement.¹⁴

A significant, if somewhat symbolic, development was the designation of a new category of telecommunication traffic in the 1940 agreement. All telephone and telegraph exchanges among the participating operators in East Asia would henceforth be called "East Asian communication" (*Tōa tsūshin*), as distinct from "international communication" (*kokusai tsūshin*), which would refer only to communication between signatories of the agreement and countries outside the East Asia region. In other words, in terms of telecommunication, East Asia was to become a distinctive region separate from the rest of the world. The official scripts for all telegrams were Japanese *katakana* as well as the Latin-Arabic alphabet; this allowed both Chinese- and European-language telegrams to continue to be sent under separate designation codes. All payments for East Asian communication—both telegrams and telephone calls—were to be calculated in Japanese currency.¹⁵

Signed on January 22, 1941, the East Asian Telecommunications Agreement was a major step toward realizing Japan's plan to create an independent telecommunications network in East Asia. Although initially the agreement existed only on paper and its terms were deliberately vague, it marked the beginning of a separate sphere of telecommunications in East Asia under Japanese control. More than simply a forum devoted to free discussion and exchange of views, the agreement would have binding authority over its signatories, except in those matters requiring the approval of supervising governmental agencies in each area.¹⁶ At the special meeting convened for signing the agreement, Minister of Communications Murata Shōzō spoke of the "world-historic" changes

14. Tōa denki tsūshin jimukyoku, *Tōa denki tsūshin kyōgikai dai-2-kai kaigi gijiroku* (1940).

15. "Tōa denki tsūshin ni kansuru gyōmu kyōtei," signed on January 22, 1941. However, as an internal MOC opinion memo indicated later, Chinese-language telegrams became an independent category out of consideration for China's "appearance." See Gyōmuka, Denshin-kakari, "Tōa denki tsūshin ni kansuru gyōmu kyōtei kaisei iken," MOC Records I-319.

16. Watanabe Otojirō, "Tōa denki tsūshin kyōgikai to Tōa denki tsūshin gyōmu kyōtei to no hikaku" (September 1942), MOC Records I-309.

taking place in Europe and Asia. To establish the Greater East Asia Co-Prosperity Sphere, Murata pointed out, Japan, China, and Manchukuo must cooperate closely in order to form a strong community (*kyōdōtai*), which would, in turn, become the core of the Co-Prosperity Sphere and driving force behind it. As a basic instrument for political, economic, and cultural contacts between Japan, Manchukuo, and China, Murata reiterated, telecommunications in East Asia must be further strengthened.¹⁷ In early 1941, the members also adopted a set of East Asian Telegraph and Telephone Regulations, in which they pledged to cooperate in telecommunications operational matters such as improving the business system and technology, as well as network consolidation.¹⁸

Apart from the practical need for coordination among telecommunications operators in areas under Japan's control, there was an ideological dimension to this emerging regional system in East Asia. In short, Japan was attempting to create an alternative to the International Telecommunications Union (ITU), which had been founded in Madrid in 1932 through the merger of the International Telegraphic Union and the International Radio Conference. As one MOC memo argued, since the ITU was created for the convenience of communications by Western countries, its regulations were intended to meet the communication needs of Western countries. As a latecomer, Japan had adopted Western methods at the dawn of its international communications, and it had to abide by ITU regulations. At present, with all the great changes taking place in East Asia and with Japan becoming the leading country in the region, the MOC memo pointed out, it "goes without saying that Japan must establish a new telecommunications union as well as regulations, with an emphasis on the convenience of international telecommunications among East Asian countries."¹⁹

As the annual meeting became regularized and its scope broadened, many participants called for turning the forum into a more permanent organization along the lines of the ITU. The MOC also saw the need for a more formal East Asian telecommunications union, on a par with

17. Teishinshō denmukyoku, *Tōa denki tsūshin ni kansuru gyōmu kyōtei teiketsu kaigi gijiroku* (January 1941), 3.

18. Denmukyoku, Gaishinka, "Tōa denshin denwa kisoku no seitei," TKZ 392 (April 1941): 100–111.

19. MOC, "Tōa denki tsūshin seisaku" (n.d.). I thank Professor Hikita Yasuyuki for making a copy available to me.

regional organizations elsewhere. In an internal document written in 1940, the MOC outlined three main reasons for the formation of such a union:

1. From an operational point of view, the fact that the majority of telegrams in East Asia are written either in Japanese *kana* or in Chinese ideographs calls for a special East Asian regional telegram system. Moreover, both long-distance telephones and allocation of the wireless spectrum call for regional arrangements similar to those existing in Europe but separate from the general international agreements.
2. Technically, a research organ made up of specialists is needed to study and promote standardization of telecommunications equipment, as is a consultative body of experts to unify maintenance and operation in the region.
3. From the perspective of international politics, solidarity of telecommunications operators in East Asia is necessary to drive out well-entrenched third-country interests as well as to defend "East Asian interests" at international conferences.²⁰

The outbreak of the Pacific War drastically changed the scope and orientation of Japan's external telecommunications. On December 8, 1941, eleven of its international circuits signed off. Altogether, 21 of Japan's international communications links with foreign countries ceased to operate (thirteen wireless telegraph, three submarine telegraph, two phototelegraphy, and three wireless telephone) within a few weeks. Japan's international communications partners now consisted of its two allies in Europe—Germany and Italy—as well as neutral countries such as the Soviet Union, Sweden, and Switzerland. In Latin America, after links with Mexico and Brazil stopped in early 1942, Japan could communicate only with Argentina, Peru, and Chile. For intelligence and propaganda purposes, the Japanese government managed to open new direct routes to Lisbon, Hanoi, Vichy France, Turkey, and Spain.²¹ In terms of the sheer number of destinations, the onset of war in Decem-

20. Teishinshō, "Tōa denki tsūshin rengō no kessei o hitsuyō to suru riyū" (1940), MOC Records I, 310.

21. Denmukyoku, Gaishinka, "Daitōa sensō boppatsu go no taigai denshin renraku," TKZ 405 (May 1942): 37–41. Interestingly, the wireless contact between Tokyo and RCA's station in San Francisco continued to operate until December 13, 1941, six days after the attack on Pearl Harbor. The MOC attributed this delay in cutoff to inertia on both sides and cited the presence of many Japanese citizens in the United States as an additional factor.

ber 1941 thus isolated Japan from the world outside East Asia to an extent unknown since the beginning of its international communications.

While losing many communications links with Europe and the United States, Japan gained quite a few in Asia. Above all, it was now in control of a communications network of unprecedented scale in Asia. When communications links with Southeast Asia were gradually restored and operated by the Japanese, Japanese-language telegrams could reach nearly all parts of East and Southeast Asia for the first time. In terms of sheer space, the coverage of Japanese-language telegrams had reached its peak. The presence of "purely Japanese-style telegrams" in all parts of East Asia, as MOC officials put it, was "a landmark historic event" for East Asian telecommunications.²² In June 1942, half a year into the Pacific War, the signatories of the East Asian Telecommunications Agreement met in Tokyo to adjust to the new geopolitical conditions as well as to simplify procedures. Seeing new opportunities on the horizon, Watanabe Otojirō of the NCTT made a series of proposals calling for a "thoroughly new concept of the international telegram."²³

The outbreak of the Pacific War not only expanded Japan's sphere of telecommunications operations in Asia but also created new needs and organizational challenges. Unlike Manchukuo and occupied areas in China, the Southern Region was under direct military occupation; this created yet another type of telecommunications operation. The MOC had far fewer resources in Southeast Asia than in other areas of the Co-Prosperity Sphere, and the military exercised direct control over telecommunications matters there. Unlike the "national policy companies" operating in Manchukuo or in occupied areas in China, a company like the ITC was reduced to a "robot," as its employees recalled later, that simply took orders from the Japanese military authorities in charge of the occupation.²⁴ Moreover, Japan's operations in Southeast Asia experienced problems similar to those encountered elsewhere, such as lack of coordination between local military authorities and Tokyo and rivalry between the military services (see Chapter 8).

22. Denmukyoku, Gaishinka, "Tai-Nanpō denki tsūshin no gendankai," TKZ 414 (February 1943): 61.

23. Teishinshō denmukyoku, *Tōa denki tsūshin gyōmu kyōtei dai-2-kai kaigi yobi kaigi gijiroku* (June 1942), 35–36.

24. KDTKKS, 53–55.

In the meantime, developments in Europe provided another impetus for further organizational integration. In September 1942, the German minister of communications notified the Japanese government of Germany's plan to convene a European Postal Union conference in Vienna in October 1942. MOC officials noted with satisfaction that Germany had expressed much interest in the formation of a Greater East Asian telecommunications sphere and indicated a desire to build a "new world order" on the basis of partnership with Japan. Taking a clue from this, Nakamura Jun'ichi, MOC director of telecommunications, urged that Japan should not be left behind by its ally in Europe. The time had come, he reasoned, for Japan to finally launch a Greater East Asian telecommunications union, comparable to the new bloc emerging in Europe under German aegis and equal to the ITU under the control of Britain and the United States. Indeed, as Nakamura saw it, a Greater East Asian telecommunications "co-prosperity sphere" had already emerged, in that all members of the telecommunications conference were being treated equally and the operating costs of the secretariat were shared by all.²⁵ To further promote solidarity among the employees of the various companies and government agencies and to improve operational skills, the telecommunications conference sponsored the First East Asian Telecommunications Skills Contest in September 1942. Held in the Manchukuo capital Shinkyō, a total of 73 telegraph operators representing thirteen entities in different parts of the imperium competed in twelve fields such as typing and transcribing telegrams.²⁶

In October 1943, when the annual East Asian telecommunications conference met in Tokyo for the fifth time, it was renamed the First Greater East Asian Telecommunications Conference, a somewhat belated acknowledgment of the newly expanded imperium. In addition to signatories of the earlier agreement, the Cabinet Planning Board as well as Army and Navy officers were present as observers. The Japanese had invited a high-ranking official of the Thai Ministry of Communications to attend, but Bangkok shrewdly declined the invitation on the

25. Tōa denki tsūshin jimukyoku, *Tōa denki tsūshin kyōgikai dai-4-kai kaigi gijiroku*, 156–58. See also the handwritten comments at the end of a MOC document, "Tōa denki tsūshin kaigi kiyaku oyobi Tōa denki tsūshin gyōmu kyōtei teiketsu ni kansuru ken" (October 6, 1943), MOC Records II-591.

26. Nagatani Etsurō, "Tōa denki tsūshin kyōgi daikai," TKZ 411 (November 1942): 56–59.

ground that "too many agencies are consulted." As a result, several Thai government technicians who happened to be in Tokyo on official business attended instead. The Japanese had better luck with French Indochina; a French official was flown to the conference on a Japanese military airplane.²⁷ In appearance, at least, organizational evolution was complete, with the inauguration of a Greater East Asian Telecommunications Bloc.

The East Asian telecommunications network can be seen as an extension of Japan's earlier experience with system-building in the empire when its transportation links grew beyond the home islands. Beginning in 1924, the Japanese held annual meetings to coordinate railway transportation between Japan, Korea, and Japanese-operated railways in Manchuria. By the late 1930s, as both railway and shipping routes operated by Japan greatly expanded, the Japanese also sought to coordinate all modes of transportation within East Asia. By 1940, the Japan-Manchukuo-China Consultative Committee on Transportation had developed into an impressive umbrella organization. Headed by Japan's Railway Ministry, it included the colonial governments of Taiwan and Korea, three railway companies, five shipping companies, and three aviation companies.²⁸ Moreover, the formation of the East Asian telecommunications bloc paralleled other concurrent schemes for constructing imperial networks in the imperium. One of the most important was an East Asian broadcasting network, also known as the East Asia Radio Corporation Chain. Through similar conferences and agreements, radio operators made arrangements to exchange broadcast programs and relay the so-called East Asian Broadcasting from Tokyo. It operated largely by wireless facilities throughout the imperium and hence was closely tied to the electrical communications network that used both wireless and cables.²⁹ These various imperial networks in East Asia represented Japan's effort to better integrate the imperium. In other words, the Japanese imperium in East Asia after the late 1930s had indeed become truly an empire of networks.

27. "Daitōa denki tsūshin kaigi kankei ikken: jinji kankei," in JMFA Archives.

28. For a list of participants, see Nichi-Man-Shi kōtsū kondankai dai-ichi chōsakai jimukyoku, comp., *Tōa kyōeiken nai kōtsuryō tōkei (1936-1940)* (Tokyo, 1942).

29. For a comprehensive study of Japan's wartime overseas broadcasting, see Kitayama Setsurō, *Rajio Tōkyō*. The East Asian broadcasting network is briefly discussed in English in Namikawa Ryō, "Japanese Overseas Broadcasting."

TECHNICAL AND OPERATIONAL CHALLENGES

Setting up organizational structures was only the first step in building a fully functioning system. From the beginning, as the records of the annual East Asian Telecommunications Conference make clear, the Japanese viewed their task as essentially two-dimensional—requiring both technical and business (*gyōmu*) network-building. Accordingly, the MOC structured the conferences into two separate section meetings (*bukai*): a Business Section and a Technical Section. In this way, the conferences also mirrored the division of labor in the MOC itself. But because many issues required the skills of both technical and administrative experts, a Joint Business and Technical Section was soon added to address them.

Coordinating Technologies

The East Asian Telecommunications Conference tackled a wide range of technical matters. At the second conference, in 1940, Shinohara Noboru, head of the MOC's Investigation Section, outlined six technical areas that were of particular relevance to building an East Asian long-distance network: (1) toll-phone dialing systems, (2) relay and exchange in long-distance lines, (3) standards for testing the coordination of circuits, (4) transmission of standard frequencies, (5) aviation wireless, and (6) wireless phototelegraphy.³⁰ Accordingly, the Technical Section was divided into seven subcommittees, responsible for investigation, lines, mechanics, transmission, wireless, architecture, and coordination, respectively. Altogether, they reflected particular concerns with standardization of telecommunications equipment and maintenance, cooperation in developing technical solutions, and the perennial problem of wireless frequencies.

One of the major tasks facing the East Asian Telecommunications Conference was standardizing telecommunications equipment and technical practices throughout the whole system. Many different types of equipment and practices existed in different areas, and sometimes even within the same area, creating enormous complexity. Moreover, the

30. Tōa denki tsūshin jimukyoku, *Tōa denki tsūshin kyōgikai dai-2-kai kaigi gijiroku*, 145.

increasingly widespread shortage of spare parts necessitated an exchange system among the various operators. Setting technical standards, as Shinohara put it, constituted the third and final stage of technological development, following research and implementation. At the second conference, Shinohara, who had collaborated closely with Matsumae Shigeyoshi in development of the NLC, took special care to propose a uniform technical standard of NLC transmission, to be used in all trunk cables in East Asia.³¹ To keep communications facilities in working order, a maintenance conference devoted primarily to the Japan-Manchukuo cable was set up at the third conference.³² In March 1940, operators adopted "Basic Guidelines Concerning the Establishment of Telecommunications and Technical Standards of Construction and Maintenance in China." The purpose was threefold: (1) to facilitate technological control of construction and maintenance of telecommunications in East Asia; (2) to save material and reduce imports from outside the yen bloc; and (3) to take into consideration the special circumstances in China.³³ Considerable attention was paid to measures to cope with interruptions in trunk circuits, as well as other emergencies.

As the ITC gradually assumed responsibility for much of the construction and maintenance of trunk routes in East Asia, it offered a solution to some of the problems. However, other technical problems continued to consume the attention of conference participants. Of all the technical problems, wireless frequencies were by far the most complex and most urgent.

Allocation of the wireless spectrum was not new or unique to Japan. The relatively low cost and ease with which wireless communication facilities could be set up, compared to cable operations, created their own problems, as did the fact that wireless was carried through open space and extremely vulnerable to interference. Since the 1910s, there had been two separate systems of wireless communications in Japan: the civilian wireless under the control of MOC and various military wireless communications used by the Army and Navy. To deal with the interna-

31. Ibid., 146-47.

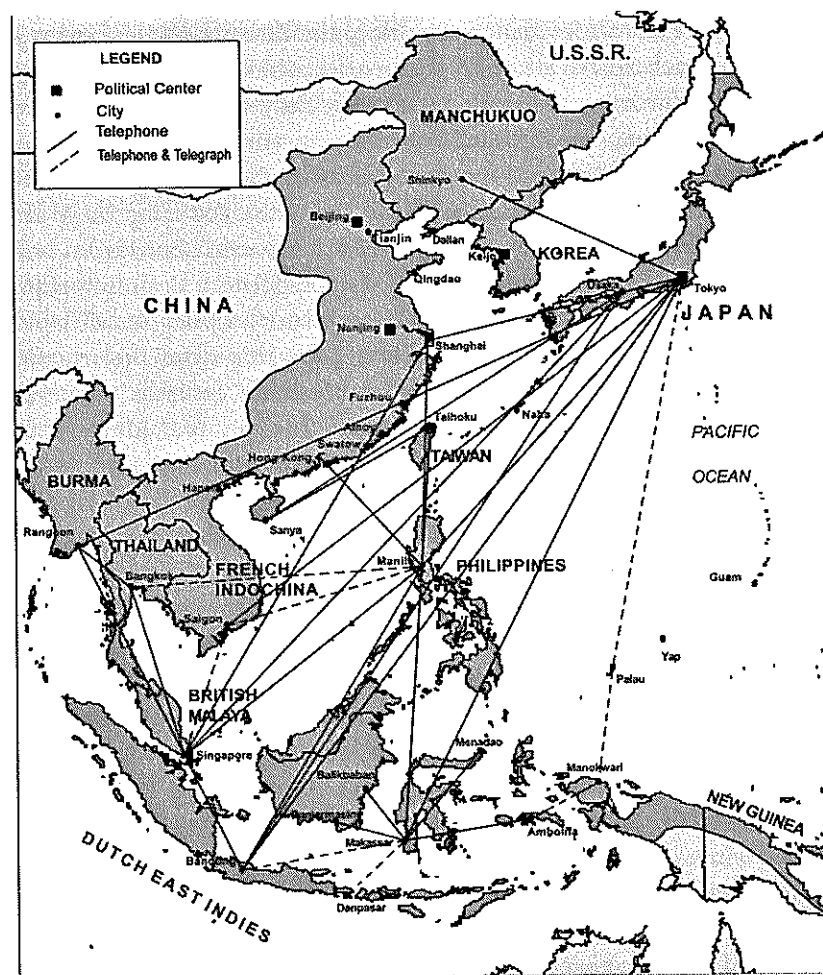
32. Ibid., 175-78.

33. "Shina ni okeru denki tsūshin yo kiki no kikaku settei yōkō" (February 12, 1940); "Shina ni okeru denki tsūshin hōshiki aruiwa kensetsu, hoshu no gijutsu hōshiki nado no settei ni kansuru kihon yōkō" (March 15, 1940), NHK Records.

tional conference on frequency allocation, the three ministries set up a meeting in 1921 to allocate radio frequencies within Japan. As wireless use in Japan became more widespread, especially after the start of the radio broadcasting, the issue of coordination and regulation became more important. In 1929, the meeting became the permanent Three-Ministry Frequency Regulation Council. After the founding of Manchukuo, the need to coordinate frequency use between Manchukuo and Japan led to a Japan-Manchukuo Frequency Regulatory Forum in 1936. Although the idea of setting up a single regulatory agency for all Japanese wireless operations in East Asia was discussed, it came to naught. After 1939, wireless frequency allocation became a constant theme at the annual East Asian Telecommunications Conference.³⁴ Almost half of the 25 proposals submitted to the Technical Section at the 1941 conference, for instance, concerned the problem of wireless.

By then, much of Japan's telecommunications traffic within the Co-Prosperity Sphere had come to rely on wireless, the official emphasis given to long-distance cable communications in the imperium notwithstanding. As Japan expanded its wireless communication routes, the need to coordinate the use of radio frequencies became a great concern. This became even more pronounced after the outbreak of the Pacific War because Japan's communication with the Southern Region was carried almost entirely by wireless facilities (see Map 5). In addition, newly expanded broadcasting programs, using many of the same facilities as wireless telegraphy and telephony, compounded the problem. Differences in equipment, electrical currents, order and protocol, and especially the huge number of frequencies used throughout Japanese-controlled areas in East Asia meant nothing short of chaos in wireless communications. Poor coordination made the situation worse, as even a relatively minor problem could cause a blackout of crucial communications. For example, between 14:20 on September 16 and 9:00 on September 19, 1942, the wireless connection between Tianjin and Shanghai was shut down for a total of 48 hours. As a result, some 1,400 telegrams were delayed, for the first time since the founding of the NCTT. Only after the company dispatched an employee to Shanghai did it discover the source of the problem: wireless operators in Shanghai had confused

34. *Zoku teishin jigyo shi*, vol. 6, reprinted in *KSS*, 2: 776-89.



Map 5 Major wireless routes in Greater East Asia, 1943 (SOURCE: MOC Records II, 804).

frequencies designated for Tianjin, Osaka, and relay broadcasting.³⁵ The wireless problem got worse as more and more of Japan's submarine cables were put out of commission. As an MOC official noted in late 1943, since communications between important bases in East Asia and Japan proper were carried out mostly through wireless, their importance to the war effort increased in proportion to construction in East Asia, es-

35. Daitōa denki tsūshin jimukyoku, "Daitōa denki tsūshin kyōgikai dai-1-kai kaigi gijiroku (1943)," handwritten copy, MOC Records I-330.

pecially in the southern region. The state of wireless communications between Manchuria and Japan and particularly between Japan and the South Seas, he admitted, was not satisfactory.³⁶

As a remedy, the NCTT proposed the immediate establishment of a headquarters for frequency control throughout East Asia. To eliminate the problem of generating wrong frequencies by mistake, some suggested, it was necessary for all wireless transmitters to adjust to a standard frequency (*hyōjun denpa*). The MTT proposed transmitting this standard frequency over wires throughout East Asia as the most secure method. After devoting much of its discussion to the wireless issue, the First Greater East Asian Telecommunications Conference in 1943 concluded that it was necessary to establish a central authority to regulate frequencies and asked all members to strive to create the right "atmosphere," both at the center and in the field.³⁷

Given the fact that wireless was used heavily by both the Army and the Navy—the Navy alone would claim almost 10,000 different frequencies for its own use by ships, aircraft, and land stations³⁸—it is not surprising that the East Asian Telecommunications Conference was unable to make substantive decisions that would affect the military. Immediately following the outbreak of the Pacific War, a Headquarters for Regulating Frequencies was established by the MOC, Army and Navy, and the Cabinet Information Bureau. It was not until 1944, when the war turned decisively against Japan, that further progress was made on the problem of frequency control. In April of that year, a Frequency Bureau (*Denpakyoku*) was established within the new Communications Board specifically for the purpose of controlling frequencies throughout Japan.

Wrestling with Tariffs

Of all the operational issues to be ironed out among various telecommunications operators in Japan's new empire, telegraph and telephone tariffs were one of the most important and most difficult. The charge for

36. Ibid.

37. "Daitōa denki tsūshin kyōgikai dai-1-kai kaigi teian kettei yōryō" (October 1943), MOC Records I, 328.

38. Samejima Sunao, *Moto Gūmreibu tsūshin kachō no kaisō*, 12.

telegrams and telephone calls affected not only hundreds of thousands of users but also the revenue needed to sustain such operations. Under the Japanese government monopoly, tariffs had been a relatively simple matter in Japan and its formal colonies. But operators in different parts of the empire were of widely varying characters: there were government monopolies in Japan proper as well as its colonies; quasi-business operations in Manchukuo and China; and, after the outbreak of the Pacific War, new rates set largely by the military administration in Southeast Asia. To make things even more complicated, because Japan still maintained "international communications" links with countries outside the East Asia Sphere, it had to calculate those charges in francs first and then figure out the proper exchange rate with the yen, since the yen was the basis of telegram rates within the sphere.

Beginning in April 1938, Britain's Imperial Communication Committee adopted the Empire Flat Rate, set at 1s. 3d. per word for all plain-language telegrams to and from the United Kingdom and between its dominions and colonies.³⁹ Such a revolutionary move had far-reaching implications. "What is the objective of such a tariff policy?" asked Watanabe Otojirō in one of his essays on communications policy. After comparing Japan's rate system with the new British imperial rates, he concluded that the British flat-rate policy was based on "an exclusive and long-term plan to complete the all-British imperialist integration through an independent and powerful network of submarine cables and beam wireless that connect British territories throughout the world."⁴⁰

When Watanabe looked at Japan's rate structure in the emerging East Asian telecommunications system, he had plenty of reasons to worry. As Fig. 4 shows, there was anything but a uniform rate in East Asia under Japanese control. Telegram rates in Japan—both domestic and with other regions—were relatively low, ranging from under 0.10 yen to 0.20 yen per word. Primarily because of the large volume of traffic, rates in Manchukuo and North China had been set relatively low as well, not exceeding 0.20 yen. Inner Mongolia and Central China, in part due to their higher operating costs, charged higher rates, often 0.30 yen. As a result, it was cheaper to send a telegram from Japan to Inner Mongolia (0.20 yen per word) than vice versa (0.30 yen).

39. Barty-King, *Girdle Round the Earth*, 252–53.

40. Watanabe, *Denki tsūshin kokusaku to denki tsūshin jigō*, 377–82.

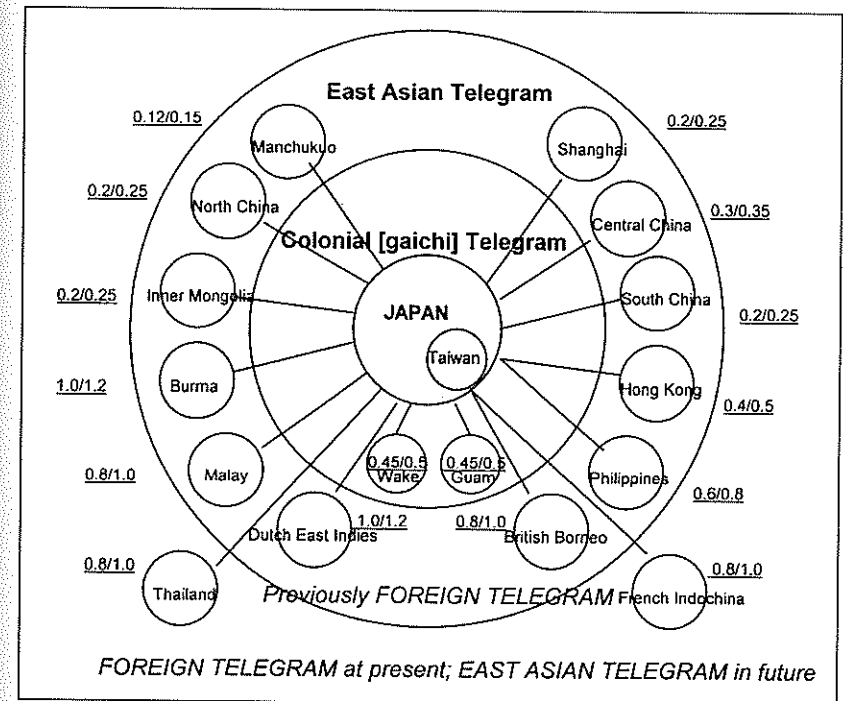


Fig. 4 Outbound telegram rates in East Asia, 1942. NOTE: Rates (yen) are per each five characters in Japanese telegrams and one word in European-language telegrams. However, rates for Guam and Wake-bound telegrams are minimum charges per telegram. Minimum charge for all other telegrams are five times the base rates indicated above (SOURCE: MOC Records I, 297).

Although simplification of tariffs was often suggested, it was by no means an easy task. The key to standardizing telegram rates was revenue allocation, since the services on two ends of any given route needed to work out a satisfactory formula between them. Upon receiving complaints about the MOC's refusal to adjust proportions of revenue allocation, Watanabe called for "Greater East Asianism" (*Dai-tōashugi*) as a new principle to be applied in tariff policy. However, as one MOC official explained, adjusting tariffs was extremely difficult because it was intrinsically tied to purchasing power and hence to the currency systems of various areas in East Asia.⁴¹ Progress was slow and limited in scale. For instance, when the MOC announced a revision of the East Asian Telegraph and Telephone Regulations in 1942, it

41. *Tōa denki tsūshin kyōgikai dai-4-kai kaigi gijiroku*, 53–56.

brought the rates for the "East Asian wireless telegrams"—telegrams exchanged between wireless facilities in Japan, China, and Manchukuo—closer to rates for regular telegrams.⁴²

As with the wireless, tariff policy was a constant theme of many discussions at the telecommunications conferences. A special meeting on tariffs was called in February 1943, based on the East Asian Telecommunications Agreement signed in 1941. The meeting, which was devoted to telegram tariffs only, dragged on for more than two weeks. Nine proposals were submitted on the basic principles of tariff calculation and on methods of tariff collection. A Tariff Subcommittee of experts was set up and reached agreement on some of the issues. But when all the delegates met to discuss the guiding principles of East Asian telegram tariffs, which would affect revenue allocation among participating telecommunication operators, there was little common ground. From the start, delegates from different parts of the imperium simply took the opportunity to state their own preferences.⁴³ The biggest dilemma was how to balance the overall political imperative for uniform rates with very different local economic realities. For instance, government telegrams and press telegrams served specific political objectives and had to be placed at reasonable rates, yet cost also had to be considered. Again, no solution was forthcoming.

In October 1943, in conjunction with the First Greater East Asian Telecommunications Conference, the Tariff Subcommittee met for the second time. Delegates agreed in principle to begin investigating per-unit operating costs, using 1942 as the basis for eventual revenue allocation. Although this was sound in theory, delegates soon realized that the different economic conditions within the East Asian region made it impractical. In particular, runaway inflation in Central China since early 1943 compelled CCTC executives to demand reconsideration of the basic method of setting tariffs. The three-day discussion that ensued appeared to some participants to consist of constant lecturing by Japanese delegates based in China on the impact of economic problems there. Not surprisingly, delegates postponed any decision on tariff allocation

42. Denmukyoku, Gaishinka, "Tōa denshin denwa kisoku nado no kaisei," *TKZ* 410 (October 1942): 82–84.

43. "Ryōkin iinkai o orite," *TDTZ* 4.3 (February 1943): 47–51.

until further studies of operating costs were made. Once again, the tariff meeting had failed to produce concrete solutions.⁴⁴

Tariff was one of the few subjects discussed at the Second (and last) Greater East Asian Telecommunications Conference, held in Tokyo in late 1944. The focus of these discussions was the unilateral "tariff surcharge" (*fuka ryōkin*) adopted by China-based telecommunications companies to cope with rising operating costs due to the rampant inflation there. In January 1944, the CCTC had to raise telegram and telephone rates by almost 100 percent. Six months later, they were raised again. Delegates from elsewhere wanted to see this surcharge replaced by a new "tariff by agreement" (*kyōtei ryōkin*) between two or more operators, but met with stubborn resistance. Representatives from China-based companies argued that the different base prices of each company had been compounded by the unique economic conditions in China. In the end, the meeting had to settle with a compromise: a tariff surcharge was now recognized as part of the "tariff by agreement." Thus, as late as 1944, the goal of a standardized East Asian Tariff System seemed as remote as ever. One Communications Board official tried to put a positive spin on it by claiming that the recognition of the surcharge did provide a temporary solution to the perennial problem of proper ratios of revenue distribution among various operators. As he put it, this might well be a noteworthy step by creating "tariff by agreement" for the first time in East Asia.⁴⁵

Ultimately, efforts to build a unified tariff structure ended in dismal failure. Nagatani Takeo, a Japanese employee in the Business Department of the NCTT, candidly admitted the inherent contradiction:

The fundamental reason the Tariff Committee could not reach a conclusion that could be put into effect was that telecommunications in East Asia, like mining in iron and coal, have been based on separate management geared toward self-sufficiency. To improve their operations in each area, [telecommunications enterprises] must adopt an autonomous tariff policy in their own areas. Ultimately, [such a practice] opposes the very essence of telecommunications embodied in the East Asian tariff policy. [Thus] if these enterprises must

44. "Ryōkin iinkai dai-2-ji kaigi no gaikyō," *TDTZ* 3 (November 1943): 52–54.

45. Tanaka Shizuo, "Daitōa denkitsūshin kaigi dai-2-kai kaigi no gaikyō," *TDTZ* 4 (November 1944): 3–10.

conform to the Greater East Asian tariff policy at any cost, they will end up bankrupting themselves.⁴⁶

The 1944 conference made some progress on other tariff-related matters, however. Delegates agreed to count the addressee's name in Japanese-language telegrams as three words (up from two, as previously), while keeping the minimum length the same, at five words. Although this encouraged shorter telegrams, the goal of unifying the tariff on addressee names in European-language telegrams failed to reach consensus. Perhaps the greatest accomplishment was the unification of rates between Japanese and Chinese telegrams, a demand insisted on by the telecommunications operators in occupied China. Not only would each word in Chinese-language telegrams be charged the same tariff as in Japanese-language telegrams, but the addressee's name in the former was also set to count as three words.⁴⁷ This was a symbolic victory, albeit a belated one. Chinese-language telegrams, which had been similar to European-language telegrams in tariff structure, could now be considered a step closer to Japanese-language telegrams.

ORGANIZATIONAL AND STRUCTURAL CHALLENGES

The MOC Versus Colonial Korea (Act II)

The persistent difficulties in systemic integration of the telecommunications business in Japan's imperium reflected deeper structural problems. The MOC had foreseen operational and technical problems when setting up the annual telecommunications conferences back in 1939, but there were unexpected organizational problems as well. Although MOC efforts to build an integrated telecommunications network through the East Asian Telecommunications Conference seemed to have some success, this arrangement brought about further complications. And despite the fact that the conferences were almost always all-Japanese affairs, delegates could not avoid major conflicts over organizational matters.

46. Nagatani Takeo, "Daitōa denki tsūshin no airo o daikaiseyo!" *TDIZ* 4 (May 1944): 25.

47. *Ibid.*

The first and perhaps most dramatic disagreement over the conference was again between the MOC and the colonial administration in Korea. In previous international telecommunications treaties involving Japan and its colonies, the G GK had signed under the umbrella category of "Japanese Agencies in Charge of Telecommunications," a category that included the MOC as well as other colonial administrations. Essentially, such an arrangement relegated all authority to the MOC. But at the Second East Asian Telecommunications Conference in October 1940, the G GK representatives insisted on being treated as an independent signatory in the proposed East Asian Telecommunications Agreement. Korea should play a more prominent role in the East Asian telecommunications network, they explained, now that the agreement included China and Manchukuo and thus differed from previous international treaties. After the conference, Japanese officials from Korea continued to argue their case. Since Japan's communications sphere now included operators in Manchukuo and China, they insisted, Korea's legal autonomy under its governor-general must be preserved by accepting it as an independent signatory.⁴⁸

MOC officials viewed the matter quite differently, of course, feeling that a unified administration would give Japan a stronger international position and maintain consistency with previous practice as well. In memos sent to the G GK before the January 1941 conference for signing the East Asian Telecommunications Agreement, the MOC harped on the old theme of the "harmonious union between Japan and Korea" as the "core of East Asia," which in turn formed the axis of a broader East Asia together with Manchukuo and China. Ultimately, it pointed out, these concentric circles would include Southeast Asia to make the Greater East Asia Co-Prosperity Sphere. The MOC assured the G GK that under the new agreement Korea's authority in dealing with Manchukuo and China would not be diminished, and Korea's special demands could be met via separate bilateral agreements. If Korea insisted on becoming independent of the Tokyo government in external telecommunications matters, the MOC implied, the "Fundamentals of National Policy" would be endangered, with grave consequences. As a practical matter, the MOC pointed out, none of the institutional

48. Director of G GK Bureau of Communications (Yamada) to Director of MOC Bureau of Telecommunications (Yasuda) (December 26, 1940), MOC Records I, 311.

adjustments that the GGK demanded could be accomplished before the new agreement was to take effect on April 1, 1941.⁴⁹

The MOC's worst nightmare came true at the general conference for signing the East Asian Telecommunications Agreement in January 1941. After the last round of discussion of minor amendments to the agreement, Korea's representatives consulted with Keijō (Seoul) one more time and then refused to sign. By then, the situation had reached crisis proportions. GGK officials again insisted that Korea's governor-general enjoyed complete administrative authority in Korea, and he exercised communications administrative authority completely independently as far as Korea was concerned. Although the MOC had been commissioned to build various projects in Korea in the past, they noted, this was not the same as transfer of administrative authority:

Within the Japanese empire, there is not a single government agency that is not based on *kansei* (rules of government organization). Even the smallest post office is always based on *kansei*. However, the term "responsible government agency" [in the proposed agreement] has no basis in *kansei*, and therefore, even if the agreement is passed unanimously here, it cannot be considered part of the Japanese government.⁵⁰

With the entire agreement threatening to collapse before their eyes, MOC officials were furious and called GGK's refusal to participate as a member of the imperial government "suspicious." It was embarrassing, to say the least, that the major obstacle to unity in East Asian telecommunications should come from Japan's own colonial officials in Korea. To avoid a greater disaster, the MOC had to accede to GGK demands by entering into a separate agreement with Korea outside the conference and by promising to treat Korea as a separate entity in East Asian telecommunications matters instead of simply part of the Japanese government.

The GGK's abstention was not just for theatrical effect. Shortly after this episode, a Japanese official from the GGK Communications

49. Nakayama to Fukuda (December 18, 1940), and Teishinshō, "Tōa denki tsūshin gyōmu kyōtei ni okeru Chōsen teishin no tōjisha chii ni kansuru iken" (January 7, 1941), both in MOC Records I, 311.

50. Teishinshō denmukyoku, *Tōa denki tsūshin ni kansuru gyōmu kyōtei teiketsu kaigi gijiroku* (January 1941), 32–33, 38–41. For the agreement reached, see "Oboegakisho" (January 22, 1941), MOC Records I, 311.

Bureau explained the rationale to his counterparts representing other areas in the empire in terms of the special political character of Korea:

In Korea, we must pay close attention to governing an alien people (*iminzoku*) in a way that is more than can be imagined in Japan proper, and [must] adopt special measures appropriate for the situation. . . . Things not in accordance with this principle, even if they are extremely rational and perfectly legitimate, are considered inappropriate and even illegitimate in Korea. We public servants in Korea cannot forget, even for a single minute, this principle of governing an alien people.⁵¹

Statements like this seemed incongruous with, if not contradictory to, the official policy of "Japan and Korea as one" (*naisen ittai*), which had been promoted since the late 1930s. Indeed, just a few months after the meeting, both Korea and Taiwan would be given the same *naichi* status as the home islands and transferred to the jurisdiction of the Home Ministry. That resistance to the perceived eradication of a separate identity would come from the colonial bureaucracy itself was ironic but not beyond comprehension.⁵² Obliterating the differences between Korea and Japan would inevitably jeopardize the separate sphere of authority that the Japanese bureaucracy in Korea had enjoyed for decades. This tendency toward autonomy had been reinforced, at least in part, by the relative stability of personnel in the GGK bureaucracy. Although occasional lateral transfers to other colonies or even to Japan proper did occur—GGK Communications Bureau Director Yamada Tadatsugu had served in the Kwantung Leased Territory, for example—the majority of Japanese serving in the GGK tended to have grown up and stayed in Korea.⁵³ This lack of personnel transfer nurtured the growth of a separate identity for Japanese serving in Korea vis-à-vis Japanese in Japan. In this context, even relatively mundane issues such as different pay scales could become a source of friction. Referring to the prospect of the MOC operating inside Korea, one GGK official hinted that GGK employees would be displeased to work side by side

51. Fukakawa Toshio, speech at a panel discussion; in *TDIZ* 2 (May 1942): 4.

52. For a discussion of the policy implications of *naisen ittai*, see Eckert, *Offspring of Empire*, 236–238; on the new status of Korea and Taiwan, see Hatano, *Taiheiyō sensō to Ajia gaikō*, 106–8.

53. "Chōsen no kansei, gyōsei mondai o Hagiwara shi ni kiku," in Chōsen shiryō kenkyūkai, *Chōsen sōtōfuku kansei to sono gyōsei kōkō*, 25–27.

with MOC employees because the latter had better chances for promotion. As a bureaucrat, he was voicing a real concern. Despite high-sounding rhetoric, the governments in both Tokyo and Keijō were often dominated by bureaucratic self-interest.

Visions and Interests in Conflict

The discord between the GGK and the MOC was the tip of the proverbial iceberg of conflicting interests that plagued Japan's system-building efforts. As one Japanese participant lamented after attending the conference, the proposals often contradicted one another, and perfectly amicable people engaged in futile argument due to their different perspectives.⁵⁴ Indeed, the organizational problems were inseparable from conflicting visions of the Greater East Asia Sphere itself. As result, even deeper dissension existed as to the structure of the imperial telecommunications system.

Early in 1942, as Japanese forces were sweeping through Southeast Asia, Tokyo set out to unveil new blueprints for the Greater East Asia Co-Prosperity Sphere. On February 16, the day after the fall of Singapore, Prime Minister Tōjō Hideki delivered a speech to the 79th Imperial Diet calling for the "establishment of an order of co-existence and co-prosperity that is based on the principle of Japan at its core and all countries and peoples in Greater East Asia in their appropriate places." To reach such a goal, in March the Japanese government formally launched a Council for the Construction of Greater East Asia. Headed by Prime Minister Tōjō himself, the council included government ministers and vice ministers serving as directors of its committees. Some 50 businessmen, scholars, and former government officials were selected as council members. The council was the most ambitious program the government had established thus far to gather advice on all policy issues concerning East Asia except military and diplomatic affairs. It was organized into a general committee and four other committees on general policy, education and culture, population and ethnicity, and economic policy, respectively. To formulate specific economic policies, the council set up four additional committees to study

54. Sugitani Hidenosuke, "Nihon shinkō tsūshingaku taibō ron," *DT* 5.21 (July–August 1942): 12.

mining, industry, electric power, agriculture, trade and finance, and so on. In short, the council was Japan's most concerted effort to date to plan its new imperium in Greater East Asia.⁵⁵

The Eighth Committee of the Council for the Construction of Greater East Asia was charged with formulating transportation and communications policies in the Co-Prosperity Sphere. Headed by Minister of Communications Terashima Ken, its members included ITC President Ōhashi Hachirō and Kajii Takeshi, the MOC engineer turned president of the NEC. Although shipping consumed most of the committee's time, aviation and communications were addressed as well. Nagakawa Sōnosuke, vice minister of the Railway Ministry, called for policy guidelines for a Greater East Asian aviation network and "unified management" of aviation in the entire area. "Aviation is a rapid means of transportation that literally obliterates thousands of miles," noted Nagakawa. "It therefore plays the most appropriate role in the construction of Greater East Asian Economic Order based on the great principle of 'Eight Corners Under One Roof,' with Japan at the core."⁵⁶

Addressing the issue of telecommunications, Ōhashi Hachirō compared the Greater East Asia Co-Prosperity Sphere with other similar spheres in Europe and America. Tellingly, Ōhashi again evoked the familiar example of the British empire, which derived its power from the control of submarine telegraph cables, although he was quick to point out that "Japan's principle of building a Greater East Asia Co-Prosperity Sphere was, of course, fundamentally different from the British-style colonial policy." He proposed considering two aspects of future telecommunications expansion in Greater East Asia: trunk lines connecting each region, and local communications. While affirming the need to place Japan at the center of the Co-Prosperity Sphere, Ōhashi suggested that some circular lines might be useful to connect major, central cities in each region. Underlining the importance of Japan's manufacturing sector, Ōhashi cautioned that "even after peace in the future, the sphere would depend on Japan's technology and equipment

55. *DKSKS*, 1: 1–3. *DKSKS* is the most complete record of the deliberations by the Council for the Construction of Greater East Asia, although many sessions were conducted with such secrecy that apparently no minutes were kept. For a digest, see *KSSS* 4: 1257–341. For a background discussion, see Kawahara Hiroshi, *Shōwa seiji shisōshi kenkyū*; and Furukawa Takahisa, *Shōwa sennichi no sōgō kokusaku kikan*, 270–76.

56. *DKSKS*, 2: 132–36.

instead of those from Britain and the United States.”⁵⁷ The “Deliberation of Fundamental Policies of Transportation and Communication in Greater East Asia,” adopted by the subcommittee, essentially reaffirmed the earlier vision of Japan’s telecommunications hegemony:

With Imperial Japan (*kōkoku*) at its core, [we should] strengthen the Greater East Asian trunk communications circuits that connect Imperial Japan and various regions in the Sphere as well as between various regions. In the meantime, [we shall] plan the expansion of an international communications network that centers on Imperial Japan and ensure the advantageous communications rights of Imperial Japan in the world.

To achieve this goal, [we must] strengthen communications enterprises, control frequency, expand communications equipment manufacturing as well as communications research institutions, and ensure the supply of communications personnel.

[We must] establish an appropriate organization consisting of concerned agencies for the purpose of building a unified communications system appropriate for the character of the Greater East Asian Sphere, ensure Imperial Japan’s guiding power over communications, and set up a Greater East Asian Communications Sphere.⁵⁸

This proposal reflected the basic position of the MOC: since Japan was the indisputable nexus of all communications in East Asia, the MOC insisted that communications routes always radiate from Japan in the center. For officials in Tokyo, there was never any doubt as to the benefit as well as necessity of Japan serving as the hub of regional and international communications for all of East Asia. In October 1938, for instance, the MOC proposed that all international telephone calls placed in East Asia go through Japan. This would apply not only to Japan’s own colonies but to occupied areas in China as well. Only in areas such as Taiwan or Central China, where secure telephone links with Japan proper by cable were not yet available, would direct international telephone calls be allowed with adjacent areas such as Hong Kong and Manila. With such measures, the MOC could accomplish greater control over telephone communications in East Asia.⁵⁹ Japan’s military vic-

57. Ibid., 142–52.

58. KSSS 4: 1219–324. The document also called for strengthening of broadcasting and meteorology facilities.

59. Kōmukyoku, “Gaichi oyobi Manshūkoku o kokusai denwa tsūwa kuiki hen’nyū ni kansuru ken” (October 28, 1938), MOC Records II, 159.

tories in the Pacific War no doubt strengthened Japan’s claim to predominance in the telecommunications sphere in Asia, now fortified with new geostrategic considerations. Japanese leaders envisioned a postwar world that would eventually be divided into three or four spheres, controlled by Germany, the Soviet Union, Japan, and the United States, respectively. Japan would become the undisputed hegemonic power in Greater East Asia.

A highly centralized communications network also had many supporters outside the ministry. As Uchino Tadao, a Japanese working for the NCTT, argued during the Pacific War, planning for Greater East Asian telecommunications must ultimately be based on geopolitical theory, taking into consideration national defense, population, geographical conditions, and trends in communication use. The most urgent task, he pointed out, was the completion of a circular long-distance cable connecting Japan, Manchukuo, and China, which would turn the Sea of Japan, Yellow Sea, and East China Sea into “inland seas.” Uchino emphasized that the precondition of a Greater East Asia Sphere was that Japan be its center. As a result, the first step in telecommunications was to ensure communication with Japan under all circumstances. Due to the variety of political conditions in the Southern Region, each component there should communicate directly with Japan, rather than through a regional center. Moreover, communication between the Continental Sphere and the Southern Sphere should in principle go through Japan (see Fig. 5).⁶⁰

In early 1943, Komatsu Saburō, head of the ITC’s Business Division, painted his vision of Japan’s communications hegemony in Asia. Organization of the Greater East Asian Telecommunications System, Komatsu emphasized, must “thoroughly reject the exploitative, imperialist control system used by Britain and the United States,” replacing it with a system with “Japanese characteristics.” By this he meant that all wireless telegraph and telephone connections, as well as cable routes within the system, must radiate from Japan to various parts of Greater East Asia. All international communications circuits must also extend from Japan to countries outside the Co-Prosperity Sphere. Komatsu was explicit about its purpose:

60. Uchino Tadao, “Daitōa chiseigakuteki kanten yori suru denki tsūshin ritchi no kenkyū” (Part II), [NCTT] *Kenkyū zasshi* 3.2 (December 1943): 51.

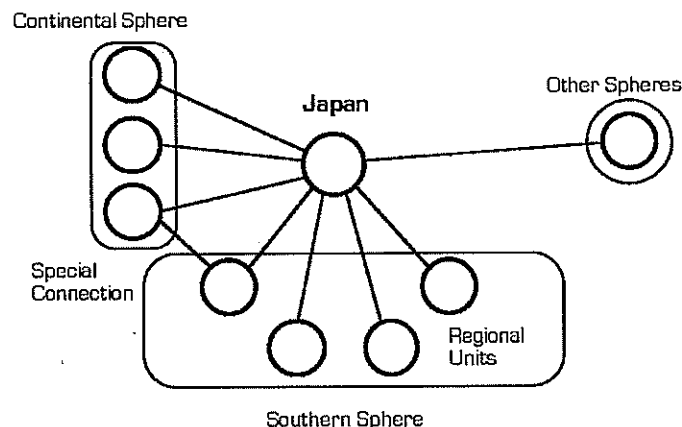


Fig. 5 One scheme of Greater East Asian telecommunications, 1943 (SOURCE: Uchino Tadao, "Daitōa chiseigakuteki kanten yori suru denki tsūshin ritchi no kenkyū," pt. 2, [NCTT] *Kenkyū zasshi* 3.2 [December 1943]: 51).

That all external communication must be relayed through Japan is not for the purpose of suppressing and exploiting other peoples [in the Sphere]. Rather, making our country's cultural, and especially political, power absolutely the strongest is the absolute precondition to shower other peoples in their rightful places with Imperial Glory. To accomplish this task requires the concentration of communication power, which controls thought.⁶¹

Although blissfully ignorant of the contradictions in his own logic, Komatsu was apparently mindful of the political implications of such a Japan-centered system. His disclaimer was hardly persuasive, however.

Not everyone in the East Asian Telecommunications Bloc readily agreed on the merits of a telecommunications system that eliminated all other regional centers in favor of Japan. Some regional telecommunications operators in China had their own calculations. In the pages of a leading Japanese journal on telecommunications, for instance, NCTT President Inoue Otsuhiko presented a different vision. He emphasized that the new East Asian communications network should consist of circular as well as radial trunk lines. The radial lines from the Japanese home islands would reflect the continental countries' dependence on Japan for financial and material assistance in their construction. But as

61. Komatsu Saburō, "Kokusai denki tsūshin no dōkō," *TKZ* 416 (April 1943): 30.

the countries on the continent moved toward a self-sufficient economy based on their local natural resources, Inoue reasoned, they would develop from "infancy to adulthood in relationship with Japan" and gradually strengthen economic relationships among themselves. Following this logic, the Japan-Manchukuo cable would extend to North China and, by way of Xuzhou, connect with Nanjing and Shanghai in Central China, thus forming a trunk cable link throughout the continent that then returned to Japan by sea. In Inoue's view, this circular cable route would supplement the radial lines as a second route, which was necessary since part of the radial network could be cut off.⁶²

Inoue and his supporters emphasized that the Greater East Asia Communications Sphere had to be based on the solid financial foundation of each operator. Consequently, the highly lucrative international wireless bases ought to be dispersed within the sphere instead of concentrated in Japan. To justify establishing itself as a center for international telecommunications, the NCTT argued that it was already handling a high volume of international telegrams, and that direct wireless routes with foreign destinations would not only save foreign currency but also bring the company an extra 500,000 yen each year. Moreover, although North China's foreign trade was depressed after the China War had begun, as resources became developed in the area, its foreign trade was bound to increase. The NCTT was working on its own plans for future expansion of communications links with Europe through Central Asia, along a planned railway link.⁶³ Likewise, the CCTC argued that its international wireless telegraphic traffic with areas outside the East Asia Sphere brought in revenue vital for its survival, since it had to keep internal tariffs at an artificially low level for political reasons.⁶⁴

Differences also persisted over the question of decision-making authority in Japan's imperial telecommunications network. The slow pace of deliberations and implementations at the East Asian telecommunications conferences was a constant source of frustration for their participants. This sentiment was even evident at a roundtable discussion

62. Inoue Otsuhiko, "Denki tsūshin no Daitōa kyōeiken kakuho," *DT* 4.13 (1941): 30-34.

63. "O-A renraku tsūshin kensetsu keikaku yōryō" (n.d.), NCTT Records 2028(2)/44; "Kokusai tsūshin no kichi kettei narabini keika rosen ni kansuru teian riyūsho" (n.d.), NCTT Records 2028(2)/49.

64. Tōa denki tsūshin jimukyoku, *Tōa denki tsūshin kyōgikai dai-3-kai kaigi gijiroku*, 35.

immediately after the January 1941 signing of the agreement. Several participants called for greater unity in policymaking but admitted that it was impossible to reduce several axes of authority into a single one. The MOC, they concluded, did not have the full power to decide telecommunications policy. Honda Shizuo, a former MOC official then serving on the Cabinet Technology Board, acidly remarked that although there had been expansion plans in the MOC, there was no real domestic telecommunications policy, let alone a telecommunications policy for East Asia. Shinohara Noboru of the MOC tried to clarify the issue of unification. While telecommunications operations could be left to different parties, he insisted, construction and maintenance had to be entrusted to the most skilled experts. However many axes there were, what was most important was where the communications axis was located and how it worked with axes of authority in other fields. Shinohara expressed frustration that, despite the MOC's strenuous efforts, the importance of telecommunications had not been fully appreciated by others in the center. As a result, many recommendations by the Telecommunications Committee had not been implemented, and proposals put forward by the MOC concerning the Southern Advance had been shelved. Yasuda Takesuke, director of the Telecommunications Bureau, echoed Shinohara's disappointment.⁶⁵

The authority of the East Asian telecommunications conference was curtailed from the beginning. Although telecommunications operators on the continent seemed to have submitted to the MOC's will, the establishment of such a forum became a bone of contention in Tokyo when it was discussed at the directors' meeting of the inter-ministerial Telecommunications Committee. The Navy and the Asia Development Board agreed in principle that governmental supervising agencies, such as the GKG and GGT, should be included in the conference as originally planned. The Army did not oppose the idea of a conference *per se*, but insisted that it remain separate from the inter-ministerial Telecommunications Committee and that there be no permanent secretariat that could lend it the appearance of a decision-making body. Apprehensive that the MOC intended to use the conference to formulate East Asian communications policy, the Army opposed inclusion of the GKG and GGT, and rejected any decision-making role for the con-

65. "Kōa no denki tsūshin o kataru zadankai," *DT* 4.13 (January 26, 1941): 69.

ference. Even terms such as "comprehensive function" and "organic ties" in the conference's platform raised the suspicion of the Army, which insisted that the platform refer only to specific operational matters, not to general policies. Therefore, even before its founding, the mission of the East Asian telecommunications conference was limited to little more than an exchange of opinions. After considerable consultation among the ministries, it was agreed that membership would be initially confined to telecommunications operators in Manchukuo and China, with the understanding that, at an appropriate time in the future, governmental supervising agencies might also be included.⁶⁶

Over the years, Watanabe Otojirō made several elaborate pleas for increasing the authority of the Telecommunications Conference and transforming it into an administrative organ, so as to realize the vision of a unified telecommunications network in East Asia under Japan's control. Writing in 1942, he commented:

Based on the character of telecommunications, random establishment of facilities without coordinated plans in the Greater East Asian Co-Prosperity Sphere is impermissible. Matters such as selection of communications centers, design of communications circuits, selection of relay routes, method and speed of communication, standards of communications skills, selections of frequencies and regulations of waves, and measures for breakdowns must be solved on the basis of a unified whole.⁶⁷

Watanabe called for a proper balance among local operational autonomy, dependence on Japan, and a sound financial basis for operations. He asked the MOC and the Cabinet Planning Board to consult operators in the field when drawing up new plans. None of his petitions, however, seemed to have much effect.⁶⁸

All in all, only a few of the numerous proposals were actually acted upon, and even then, they were usually delegated to a new committee.

66. "Tōa denshin kanjikai no iken matomari taiyō" (September 6, 1939) and "Tōa denki tsūshin kyōgikai ni kansuru gun oyobi Kōain no ryōkai ni kansuru ken," both in NCTT Records, 2028(2)/49; Arisue Seizō (Chief, Military Affairs Section, Military Affairs Bureau, Army Ministry) to Takeuchi Tokujī (Chief, General Affairs, Bureau of Manchurian Affairs) (October 26, 1939), MOC Records I, 301.

67. Watanabe, *Denki tsūshin kokusaku to denki tsūshin jigyō*, 399.

68. "Daitōa denki tsūshin kaigi dai-1-kai kaigi gijiroku" (Part 1, October 1943), unpublished manuscript, MOC Records I, 328.

The First Greater East Asian Telecommunications Conference in late 1943 decided to set up a Permanent Committee to study long-term plans to strengthen telegraph and telephone operations. Another committee was set up at the same meeting to investigate business systems. Neither results. Other proposals were deemed too difficult. For instance, the NCTT proposed a systematic study of an ideal form of telecommunications operations in Greater East Asia in late 1943, only to be told that "as its impact is extremely wide, it is difficult to reach a decision." The MOC was to study how to study the subject.⁶⁹

Writing in the official journal published by the East Asian Telecommunications Secretariat in 1944, Nagatani Takeo summed up the fundamental problems in Japan's endeavor of integrating the Greater East Asian telecommunications network. First, he blamed the lack of recognition of the importance of telecommunications among the general public. "Although one often hears the mantra 'Telecommunications is power,'" he lamented, it was nothing more than self-consolation. Second, Nagatani cited lack of unification of telecommunications enterprises as an obstacle to implementation of telecommunications policy. The failure to reach a common "tariff by agreement," he felt, had resulted from the localism of telecommunications operators in various areas. In his view, the telecommunications conferences were discussions without much real authority, and even when agreements were reached, they were nothing more than temporary measures.⁷⁰ Nagatani thus highlighted the wide gap between vision and policy as well as the reality of entrenched interests that resisted fundamental change. By then, however, time was about to run out.

At the height of the Pacific War, a Japanese telecommunications specialist based in occupied China published an essay calling for a "new discipline of Japanese communication studies." As its author, Sugitani Hidenosuke, saw it then, "Japan's strength of leadership in East Asia must lie, above all, in its effort to control its vast space, and then in

69. Daitōa denki tsūshin jūmukyoku, "Daitōa denki tsūshin kyōgikai dai-1-kai kaigi teian kettei yōryō" (October 1943), MOC Records I, 328.

70. Nagatani Takeo, "Daitōa denki tsūshin no airo o daikai seyo!" *TDIZ* 4.3 (May 1944): 23–32.

directing various people in the sphere toward a Greater East Asian consciousness."⁷¹ In other words, the success of Japan's empire-building in East Asia would have to rest on these twin pillars of a communications network and a Japan-led community.

Today, Sugitani's name is long forgotten but his conceptualization of communication is echoed in what British communications scholar G. J. Mulgan calls "double nature of control." In his important book *Communication and Control*, Mulgan distinguishes between two types of control—control as exogenous, imposed, abstracted, and rationalized, and control as endogenous, communicative, and shared. "Their twin histories, the one that of tools, weapons, techniques and structures, the second that of language, of communality, of self-regulation and nurture," he argues, "run in parallel."⁷² Communications networks are designed to foster community, yet the proper functioning of communications also depends precisely on a sense of community.

As this chapter illustrates, Japan's telecommunications network for Greater East Asia was one of the large technical systems (LTS) in the imperium. Like railway, aviation, shipping, and broadcasting, such systems played an important role in the last decades of Japan's imperial expansion, in creating an East Asian bloc under Japan's leadership. Indeed, the ambitious nature of Japan's plan for an East Asian long-distance cable network should not be underestimated. The East Asian telecommunications network was a system that included technical, economic, political, and cultural components.

As Japan's imperium grew larger and more complex, so did the challenge of systemic control. As frequently seen with other system-builders, the Japanese found themselves facing nearly insurmountable political and organizational problems as often as they encountered technical ones.⁷³ The system that Japan sought to build in East Asia was fraught with fundamental contradictions. There were contradictions between the need to create an integrated, rational, and efficient economy on the one hand, and the political need to maintain the façade of a community of voluntary nations under Japan's leadership on the

71. Sugitani Hidenosuke, "Nihon shinkō tsūshingaku taibō ron," *DT* 5.21 (1942): 12–15; also published in *TDIZ* 2.5 (1942): 19–23.

72. Mulgan, *Communication and Control*, 4, 54.

73. Hughes, Foreword to Summerton, ed., *Changing Large Technical Systems*, ix.

other. There were also tensions between the center and the periphery, each of which competed to exert control over the system or part of it. Japan's difficulties in organizing an integrated telecommunications system would compound the technological troubles that came to haunt the network in its last months of existence.

CHAPTER 10

Operation, Meltdown, and Aftermath

On the night of August 9, 1945, at an Imperial Liaison Conference attended by Emperor Hirohito that lasted till the early hours of the next morning, the Japanese government reached the difficult decision to accept the Potsdam Declaration on the condition that the emperor's authority be maintained. A few hours later, telegrams were sent to the Japanese embassies in Switzerland and Sweden, with instructions to pass them on to the Allied Powers. That evening, Japan also broadcast its acceptance via wireless news telegrams and overseas broadcasting. Mutō Tomio, a former high-ranking Japanese official in the Manchukuo government, learned of the momentous decision on the same night. He immediately rushed to the office of the Manchukuo embassy in Tokyo, from which he sent a coded telegram to an old Japanese friend who was a senior official in Manchukuo, urging him to prepare the Japanese there for a ceasefire with Soviet forces, which had declared war on Japan on the same day. For reasons beyond Mutō's control, the telegram apparently never reached the intended party in Manchukuo. It was not until August 14—four days later—that the Kwantung Army commander learned from the telecommunications company MTT about the emperor's upcoming broadcast the next day and the impending decision to end the war. Mutō would regret for the rest of his life that he had not tried to place a long-distance telephone call to his friend in Manchukuo to convey the crucial message. The lack of prior notification, he thought, exacerbated the chaos and increased Japanese casualties in Manchukuo during its last days.¹

1. Mutō Tomio, *Watashi to Manshūkoku*, 446–47. The Kwantung Army received the formal order through official communication channels on August 16.

What happened to Mutō's telegram may never be known. Nor is it clear that he could have placed an immediate long-distance telephone call to Manchukuo. By then Japan's imperial telecommunications network in Asia was severely battered by the war and was deeply mired in both technical and organizational problems. It was no small wonder that when advance notice about Emperor Hirohito's broadcast as well as the post-broadcast orders to lay down arms were transmitted over the same network, imperial communications worked as well as it did.

A LIVING NETWORK

Given the enormous importance Japan placed on its telecommunications network at home and in East Asia, it is only appropriate to ask how it actually worked and what kind of information went through it. Surveys conducted by the Japanese government or colonial agencies as well as by the Japanese-controlled telecommunications companies provide valuable glimpses into the flow of information through the imperial network. The composition of traffic, changes in volumes, as well as the composition of users reveal an important dimension of the daily life of Japan's empire.

A nationwide survey of all paid telegrams at nearly all 7,000 telegraph offices throughout Japan proper, conducted in mid-1933, measured all government, civilian, and press traffic that went through the Japanese domestic telecommunications system with the exception of those related to its operations, which were free. Although official telegrams (*kanpō*)—both civilian and military—were most important for governing the empire and enjoyed discounted rates as well as priority in using telecommunications media, their share in the total traffic was relatively small (1.6 percent). The large share (98.4 percent) of nongovernment use is noteworthy. This was also true with telegraph traffic between the home islands and major colonies (see Fig. 6).² Within Japan's colonies, the share of government telegrams was slightly higher. A survey in Taiwan found that paid telegrams for governmental business occupied 3 percent in 1934;³ according to surveys conducted by MTT

2. Teishinshō denmukyoku, *Denpō kōryū jōkyō ni kansuru chōsa* (Tokyo, 1935).

3. Ishida Minoru, "Taiwan ni okeru denshin gyōmu no gaikyō," *Denshin kyōkai kaishi* 320 (May 25, 1937): 13.

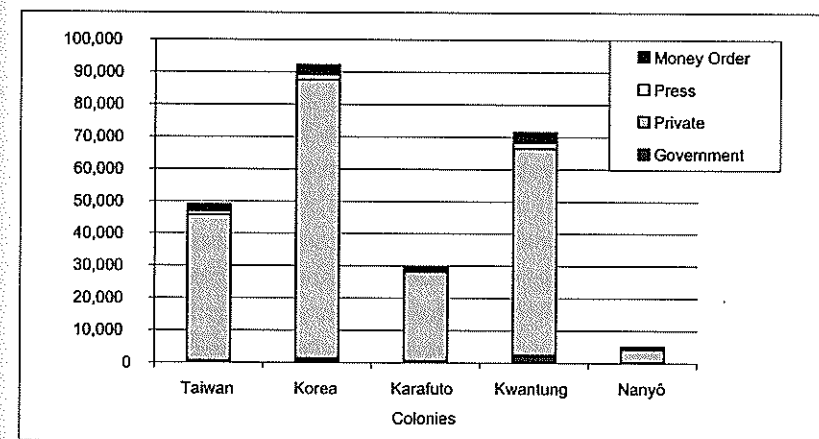


Fig. 6 Composition of imperial telegraphic traffic, 1933 (SOURCE: Teishinshō denmukyoku, *Denpō kōryū jōkyō ni kansuru chōsa* [Tokyo: 1935]). Data collected over an 11-day period.

in 1938 and 1939, among all paid telegrams sent and received in Manchukuo, the share of government telegrams stood at 5–6 percent.⁴ In terms of traffic volume and revenue, therefore, Japan's telecommunications network was largely used and sustained by nongovernmental users.

By far the largest share of telegrams in the 1933 Japanese survey fell under the category of private telegrams (95.1 percent); press telegrams and money-order telegrams (*kawase denpō*) counted for 0.6 percent and 2.9 percent, respectively. In the colony of Taiwan, as much as 63 percent of all paid telegrams was related to business transactions or the stock exchange, followed by 24 percent related to social functions, according to the survey in 1937.⁵ The results were similar in Manchukuo. Surveys conducted by MTT in 1938 and 1939 show that among all paid telegrams sent and received in Manchukuo, business-related telegrams (59 percent and 46 percent, respectively) constituted the largest category, followed by personal use (between 35 to 46 percent).⁶ It should not be surprising that business-related telegrams were the largest category of paid telegrams. Telecommunications services have played a

4. Kishimoto Hajime, "Wagasha no kokumin no kojinteki seikatsu ni taisuru kōken," (MTT) *Gyōmu shiryō* 10.3 (March 1943), 269.

5. Ishida, "Taiwan ni okeru denshin gyōmu no gaikyō," 13.

6. Kishimoto, "Wagasha no kokumin no kojinteki seikatsu ni taisuru kōken," 269.

crucial role in expanding the geographical sphere of economic activities since the Meiji era. Since Japan's endeavor to build the Greater East Asia Co-Prosperity Sphere was supported by Japanese business interests, large and small, the overwhelming majority of business branches established in the post-1937 period were to be found in China and Southeast Asia.

The relatively small shares of press telegrams in the surveys can be misleading. For one thing, since they had enjoyed a discount rate since 1906, they tended to be much longer than average. New agencies spearheaded the use of some of the latest technologies. When the completion of the Japan-Manchukuo trunk cable in late 1939 greatly improved the prospects of phototelegraphic service, the number of photographic telegrams exchanged between Manchukuo and Japan jumped fourfold from 157 in 1939 to 632 in 1940, with the majority (74 percent) sent from Japan. Despite its prohibitive cost for ordinary customers, the phototelegraphy circuit had become a crucial component of Japan's imperial media network.⁷

In a fundamental sense, the construction of Japan's empire in Asia was made possible by an outward movement of the Japanese population. In addition to the ambitious plans for agricultural migration, travel in the imperium can be attributed largely to administrative and business activities in the wake of Japan's military occupations. It is estimated that by August 1945, some seven million Japanese were residing outside Japan proper in various colonies or occupied areas. Roughly half were civilians. Meeting the communication needs of these millions of Japanese residents and travelers, many with family and relatives in the home islands, was a formidable task. Telegrams related to a variety of personal matters therefore occupied a large share of communication traffic. As noted above, surveys conducted by MTT in 1938 and 1939 show that between 35 and 46 percent of all paid telegrams sent and received in Manchukuo fell in the category of personal use. According to a single-day study in November 1939, congratulatory and condolence messages constituted 10 percent of personal telegrams, roughly another 10 percent was related to transfers of money, and 33 percent for the purpose

7. *Dentsū tsūshin shi*, 7–8. *Manshū denshin denwa kabushiki kaisha 10-nen shi* (1943), 955–56. The time required for transmitting a photograph between Mukden and Tokyo, which could be sent in three different sizes, was about one hour.

of announcing arrivals of passengers or shipment of goods.⁸ Telegraphic use was closely related to personal travel, typically for announcing arrivals or departures. A survey by NCTT in 1939, for instance, found that 26 percent of all telegrams exchanged between Japan and North China were related to personal travel.⁹ In October 1940, NCTT surveyed a total of 14,474 telegrams sent and received between North China and Japan (including Korea). Of all the outgoing telegrams, 30.7 percent were concerned with business; the rest dealt with personal appointments (6.8 percent), travel (25.7 percent), and greetings (6.8 percent), among others. Of incoming telegrams, as many as half of the non-business telegrams dealt with personal travel.¹⁰ A similar survey of telegraphic traffic between North China and Manchukuo around the same time reveals that noncommercial telegrams (personal, travel, greetings, money, gifts) outstripped business telegrams fourfold (4.7 times in incoming telegrams), a fact the author attributed to the active “exchange of personnel due to the current situation.”¹¹

Telegraphic money orders played an increasingly important role for individuals as well as institutions in Japan's imperium. In addition to postal money orders, money-order telegrams partially made up for the lack of regular bank transfers and became indispensable to the increased economic activity. In 1940, for instance, money-transfer telegrams accounted for slightly over 10 percent of all telegrams exchanged between North China and Japan (including Korea). Interestingly, some 65.5 percent of the incoming ones (93.5 percent of the total amount) came to North China from Korea, reflecting increasing economic ties between the two areas.¹² In 1943, a total of 345,935 money-transfer telegrams were sent to Japan from North China, as compared to 14,345 sent within North China and 17,662 from North China to Manchukuo.¹³ The extremely high volume of money-transfer telegrams sent from China to Japan (including Korea) shows that the telegram had

8. Kishimoto Hajime, “Wagasha no kokumin no kojinteki seikatsu ni taisuru kōken,” (MTT) *Gyōmu shiryō* 10.3 (March 1943), 269–71.

9. (NCTT) *Eigyō geppō* 25 (August 1940), 39.

10. “Denpō kōryū ni kansuru chōsa” (Ka-Nichi denpō), NCTT Papers, 2028/1352.

11. Ibid.

12. Ibid.

13. “Shōwa 18-nen kawase denpō hasshin jōkyō chōsho,” (NCTT) *Eigyō geppō* 68 (January 1944), 15.

become an important channel of monetary flow between Japan and the occupied areas.

It is true that throughout the imperium, Japanese access to and use of telecommunications was disproportionately high. When available, survey data show a disparity along ethnic lines among those who used the service. According to one survey, 67 percent of all telegrams handled by the MTT in the mid-1930s were sent by Japanese. The Chinese, who made up more than 90 percent of the population, sent only 13 percent of all telegrams. Of the telegrams exchanged between Manchukuo and China proper, the Chinese sent only 23 percent, compared with 67 percent sent by the Japanese.¹⁴ A one-day survey in Manchukuo in 1939 showed that over 80 percent of private-use telegrams were sent by Japanese, with Chinese and Koreans making up the remaining 20 percent.¹⁵

Compared with Manchukuo, the Chinese use of telegraphic service in North China was considerably higher. A three-day survey conducted by NCTT in 1940, for instance, showed that 41.6 percent of telegrams sent and 43 percent of telegrams received in North China were in Chinese. On certain routes, Chinese-language telegrams even surpassed those in Japanese. For instance, Chinese-language telegrams exchanged with Central China made up 55.8 percent (outgoing) and 60 percent (incoming) of the totals.¹⁶ But Japanese dominated the external traffic in occupied China as a whole. In October 1940, the NCTT surveyed 14,474 telegrams sent and received between North China and Japan (including Korea). All but 2 percent were in Japanese.¹⁷ According to a survey conducted in Central China by the CCTC in mid-1939, nearly 60

14. Maeda Naozō, "Manshū ni okeru denshin denwa jigyō no keiei," *TKZ* 330 (February 1936): 151–61; Manshū denshin denwa kabushiki kaisha, *Manshū denshin denwa kabushiki kaisha 10-nen shi*, 951–52.

15. Kishimoto Hajime, "Wagasha no kokumin no kojinteki seikatsu ni," (MTT) *Gyōmu shiryō* 10.3 (March 1943): 270–71. In the largest category of "miscellaneous telegrams," which included announcing arrivals and sending money, close to 30 percent were sent by Koreans and Chinese.

16. NCTT, Eigyōbu, Eigyōka, Eigyō chōsa kakari, "Denpō kōryū ni kansuru chōsa" (1. Naikoku denpō) (May 1940), NCTT Papers 2028/1352.

17. NCTT, Eigyōbu, Eigyōka, Eigyō chōsa kakari, "Denpō kōryū ni kansuru chōsa" (Nikka) (May 1941), NCTT Papers 2028/1352. Strictly speaking, of course, some Chinese may have sent telegrams in Japanese to take advantage of the better rates.

percent of all telegrams sent and received in that region were in Japanese. Chinese-language telegrams made up only one quarter of the total traffic; only in telegrams sent to and from North China were Chinese-language telegrams a majority.¹⁸

In telephone use a great disparity also existed between the Japanese and non-Japanese population. In Beijing alone, as one 1943 NCTT study acknowledged, some 110,000 Japanese residents accounted for 86 percent of all telephone usage; the approximately two million Chinese accounted for the remaining 14 percent. Only in long-distance phone use was the gap less glaring, although the Japanese still accounted for 58 percent of all usage. NCTT justified this disparity by "the fact that most Japanese are very much involved in active production." It noted that the Chinese in fact tended to use the telephone more than the telegraph because of the latter's cumbersome nature. Moreover, the study pointed to the relatively widespread use of the telephone in some parts of North China, especially in the East Hebei area, which alone accounted for 26 percent of all telephone usage in the region.¹⁹

Even allowing for local variations, it often served Japanese purposes for the non-Japanese population in the imperium to make use of Japanese-controlled telecommunications service as individual customers (as opposed to institutional ones). Such measures not only helped expand the revenue base of Japan's telecommunications operations but also enabled the Japanese to demonstrate their superior technology and management to the population they sought to control.

Available telecommunication traffic data show a steady increase in communications within Japan's sphere of influence in the 1930s after a decline in the years of the Great Depression. In contrast, international traffic remained largely flat and then declined significantly after the outbreak of the Pacific War. In 1940 alone, Japan exchanged some 12 million telegrams with its colonies, Manchukuo, and occupied China, more than ten times Japan's total telegraphic traffic with the rest of the world.²⁰ The somewhat incomplete record of both telegraph and

18. Kōain Kachū renrakubu, *Chūshi ni okeru denpō kōryū jōkyō, denwa tsūwa jōkyō chōsa setsumei shiryō* (November 1939), esp. 1–3.

19. "Denki tsūshin no riyō," (NCTT) *Kenkyū zasshi* 3.1 (1943), 110.

20. *Denmu nenkan* 1942, 297–99; *Denmu nenkan* 1943, 336–37. The accounting year covers twelve months from March of each year.

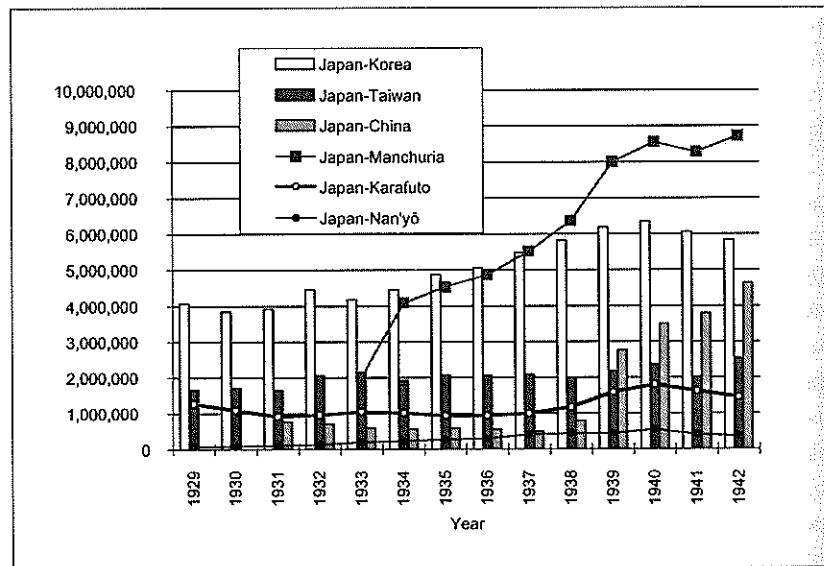


Fig. 7 Telegraph traffic within the imperium, 1929-1942
(SOURCE: *Denmū nenkan* 1943, 336-37).

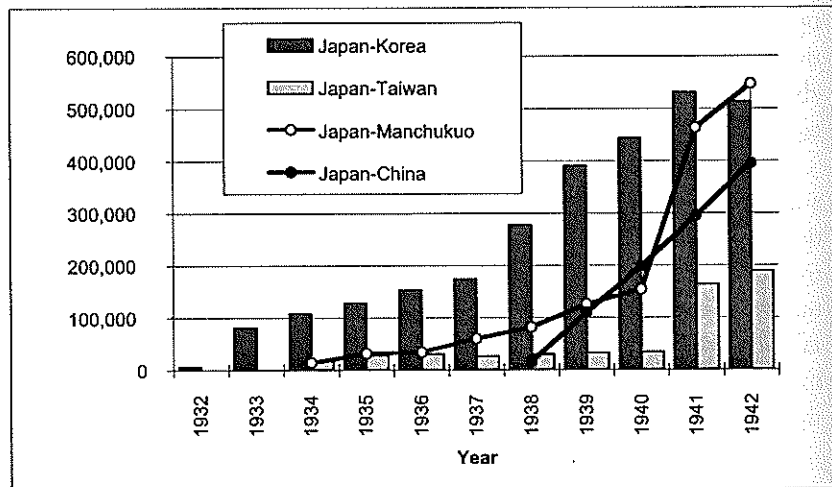


Fig. 8 Telephone traffic within the imperium, 1932-42 (SOURCE: *Denmū nenkan* 1943, 338-39).
Unit system was in use in Taiwan and Manchukuo before 1941 and 1940 respectively.

telephone traffic between Japan and the major areas within the formal and the informal empire during the 1930s reveals that Korea led other colonies in generating and receiving telecommunications traffic with Japan proper, and the sharpest increase in aggregate telegraphic and telephone traffic was between Japan proper and newly incorporated areas such as Manchukuo and China (see Figs. 7 and 8).

As this brief discussion shows, Japan's imperial telecommunications network was not simply an essential government tool; rather, it had become indispensable to the daily life of a living imperium. The ever-increasing communications traffic soon began to spell trouble for Japan, due to the stagnation of network expansion, the chronic problem of coordination, and intensification of war-related damages.

PITFALLS OF JAPANESE TECHNOLOGY

Even before Japan launched the war in the Pacific, when the MOC was continuing to produce ambitious expansion plans, Japan's telecommunications network in East Asia had already experienced setbacks and was beginning to show signs of serious strain.

The setback in network expansion is best illustrated by the fate of the Nagasaki-Shanghai submarine telephone cable, one of the key components of the East Asian telecommunications network and one of the most ambitious submarine cable projects ever launched by the MOC. Together with the Japan-Manchukuo long-distance cable, which was being extended southward on land to Beijing and Tianjin, the planned Nagasaki-Shanghai submarine cable would complete the core of Japan's telecommunications cable network in Northeast Asia. It was also to serve as the first stage of network expansion in Southeast Asia. By then, Japan had already built a 3,760-ton cable ship, the *Tōyō maru*, to replace the aging *Okinawa maru*. The age of submarine cable expansion seemed ready to begin.²¹

21. Nippon denshin denwa kōsha, Kaiteisen shisetsu jimusho, *Kaitaisen hyakumen no ayumi*, 284-304. When the *Tōyō maru* was designed in 1936, some had proposed building a larger one, at 6,000-7,000 tons, in anticipation of the future expansion of Japan's submarine cable network. The tonnage was eventually reduced, largely because of the maintenance cost but also to enable the ship to operate in the shallow coastal waters of Japan. However, the fuel capacity (coal instead of oil, in case of wartime shortages) was raised from 500 tons per month to 700 tons to allow a wider range of operations.

The Nagasaki-Shanghai telephone cable posed an unprecedented technological challenge in submarine telephony. Unlike submarine telegraphy, long-distance submarine telephony had a higher relay requirement. Preliminary exploration began in July 1938. Given the 454-km stretch of ocean between Cheju Island and Shanghai, the idea of floating relay stations was considered. In the end it was decided to construct a relay station on an uninhabited island halfway in between, which would also serve as a beacon in the busy shipping lane between Japan and Central China. The budget for investigation and construction of this relay station alone was set at 1 million yen. Since coaxial cable was still a new technology, the MOC decided to use lead-shielded submarine cables that had a normal depth limit of 300 meters. To provide adequate amplification in such a long submarine cable, some Japanese engineers proposed inserting amplifiers inside the cable, using small but extremely stable vacuum tubes, with electricity in direct current provided from both ends of the cable. Actual construction proved even more difficult than expected, and cables produced by the three leading cable manufacturers in Japan failed to withstand the high water pressures and support high-quality voice transmission, as required.

By early 1940, the MOC had to revise the design for the Shanghai-Nagasaki cable once again. As Japan moved to a war economy under national mobilization, continuing with the costly research and securing the required material—1,200 tons of copper and 5,000 tons of lead for this cable alone—became increasingly unrealistic. Ironically, when the Cabinet approved the plan to build a submarine telephone cable from Taiwan to Batavia (the South China Sea western circular cable) in late 1940, the Nagasaki-Shanghai cable project was already in serious trouble. It was highly doubtful that, even if the Dutch authorities had agreed to Japan's demand to land the new cable in the Dutch East Indies, Japan would have been able to do so, at least in the short run. The Shanghai-Nagasaki telephone cable project was finally abandoned after the outbreak of the Pacific War.²²

22. Nippon denshin denwa kōsha, Kaiteisen shisetsu jimusho, *Kaitensen hyakunen no ayumi*, 304–30. After the war, Shinohara Noboru regretted not having obtained a patent on his idea of inserting amplifiers inside the cable. The same technology was used by the United States on the Key West-Havana cable as well as the transatlantic telephone cable. See Shinohara, "Sōka keburu kara musōka keburu e," in *Teishin gaishi kankōkai, Teishin shiwa II*: 245; also in *DTJGS*, 42, 101–2, 261–63.

Slowing expansion after 1940 was another sign that the vast system as a whole was in trouble. Much of the original East Asian cable telecommunications network existed only on paper, as Japan was badly behind schedule in adding new communications circuits. In telegraphy alone, ten circuits between Japan and Korea, eight between Japan and Manchukuo, and another two between Japan and North China were thought necessary but were never built.²³

Japan's ambitious plans of expanding the telecommunications cables southward did not materialize, either. In October 1940, recommendations to strengthen telecommunications at home were issued before the ink had barely dried on the blueprint for the massive cable expansion into Southeast Asia, indicating a conflict over priorities. After the outbreak of war in the Pacific, Japan did gain control of 15,000 nautical miles of existing submarine cables in the region, but even this turned out to be a hollow victory. Most of the cables in Southeast Asia turned out to be non-operational or to require enormous resources for repair and maintenance. Japan acquired half-finished cables in a British depot in Singapore, but all that Japan was able to produce was external shielding on 300 nautical miles of cable core that was already manufactured. Although Japan's occupation of Southeast Asia gave it direct access to gutta-percha (GP)—the raw material indispensable to making submarine cables—for the first time, its efforts at refining GP in Singapore failed. As the Japanese discovered, although there was an overabundance of such material as GP, aluminum, and tin in Southeast Asia, Japan remained short of copper and nickel, which were indispensable to producing telecommunications equipment. Despite requests from the military, even attempts to produce gum-coated wires locally did not succeed.

Japan did increase its domestic production of GP submarine cables; indeed, the ebb and flow of Japan's manufacturing capabilities were clearly reflected in such production (see Fig. 9). GP cable produced for the MOC, to be used for its planned expansion of the East Asian network, reached a peak in 1940, after which cable for the military—the Navy, for the most part—increased sharply and occupied the largest share. After 1943, however, production began to drop as Japan's

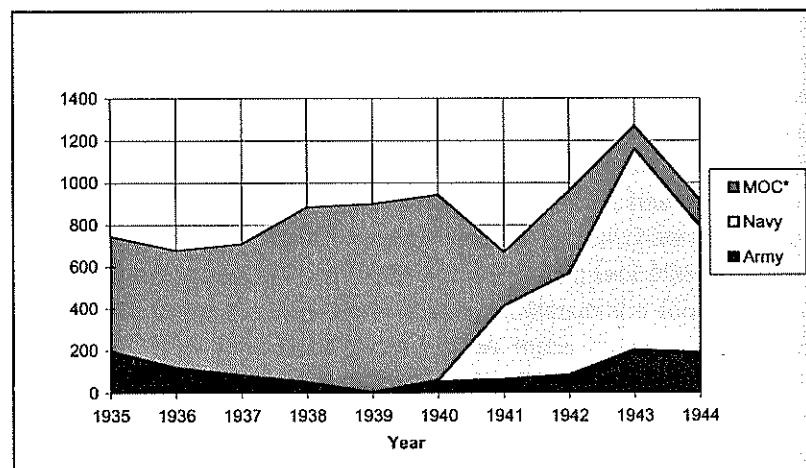


Fig. 9 Gutta-percha submarine cable production in Japan, 1935-44 (SOURCE: *Nihon Taiyō kaitei densen kabushiki kaisha shi*, 62).

economy suffered increasing shortages of material.²⁴ In the meantime, Japan also experienced problems with conventional submarine cables.

As the number of submarine cables still in operation proved to be insufficient, Japan had to rely primarily on wireless communications with Southeast Asia. Despite the fact that Allied forces destroyed some equipment before their retreat, the Japanese did inherit a large number of wireless facilities. In the Philippines alone, according to one Japanese account, more than 600 wireless sets, large and small, were seized.²⁵ In addition, Japan made progress in wireless-related research. Japanese scientists conducted extensive research on the ionosphere, which is critical for stable wireless communications. By the end of the war, Japan had become a world leader in this area, having set up numerous ionosphere ob-

24. On raw material in Southeast Asia needed for telecommunications manufacturing, see "Denki kizai no shigen taisaku o kataru," and Arai Hiroshi, "Denki kizai no jūyō fuzoku shizai no taisaku," both in *DT* 5.21 (August 1942): 40-61, 61-67; on GP, see Shimabara Sadakichi, "Marai no gutta percha ni tsuite," *DT* 6.28 (September 1943): 21-28. See also *Nihon taiyō kaitei densen kabushiki kaisha shi*, 72-73.

25. Niwa Osamu, "Shōnantō, Java ni okeru rokatsu musen kizai," *DT* 5.22 (October 1942): 8-10; Asamura Saichirō, "Kōryaku chokugo no Shōnan musen tsūshin," *DT* 34 (May-June 1944): 20-21; Amishima Takeshi, speaking at the Forum on Greater East Asian Construction and Telecommunications Equipment, *DT* 5.19 (March-April 1942): 40.

servation stations in China and Southeast Asia.²⁶ Reliance on wireless created its own problems, however. A breach in Japan's communications security would prove to be one of the leading causes of Japan's military setbacks in the Pacific. To be sure, the Japanese were concerned with the unprotected nature of wireless communication. To prevent leakage of sensitive information, the Tokyo International Communications Promotion Society (*Tōkyō kokusai tsūshin shinkōkai*) hosted a meeting in mid-1943 on security matters, bringing together business executives in the fields of finance, general trade, shipping, and newspapers.²⁷ Such efforts were either too little or too late. The Allies succeeded in decoding much of Japan's wartime military and diplomatic wireless communications.

A SLOW MELTDOWN

Toward a "Nervous Breakdown"

In late 1943, ITC President Ōhashi Hachirō made an unsettling admission at the First Greater East Asian Telecommunications Conference: because telecommunication demand within Japan had increased sharply after the war broke out in China, there were severe congestion problems throughout the network. A telegram that had taken 40 to 50 minutes to transmit before the China War could now take as long as six or seven hours to reach its destination. Even an ordinary long-distance telephone call from Osaka to Tokyo could require a wait of eight or nine hours. Comparing the problem to the near-disastrous state of telecommunications service in Japan during World War I, Ōhashi wryly called the situation "a severe nervous breakdown."²⁸

This was not the first time an alarm had been raised over the deterioration of Japan's East Asian communications network. At the Third

26. Nakamura Fumio, "Denpa denba," *DJ* 31 (February 1981): 65-70. In 1944, Japan had fifteen such observatories throughout Asia, compared to eight for the United States and four for Britain. After the Japanese surrender, the United States showed much interest and produced a *Report on Japanese Research on Radio Wave Propagation*, 2 vols. (Tokyo: General Headquarters, United States Army Forces, Pacific Office of the Chief Signal Officer, 1946).

27. Tokyo kokusai tsūshin shinkōkai, *Tsūshin ni kansuru gun-kan-min kondaikai kiroku* (June 1943).

28. *DKSKS*, 2: 152.

East Asian Telecommunications Forum in mid-1941, the GKK had reported that the average transit time in Korea for telegrams between Japan and the continent had increased to two hours.²⁹ Congestion was by no means a new problem to Japan's telecommunications service at home, especially during times of economic prosperity. However, it was quite a serious matter when congestion became a systemic feature of the whole imperial network.³⁰

Although strains in the existing telecommunications network were not entirely new, the war changed telecommunications in the Japanese empire in fundamental ways. Enemy destruction and sabotage directly damaged telecommunications stations. In Japanese-occupied areas in Manchukuo and China proper, such facilities were favorite targets of Chinese guerrillas for years. Destruction of communications facilities topped the list of "enemy sabotage activities" recorded by the Japanese authorities. In North China, for instance, the Communist-led Eighth Route Army was active in areas where NCTT operated telecommunications. Throughout the NCTT's seven-year existence, Chinese destruction was a constant problem for the company. After one such attack disrupted the trunk line between Beijing and Tianjin, recovery and repair cost the NCTT more than 160,000 yen.³¹ By NCTT's own counting, such incidents increased from 205 in 1938 to 660 in 1939 to 820 in 1940 to 1,991 in 1941.³² In May 1944, the NCTT president had to take special measures to cope with destruction of communications lines between Baoding and Shijiazhuang.³³ Chinese guerrillas in the south similarly disrupted Japan's communication by severing or stealing subma-

29. Tōa denki tsūshin jimukyoku, *Tōa denki tsūshin kyōgikai dai-3-kai gijiroku*, 17–18.

30. The colony of Taiwan seemed to be an exception because telegraphic traffic dropped to an all-time low (180,000) in the first half of 1945, even below the level at the time of the Japanese takeover. The all-time high was reached in 1940, with a total of 3,870,000 (DDJS, 6: 300).

31. Hokudenkai, *Kaboku dendan jigyo shi*, 178–79.

32. "Kita-Shina kaihatsu KK kankei dantai keibi daichō kaigi jikō hōkoku" (March 2, 1942), NCTT Records 2028/1166. In comparison, in 1941 the Japanese record was 307 instances of damage to the railway, 57 cases of arson, and 55 assassinations, among others.

33. Hokudenkai, *Kaboku dendan jigyo shi*, 177–79. On Japan's "communications protection movement," which covered both railway and telecommunications facilities in North China, see Lincoln Li, *The Japanese Army in North China*, 193–99.

rine cables.³⁴ Even in the colony of Korea, considered to be "politically stable," Japan's telecommunications facilities suffered from sabotage by Koreans.

With the outbreak of the war in the Pacific, Japan's East Asian telecommunications network went from expansion to contraction. The war in the Pacific particularly affected Japan's telecommunications operations in the Southern Region, where nearly all cable communication ceased operation due to destruction and lack of repair. Although Japan controlled a vast cable network in East Asia, the lack of cable ships as well as the gradual loss of supremacy on the high seas prevented the Japanese from repairing the existing cables, some of which had been cut by the Japanese Navy at the onset of the conflict. Even Japan's Nagasaki-Shanghai telegraphy cable, which had served Japanese interests well since 1915, went out of operation in August 1943.³⁵ Moreover, manufacture of new cable began to decline precipitously after 1943. The only exception was a number of short submarine cables laid by the Navy on its own in late 1943 and 1944 to connect several islands in the Philippines and the Dutch East Indies and totaling less than 300 km.³⁶ In 1944, the government belatedly drew up plans for building ten cable ships in the next five years, to be deployed in Shanghai, Manila, Hong Kong, Singapore, and Batavia, but none of them materialized. Worse, Japan's small fleet of cable ships was being lost to Allied submarines and bombers, which sank them one after another, crippling Japan's ability even to do maintenance work on the existing cables. In early 1944, after successfully connecting the American-built Shanghai-Manila submarine cable through Taiwan, the *Nan'yō maru* was sunk near Okinawa by an American submarine. The loss of one of Japan's best cable ships was a major blow to its submarine cable communications network.³⁷ After all three submarine cables connecting Japan and Taiwan

34. Nippon denshin denwa kōsha, Kaiteisen shisetsu jimusho, *Kaitaisen hyakumen no ayumi*, 435–37.

35. Ibid., 181.

36. "Kyū kaigun ga fusetsushita kaitei densen chōshō" (October 20, 1948), in "Shūsen mae Nihon rikukaigun fusetsu un'ei no kaitei densen ni kansuru chōsa no ken," Postwar Records, F2.2.11, Japanese Diplomatic Record Office. This report was based on the recollection of those involved in the work.

37. Nippon denshin denwa kōsha, Kaiteisen shisetsu jimusho, *Kaitaisen hyakumen no ayumi*, 395, 421–23, 477–82.

went out of operation, Japan was unable to conduct repair work and had to rely on wireless.³⁸

The year 1943 marked a turning point in Japan's imperial enterprise. At home, increasingly frequent air raids by American forces resulted in heavy damage to Japan's telecommunications infrastructure as well as its production capability. One government engineer estimated it to be ten times worse than the havoc caused by the 1923 Great Kanto Earthquake: 97 percent of telegraph circuits and 39 percent of toll telephone circuits in Japan proper were destroyed by the end of the war. Telephone subscriptions were reduced by over half a million, equivalent to 48 percent of the peak level.³⁹ In March 1944, for example, American bombing caused severe damage to the Osaka factory of the Japan Submarine Cable Company, Japan's only manufacturer of submarine cables. The GP-refining and -coating facilities, considered the core of the entire factory, as well as finished cables in a huge cable tank, were lost in the fire. Two months later, the Yokohama factory of the same company was largely destroyed in bombing raids.⁴⁰

In addition, shortages of materials, funding, and even personnel made it increasingly difficult to keep telecommunications operating smoothly.⁴¹ The war in the Pacific made it harder and harder to obtain the materials needed to repair the existing telecommunications network. Although the economy was affected across the board, shortages of copper and lead hit telecommunications manufacturing especially hard. In late 1942, Japan admitted for the first time that material shortages due to the outbreak of the Pacific War had created problems for the five-year plan, drawn up in late 1941, for expanding interregional telegraph and telephone circuits in East Asia. At the First Greater East Asian Telecommunications Conference in late 1943, the chief of planning in the MOC's Engineering Bureau also admitted that the five-year plan was not being fulfilled. The GKG representative then complained that the military maintained such tight control over materials that intervention by a

38. Taiwan sōtokufu, *Taiwan tōchi gaiyō* (Taihoku, 1945), 200.

39. Yonezawa Shigeru, "Denki tsūshin no fukkō to gijutsu mondai," *TKZ* 444 (January–February 1947): 4. See also Nakamura Fumio, "Shūsēn," *DJ* 33 (August 1983): 41.

40. *Nihon taiyō kaitei densen kabushiki kaisha shi*, 66, 80–83.

41. Though written more than half a century ago, Jerome B. Cohen's *Japan's Economy in War and Reconstruction* still provides a good general picture.

third party was required in order to obtain any. As a result, the conference's Subcommittee on Materials was asked to hold biweekly meetings to adjust communications equipment production.⁴²

Steady deterioration in the network's performance resulted as it became overburdened. Using essentially the same technology as wireless telephony, radio broadcasting relied heavily on existing telecommunications facilities. As the imperium expanded, broadcasting demands on the telecommunications system also increased. At the end of 1941, for instance, the ITC devoted eighteen transmitters, including three 50-kW and several 20-kW ones, to broadcasting a total of 53.25 hours of radio programs in 16 languages each day.⁴³ As Japan's war effort became desperate, such overseas broadcasts were increasingly viewed as crucial to eroding the enemy's morale while boosting the spirits of Japan's own troops and civilians. The result was that the hours and reach of radio broadcasts were often increased. After the government ordered the ITC to give higher priority to building new broadcasting facilities, the ITC's 1943 business plan included a "high-power broadcasting facility consisting of three 100-kW transmitters and one 50-kW transmitter." Even in its last annual business budget, drawn up in early 1945, ITC allocated nearly half the funds earmarked for wireless operations to expanding broadcasting facilities.⁴⁴ Japan's overseas broadcasting activity reached its peak in early November 1944, when Japanese radio stations broadcast fifteen programs in 21 languages, for a total of 33 hours of programs each day.⁴⁵ For telecommunications operators, however, radio broadcasting became a drain on limited materials and personnel.

There were other new demands on the deteriorating communications system as well. Allied air raids added a new burden on Japan's communications system and forced the Japanese government to focus on

42. Daitōa denki tsūshin jimukyoku, "Daitōa denki tsūshin kaigi dai-1-kai kaigi giji-roku" (pt. 2, October 1943), unpublished transcript, MOC Records II-330. For wartime shipping and shipbuilding capabilities, see Cohen, *Japan's Economy in War and Reconstruction*, 250–70.

43. *KDITKKS*, 439.

44. For the ITC's annual business plans, see "Shōwa 18-nendo jigyō keikakusho" (June 21, 1943), "Shōwa 19-nendo jigyō keikakusho" (July 10, 1944), and "Shōwa 20-nendo jigyō keikakusho" (January 24, 1945), all in NHK Records. For technical information, see *KDITKKS*, 220–22.

45. Kitayama, *Rajio Tōkyō*; *KDITKKS*, 438–40.

home defense. After a series of major blunders in the Pacific theater, the Japanese government declared a new stage of "decisive battles" (*kessen*) on all fronts at home. As a result, Japan's telecommunications network became increasingly geared toward coping with defense—and with last-ditch operations in the home islands should Japan face invasion. An unprecedented 146 million yen was allocated to the 1943 telecommunications budget. Of this, 40 million yen was to go to a special PBX network for the purpose of national defense. Another 17.5 million yen was committed to fortifying telegraph and telephone lines against air raids, and 48 million was earmarked for expansion of telephone service and for conversion of all toll lines in Japan to cable. As one MOC official admitted, the plans were heavily tilted toward military and defense matters.⁴⁶ Already in September 1943, the General Headquarters had decided to establish an "absolute national defense perimeter" by the middle of 1944. In addition to repairing damaged facilities, the MOC now had to cope with civil defense, which meant that an early warning system had to be given top priority. Moreover, because the military did not possess its own circuits at home, it had to use MOC facilities in its own preparations to fight to the bitter end. Even expansion at home did not go as planned, however. In 1944, communications equipment production in Japan met only 42 percent of its targeted amount, although aviation communications did better, at about 80 percent. According to one postwar study, only 50 to 60 percent of the planned home-defense communications network was completed by August 1945.⁴⁷

Increased communication traffic put a heavy strain on human resources, which were already weakened due to attrition and conscription. The MOC estimated that in 1939, well before the peak period, the per capita workload—both for government communications employees and for messengers—had increased nearly 50 percent since 1932.⁴⁸ More serious was the shortage of skilled personnel in both service and production, for many adult males were being conscripted into the military and sent off to fight. At the First Greater East Asian Telecommunications Conference in late 1943, the MOC proposed training female tech-

46. Yoshida Tadashi, "Kessen dankai ni okeru denki tsūshin," *DT* 6.24 (February 1943): 8–13.

47. Nakamura Fumio, "Shūsen," *DJ* 33 (August 1983): 41–43.

48. MOC Records I, 305.

nicians and deploying them throughout East Asia, since it had become increasingly difficult to recruit male technicians.⁴⁹ Apparently, since many of its technicians were sent to the Southern region, the ITC's technical institute also came to focus on training women recruits. After a vigorous recruitment campaign, the first class enrolled 50 graduates from various women's high schools in 1941.⁵⁰ When Kajii Takeshi, then head of Sumitomo Electric Industries, returned to Tokyo from a trip to Sendai in 1944, he noted in his diary that he had seen young conscripts being herded to the front. The scene reminded him of Germany near the end of World War I, which he considered to be an ominous sign for Japan.⁵¹ After 1944, he got a reprieve. Several telecommunication manufacturers, including Sumitomo Electric, were designated "military supply enterprises," a label that exempted their employees from conscription. In addition, temporary workers, members of the female *tei-shintai* (volunteer corps) and even students were recruited to work in important industries.⁵² Poorly trained workers created new problems, however. At the Third East Asian Telecommunications Conference in early 1941, for instance, a number of delegates already complained about the poor quality of vacuum tubes, the heart of wireless communication.⁵³ Moreover, the shortage of skilled personnel probably had a more detrimental effect on service. In 1943, for instance, the MTT's telegram error rate reached an unprecedented 12 percent. It was rumored that almost all telegrams contained some sort of error. The MTT therefore set a goal of eliminating telegram delays of more than five hours and error rates of more than 10 percent.⁵⁴

49. "Daitōa denki tsūshin kaigi dai-1-kai kaigi teian jikō" (October 1943), 12; MOC Records I, 328.

50. *KDTKKS*, 41.

51. Kajii Takeshi, *Kajii Takeshi ikōshū*, diary entry of July 18, 1944.

52. *Nihon taiyō kaitei densen kabushiki kaisha shi*, 78.

53. Tōa denki tsūshin jimukyoku, *Tōa denki tsūshin kyōgikai dai-3-kai kaigi gijiroku*, 156–

57. On the role of vacuum tubes in wartime Japanese military communications, see Nakamura Fumio, "Kokuun sayūshita shinkūkan," *DJ* 32 (February 1982): 43–48.

54. *DDJS*, 6: 392.

Countermeasures

To cope with these problems and to prepare for homeland defense, Japan attempted a number of solutions. From the top, it began with a reorganization of the government in late 1943. In the course of this reorganization, the Cabinet Planning Board was abolished and a new Ministry of Munitions was created to oversee military production.⁵⁵ The Ministry of Communications became the semi-independent Board of Communications (Tsūshin-in) in the newly established Ministry of Transportation and Communications (Un'yu tsūshinshō). The Telecommunications Bureau and Postal Bureau were amalgamated into the Operations Bureau (Gyōmukyoku). The Engineering Bureau remained intact, and a Frequency Bureau (Denpakyoku) was created to deal with the more serious problem of frequency allocation and control. Two new bureaus were set up—Defense Communications and Communications Supervision—to meet the new demands. New priorities can be seen in such reorganization (see Fig. 10).

In the same year, the MOC called on the general public to contribute "idle telephones" for use in factories and business firms involved in the war effort. A year later, measures were toughened so that punishment would be meted out if infrequently used telephones were not surrendered to the authorities. The government also launched a campaign "for promotion of communication spirit" and, in a bid to obtain cooperation from corporate customers, convened a roundtable conference in May 1944 that brought together 250 representatives of banks and business firms.⁵⁶

The Japanese sought technical solutions as well. Delegates to the telecommunications conferences suggested remote control of relay stations and a new design for overhead wires, largely to cope with shortages of manpower and material. Both the MOC and the MTT worked

55. For a recent study of the organizational changes during the war, particularly in the "comprehensive national policy agencies," see Furukawa, *Shōwa senjichūki no sōgō kōkai kikan*, especially 291–318.

56. Radio Tokyo broadcasts on April 6, 1943, May 6, 1944; in Office of Strategic Services, Research and Analysis Branch, comp., *Transportation and Communication in Japan*, 200–203.

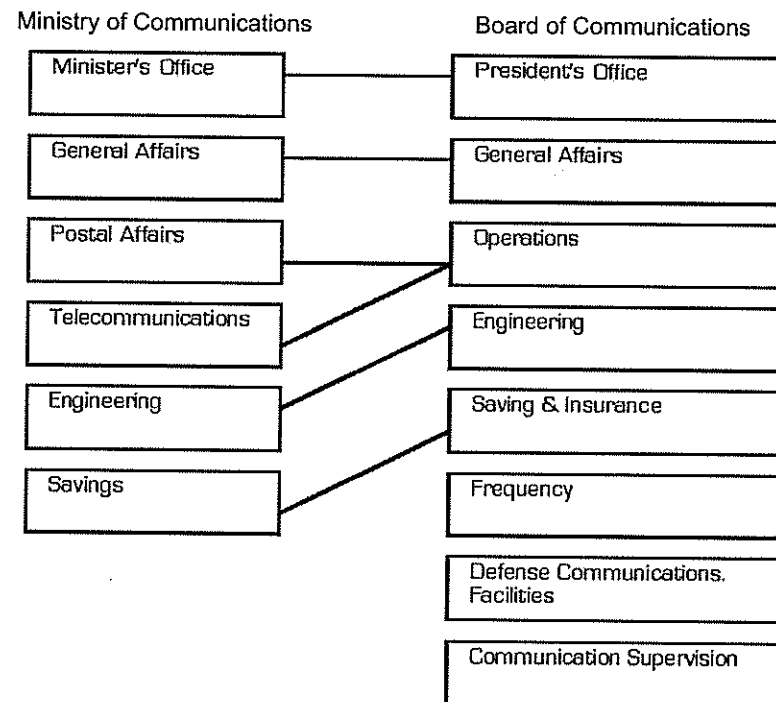


Fig. 10 Changes in Japan's communications administration, 1943
(SOURCE: *Zoku teishin jigō shi*).

to develop ultra-shortwave and extremely ultra-shortwave, to reduce interference and to offset the shortages of material.⁵⁷ The ITC suggested aluminum-covered cable, since aluminum was an "East Asian resource" relatively easy to obtain. Technical solutions could also be "low tech." For example, the Kumamoto Communications Bureau in southwestern Japan announced in 1944 that it would replace metal bells in telephone sets with porcelain bells made in the famed Arita district. According to the bureau, the porcelain bells produced a clear ringing sound and their performance was entirely satisfactory. An estimated 1 million bells were

57. Daitōa denki tsūshin jimukyoku, "Daitōa denki tsūshin kaigi dai-1-kai kaigi teian kettei yōryō" (October 1943), MOC Records I, 331; Tōa denki tsūshin jimukyoku, *Tōa denki tsūshin kyōgikai dai-4-kai kaigi gijiroku*, 111.

requisitioned—enough to refit all the telephones in Japan.⁵⁸ Such an innovation had an ironic ring since Matsumae Shigeyoshi, Kumamoto's native son, might have extolled it as another example of "Japanese-style technology."

As telecommunications congestion reached nearly unprecedented levels, additional measures were taken to cope with the problem. Simplification of service was the most common option. The MOC terminated several categories of telegraphic service, such as greeting and condolence telegrams, and launched a campaign to limit unnecessary telegrams and telephone calls. In late 1943, the First Greater East Asian Telecommunications Conference adopted a resolution calling for simplification throughout East Asia so as to meet wartime needs. But measures designed to reduce congestion met with considerable opposition, since they reversed Japan's previous telecommunications practices and affected regular business revenues. Having invested much in improving their services over the years, the NCTT and MTT were reluctant to simplify for fear of losing customers. The 1943 conference also passed a resolution encouraging the use of shorter telegrams in order to ease congestion. Domestic Japanese-language telegrams and those sent to other areas in East Asia and the Southern Region were shortened to ten characters per message at the basic rate, a reduction from the previous fifteen characters. The premium for "urgent domestic telegrams" (*naikoku kinkyū denpō*) was increased from twice that of ordinary telegrams to three times.⁵⁹

These measures notwithstanding, congestion became so severe that, at the Second Greater East Asian Telecommunications Conference in 1944, the Board of Communications decided to set up a Telegraph Decongestion Command Center (*Denshin sotsū shirei honbu*). To ease communication flows, it designated "command circuits" (defined as "telegraphic circuits involving two or more domestic communications bureaus, or between Japan and the colonies, Manchukuo, China, the Southern Region, or foreign countries") that local operating authorities were supposed to monitor daily, reporting their findings to the Com-

58. Radio Tokyo, March 22, 1944; in Office of Strategic Services, Research and Analysis Branch, comp., *Transportation and Communication in Japan*, 200.

59. November 21, 1944; in Office of Strategic Services, Research and Analysis Branch, comp., *Transportation and Communication in Japan*, 193.

mand Center in Tokyo. Headed by the director of the Operations Bureau, the Command Center was given the extraordinary authority to take emergency actions—such as temporarily altering telegraphic circuits and relay routes—to ensure the smooth operation of telegraphic communications. In addition, all local operating authorities were required to accommodate similar requests from other regional operators even before orders arrived from the Command Center in Tokyo.⁶⁰ The conference called on all operators in Japanese-controlled areas of East Asia to set up such command centers as soon as possible, as the MTT had done.⁶¹

In February 1945, the Board of Communications set up an Emergency Communications Headquarters (*Hijō tsūshin honbu*) and issued more restrictions to deal with telegraphic services. Headed by the president of the board, the new agency was charged with the planning and speedy execution of all vital wartime communications policies, as well as with general control of emergency communications measures.⁶² The board called for "a special handling of essential telegrams and a thoroughgoing curbing of nonurgent ones, to absolutely assure the speedy transmission of essential telegrams between Japan, Manchukuo, and China." In case of a breakdown in the trunk cable lines, vital telegrams would be dispatched by wireless in secret code.⁶³

Japanese telecommunications providers on the continent adopted similar measures to cope with the problem of congestion, to little avail. In North China, for example, the Beijing-Tokyo circuit, carrying 1,350 telegrams on average per day, was out of service an average of fifteen hours each day, and the Beijing-Osaka circuit (capacity 1,050 telegrams) was routinely disabled for eight hours. In the spring of 1944, the NCTT launched a two-month campaign aimed at strengthening

60. "Denshin sotsū shirei honbu no setchi," *TDIZ* 4 (November 1944): 12–14.

61. Tanaka Shizuo, "Daitōa denki tsūshin kaigi dai-2-kai kaigi no gaikyō," *TDIZ* 4 (November 1944): 9.

62. Radio Tokyo (Japanese), February 14, 1945; in Office of Strategic Services, Research and Analysis Branch, comp., *Transportation and Communication in Japan*, 189.

63. Radio Tokyo, February 14, 1945, March 3, 1945; in Office of Strategic Services, Research and Analysis Branch, comp., *Transportation and Communication in Japan*, 203.

"communications fighting power."⁶⁴ It seemed ineffective, however. In a report submitted to North China's own Decongestion Command Center in late July 1945, a Japanese official in charge of easing the congestion in Beijing cited sabotage by Chinese guerrillas as the main cause of frequent breakdowns in the major lines. Moreover, their equipment was in such fragile condition and suffered from such poor maintenance, he admitted in the confidential report, that operating such equipment was like "whipping a corpse."⁶⁵ Occasionally, many of the emergency measures probably compounded the problem of coordination. Chaos reigned when long-used frequencies were discontinued under military orders; in one case this led to the breakdown of direct communication between Inner Mongolia and Shanghai for more than a week.

As a key link in Japan's imperial telecommunications network, the Manchukuo-Korea-Japan route became even more crucial during the latter stage of the Pacific War. As more and more circuits on the Japan-Manchukuo cable were devoted to relaying communications between Japan and North China, construction began on a second cable linking Keijō with northern Manchuria. It reached Wonsan in northeastern Korea by the end of the war. Domestic services in Korea were reduced to meet the need of through traffic as well as air defense. Still, the Korea Strait became the biggest bottleneck in Japan's telecommunications network. This was especially worrisome because the planned new cable linking Japan and Central China, which would have relieved some of this burden, failed to materialize. At the Fourth East Asian Telecommunications Conference in 1942, the MTT called for improving the link between Japan and the continent, citing frequent breakdowns in the Japan-Manchukuo cable, especially its underwater section in the Korean Strait.⁶⁶ A second non-loaded submarine cable—with six telephone channels—was placed across the strait in December 1943, but soon ceased functioning. Lack of repair ships further aggravated the problem.

64. "Dai-1-ji tsūshin senryoku zōkyō undō senka gaiyō" (September 1944), NCTT Records 2028/1922.

65. "Denshin shirei 20-nichikan no hōkoku" (July 25, 1945), submitted by Officer on Decongestion in Beijing (Oda) to Head of the Decongestion Command Center, NCTT Records 2028/1419.

66. Tōa denki tsūshin jimukyoku, *Tōa denki tsūshin kyōgikai dai-4-kai gijiroku*, 147–49.

In early 1945, congestion and periodic breakdown of the vital telegraphic connections between Manchukuo and Japan became so severe that at one point the MTT resorted to using airplanes to deliver backlogs of telegrams from Manchukuo to Tokyo.⁶⁷ Airmail service could hardly become a sufficient substitute, however. After 1944, as Japan lost air supremacy as well as most of its planes, even regular domestic airmail service could no longer be maintained. To ensure this vital link between Japan and the continent, an ultra-shortwave (VHF) connection, promising a total of twelve channels, was established, but its relay station on the island of Tsushima was destroyed in a fire. In a last-minute effort, the Japanese undertook to construct new direct cross-channel wireless facilities without the need of relays. Ironically, the work was completed on August 15, 1945, the very day of the Japanese surrender.⁶⁸

The Final Countdown

The rapidly deteriorating condition of Japan's telecommunications network was already painfully obvious when the Second Greater East Asian Communications Conference was held in Tokyo in late 1944. This was the last time Japanese representing all the telecommunications operators in the imperium gathered under one roof to discuss the fate of Japan's East Asian telecommunications network. Compared to previous gatherings, it was a sober affair. Both the General Assembly and the Technical Section were canceled due to travel difficulties for most representatives; given the pressing demand for technical operations in all areas, it was also difficult to dispatch engineers to Tokyo for another meeting. The entire conference was reduced from the previously announced six days to only two. In his opening speech, Suzuki Kyōichi of the Board of Communications called on all those engaged in telecommunications to renew their efforts to "fully realize the capability of telecommunications in Japan, Manchukuo, China and the rest of Greater East Asia."⁶⁹

67. "Fukumeisho" (July 23, 1945), NCTT Records 2028/1419.

68. *DDJS*, 6: 245–57.

69. Tanaka Shizuo, "Daitōa denki tsūshin kaigi dai-2-kai kaigi no gaiyō," *TDTZ* 4 (November 1944): 3–10; "Daitōa denki tsūshin kaigi dai-2-kai kaigi," *TKZ* 435 (December 1944): 12–14. See also Radio Tokyo broadcasts on October 24, 30, and November 4, 1944; in Office of Strategic Services, Research and Analysis Branch, comp., *Transporta-*

The reality must have been starkly clear to those delegates present, who included all senior executives of major telecommunications operators. On November 1, 1944, the last day of the conference, as delegates were preparing the final draft of a revised East Asian Telecommunications Agreement, air-raid sirens twice forced everyone into an underground bomb shelter. This was the first time B-29 bombers had flown over Tokyo from Saipan in the Mariana Islands, although this time it was for reconnaissance only. Although Watanabe Otojirō, who attended the meeting as a senior executive representing the NCTT, claimed that the raid only stiffened everyone's resolve, even he had to admit that it was "too dramatic" an experience to have the revised agreement completed in an underground bomb shelter.⁷⁰ As he waxed nostalgic about the autumn foliage and hot springs in Japan, it must have been obvious to him that the end was near.

None of the emergency measures taken by the Japanese during the war could change the fate of its network. Due to deteriorating infrastructure and the loss of skilled workers, even telecommunications at home became unreliable. As one Japanese official revealed in mid-1944, compared with the year before the outbreak of the war in China, the number of telegrams had increased by over 60 percent, but the number of circuits and employees had grown by only over 10 percent. The increase in long-distance telephone calls also outpaced the increase in available circuits. As a result, errors and delays in telecommunications service rose sharply. Several hours of waiting time were required to place even a special emergency long-distance telephone call, whereas some 40 percent of local calls could not be completed due to interruptions.⁷¹ Such was the state of Japan's imperial telecommunications net-

tion and Communication in Japan, 191, 201. The 1943 meeting left only a draft record, and the 1944 conference did not leave any. This may be one of the reasons for the confusion, for it apparently slipped the memory of one ex-MOC official, Sasaki Kazuo, who later claimed that the 1944 annual conference never took place. See Sasaki, "Daitōa denki tsūshin taisei no kōzō," in Teishin gaishi kankōkai, *Teishin shiwa* II: 493.

70. Tanaka, "Daitōa denki tsūshin kaigi," *TDIZ* 4 (November 1944): 4; Watanabe Otojirō, "Daitōa denki tsūshin kaigi suisō," *TDIZ* 4 (November 1944): 11–12. When Watanabe later met with former MOC colleague Kajii Takeshi in Tokyo, he was apparently still wedded to the visions of a Greater East Asian telecommunications policy. See Kajii's diary entry of November 23, 1944, in Kajii Takeshi, *Kajii Takeshi ikōshū*, 124.

71. Nagata Yūji, "Kessenka denki tsūshin no setsubi to sutsū," *TKZ* 429 (June 1944): 4.

work at home and abroad as the empire approached its twilight. Japan's imperial telecommunications network disintegrated soon after its formal surrender, although some of the military and diplomatic communications channels remained in operation a little longer.⁷²

The final countdown of Japan's empire can perhaps better be measured in terms of Japan's dwindling communications with the outside world, as key allies ceased to exist and last-minute diplomatic negotiations were attempted with increasing desperation. The beginning of the end came in the early morning of April 24, 1945, when Japan's communications link with its wartime ally Germany finally ceased operation. As a result, more than 100 telegrams, including 42 Japanese government telegrams and 33 official telegrams from the German embassy in Tokyo, could not be sent. After that date, Japan's direct communications link with Europe—and with the world outside Asia—was limited to a handful of cities in neutral countries, such as Moscow, Stockholm, Geneva, and Lisbon.⁷³

On June 26, 1945, the Japanese Cabinet issued its last major policy statement on telecommunications. The "Policy to Ensure Communications During the Battle in the Home Islands" was a resolution designed to strengthen communications for defense against Allied invasion. Determined to wage a last-ditch effort of home defense, the Army had already begun construction of a new imperial headquarters in the mountains of Nagano prefecture, which became the project of highest priority near the end of the war. Considerable resources were diverted to the project, which included a new communications center for all of Japan. One thousand communications personnel were to be stationed there, with transmitters powerful enough to reach Europe.⁷⁴

72. Japanese record shows that on August 17 Tokyo was still capable of communicating with Beijing, Shanghai, Nanjing, Singapore, Makassar, and Saigon. "Taigai tsūshin renraku jōkyō ni kansuru ken" (August 18, 1945), MOC Records II, 665. For instances of such communications, see Louis Allen, *The End of the War in Asia*.

73. "Tai-Doku musen denshin renraku tozetsu ni kansuru ken" (May 3, 1945), MOC Records II-561.

74. Nakamura, "Daihonhei to tsūshin," *DJ* 32 (October 1982). Nakamura notes that Japan emulated the success of Germany by setting up ultra-shortwave multiplex wireless facilities at the front, but never established a direct telephone link between the General Headquarters in Tokyo and commanders in the field, as Germany did; see Nakamura, "Rikugun tsūshinhei yomoyama hanashi," *DJ* 31 (July 1981): 45.

On July 26, 1945, the United States, Britain, and China issued the Potsdam Declaration as an ultimatum to Japan, calling on its government to proclaim "unconditional surrender of all Japanese armed forces" or face "prompt and utter destruction." The declaration stipulated demilitarization and demobilization, punishment of war criminals, removal of obstacles to democratization, material reparations, and territorial reduction in accordance with the 1943 Cairo Declaration, and occupation of Japan until all these objectives had been accomplished. When the Potsdam Declaration was received via the Swiss government, the Japanese government was still counting that the Soviet Union would play a part in bringing about a conditional surrender. Deeply divided over how to respond to the ultimatum, Japanese leaders were particularly concerned about the status of the imperial institution, which was not clarified in the declaration. The Army also objected to many other demands as well. Strong pressure from the military led Prime Minister Suzuki Kantarō to announce that the Cabinet "would offer no comment" (*mokusatsu*), essentially ignoring the Allied demands. Japan's failure to promptly accept the Potsdam Declaration, as well as the Allies' insistence on unconditional surrender, had grave, albeit unforeseen, consequences. In early August, two atomic bombs were dropped on the home islands, and the Soviet Union joined the war against Japan.⁷⁵

By this time the state of Japan's international communications was even more precarious than it had been before. As a final blow to Japan's peace effort, its link with Moscow went dead in the early morning of August 9, the same day the Soviet Union declared war on Japan. At the request of the Ministry of Foreign Affairs, Japan's telegraph office attempted to reopen the Tokyo–Moscow circuit the next day, but to no avail. Desperate Japanese telegraphic operators resorted to announcing their intentions to resume communication via overseas radio broadcasts. On August 11, two telegrams from the Soviet embassy in Tokyo to Soviet Foreign Minister Molotov were sent via Geneva. By late afternoon, the Moscow link had resumed for a few hours, barely long enough for one of the two telegrams to be resent.⁷⁶ As Japan maintained only three

75. For a recent reinterpretation on Japan's decision to surrender, see Kiyoshi Hasegawa, *Racing the Enemy: Stalin, Truman, and the Surrender of Japan* (Cambridge, Mass.: Harvard University Press, 2005).

76. "Gaishinka jimu nisshi" (January–December 1945), MOC Records II, 608.

channels of telecommunication outside East Asia, in addition to sending official telegrams through Geneva, it also resorted to overseas shortwave broadcasts to convey its acceptance of the Potsdam Declaration.⁷⁷

AFTERMATH OF EMPIRE

Legacies Abroad

Historian Michael Adas has pointed to the need to abandon grand attempts to draw up balance sheets of imperialism.⁷⁸ This is certainly applicable to Japan's techno-imperialism in telecommunications. When the Japanese empire collapsed in August 1945, Japan lost all the infrastructure overseas, including all the telecommunications facilities it had built or taken over in Asia during the course of several decades. Nevertheless, Japan's techno-imperialism in the field of telecommunications had important postwar legacies that not only affected former colonies and occupied areas but influenced Japan proper as well.

No accurate figures exist as to total Japanese investment in telecommunications before and during the Pacific War. A group of former Japanese employees charged with chronicling overseas telecommunications operations not long after the war came up with the information given in Table 13.

Statistics can provide only part of the answer, since not all costs and benefits can be tabulated to satisfy the accountants of imperialist projects. The Korean peninsula provided perhaps the most dramatic demonstration of Japan's imperial legacy. After Korea was divided, the south was placed under U.S. occupation. Japanese technologies slowly gave way to American influence, but the colonial telecommunications infrastructure continued to play a role in post-colonial Korea. An

77. Kitayama, *Zoku Taiheiyō sensō mediya shiryō*. According to Japanese records, only the following routes were still working on August 17: Geneva, Stockholm, and Lisbon. Temporary wireless communication between Tokyo and Manila was set up on August 16 to handle occupation-related matters.

78. Michael Adas, "High Imperialism and 'New' History," 331–44. For an examination of how a ruthless invader can exploit industrial societies, see Liberman, *Does Conquest Pay?*, 118: "If Japan's expansionism had not resulted in an unwinnable war," the author argues, "the empire would have added greatly to its economic self-sufficiency and ability to wage a protracted war."

Table 13
Estimate of Telecommunications Facilities in Japan's Imperium, 1945

Area	Telegraph offices	Telephone subscribers
Taiwan	178	24,043
Korea	1,048	59,496
Karafuto (southern Sakhalin)	134	6,878
Manchurian Telegraph and Telephone Co. (MTT)	922	108,571
North China Telegraph and Telephone Co. (NCTT)	159	52,786
Inner Mongolia Telecommunications Facility Co. (IMTFC)	60	4,238
Central China Telecommunications Co. (CCTC)	78	15,477
Xiamen Telecommunications Co.	2	813
TOTAL	2,581	272,302

SOURCE: *Gaichi kaigai denki tsūshin shisetsu ni kansuru shūsenji shisetsu genjō, shisan hyōka, oyobi hikiutsutsuki jōkyō gaisetsu* (Tokyo: Denki tsūshin kyōkai, 1956).

American survey in the late 1940s found the existing telecommunications network in southern Korea "small and in many respects obsolete by American standards," having suffered from years of undermaintenance. However, it was considered "generally adequate to meet the existing needs."⁷⁹ In June 1950, five years after Japan's empire had disintegrated, the Korean peninsula was engulfed in a new conflict. Badly in need of communications facilities, the American forces "discovered" the underground "Mukden cable" running through the peninsula and found it to be a crucial asset. American engineers repaired Japanese cables and repeater stations so that the cable could be put to maximum use as a trunk line for troops in Korea, and as the vital link between General MacArthur's headquarters in Tokyo and U.S. forces on the Korean peninsula. As the great artery of communication, a U.S. Army officer recalled, the Mukden cable was a "God-given gift for the US Signal Corps."⁸⁰

Americans were not the only ones who benefited from Japan's imperial infrastructure. The same Mukden cable also served as a major communications link for North Korea and China, which joined the war in

79. McCune, *Korea Today*, 160–61.

80. Nakamura Fumio, "Chōsen sensō to tsūshin," *DT* 35 (January 1983): 64–65; Huston, *Guns and Butter*, 297–98.

October 1950. Lacking spare parts to repair damage to the cable between Sinuiju and P'yongyang, Chinese engineers resorted to removing sections of the NLC along the former Manchukuo-USSR frontier and using them in Korea.⁸¹ This was the case with the railway linkage to Japan and Manchuria as well. Since Japan had built the railroads in Korea during the colonial period, repair and replacement items could be obtained from the Japanese National Railways and quickly airlifted to Korea, an important advantage to UN troops.⁸² During the Chinese Civil War of 1946–49, the railway in the north transported remaining Japanese material to the Chinese Communist forces, contributing to their victory over the Nationalists in Manchuria. And in southern Sakhalin, Japanese technicians were employed to repair the NLC in the area.⁸³ Thus, in a way no one could have predicted, what remained of Japan's imperial telecommunications and transportation network contributed to Northeast Asia's transition to the world of the Cold War.

Many Japanese technicians involved in telecommunications and other fields stayed on—some by choice, others under pressure. In North China, many Japanese employees of the NCTT, including Asami Shin, former director of the Communications Department, remained. In June 1946, at the request of the Chinese authorities, some 109 former Japanese employees stayed; the others were repatriated to Japan. The outbreak of civil war between the Nationalists and the Communist forces in northeastern China, however, made it increasingly difficult for the Nationalist government to retain these Japanese technicians. By year's end, all but nineteen former Japanese employees had returned to Japan. Seventeen of these returned to Japan in November 1948, but two were kept in service by the Chinese Communists.⁸⁴ In Central China, after the takeover by the Chinese (and, in the case of Shanghai Telephone Company, by Americans), most Japanese telegraph operators lost their jobs but Japanese technicians were kept on. Between November 1945 and February 1946, some twenty of them were mobilized to

81. Chen Ende, "Kang-Mei yuan-Chao changxiu dianlan," *Youdian wenshi tongxun* 14 (December 1993): 19. Chen headed the Chinese engineering group that carried out the repair work in North Korea between late 1951 and early 1952.

82. Roy E. Appleman, *South to the Naktong, North to the Yalu* (Washington, D.C.: Office of the Chief of Military History, 1960), 261.

83. *DTJGKS*, 253–54.

84. Hokudenkai, *Kaboku denden jigō shi*, 256–62.

transfer and install about a thousand automatic exchange telephones from Shanghai to Nanjing. About a hundred Japanese technicians in Hankou were also retained to provide technical assistance to the Chinese government until May 1946.⁸⁵

In Manchuria, a number of employees of the MTT's Investigation Bureau in Harbin were arrested for alleged espionage activities against the Soviet Union, while more than 200 Japanese technicians were retained by the Chinese government to repair damaged communications facilities. One former Japanese employee of the MTT even started a Harbin Wireless School where Chinese and Koreans were taught basic skills—all with the encouragement of the Communist-controlled municipal government—and ran it until his repatriation to Japan in 1953.⁸⁶ This employment of large numbers of Japanese technical personnel not only facilitated some technology transfer to the new regime but also had important implications for Japan's relationship with its continental neighbor after the war.⁸⁷

Many Chinese and Koreans who had been employed in these Japanese-dominated communications facilities went on to become the backbone of operations after Japan's surrender, even as their countries were moving into the technological orbit of either the United States or the Soviet Union. Although telegraphic communications had largely been unified in China proper before the war, Japan's wartime consolidation of local telephone operations in China (including Manchuria) no doubt made it easier for postwar Chinese authorities—whether the Nationalists or the Communists—to rebuild a national communications network controlled by the state (with the exception of foreign companies such as Shanghai Telephone Company and the Great Northern Telegraph Company before the 1950s).

85. DDJS, 6: 473–74.

86. Ibid., 876; Ōtake Eiji, *Hito to nami to*, 115–16. For a generally positive recollection by a Chinese who worked with MTT Japanese technicians in the early postwar period in northeast China, see Ni Xingxin, “Guanyu Riben jishuren yu zai Dongbei jiefangqu dexing gongzuo de huiyi,” *Youdian wenshi* 48 (December 1998): 18–20. Ni resumed contact with some of the Japanese and developed friendships with them decades later, after Japan and China restored diplomatic relations.

87. I discuss this subject and its political implications for early postwar Chinese-Japanese relations in “Resurrecting the Empire? Japanese Technicians in Postwar China.”

Influences at Home

As Japan came under Allied occupation, the Supreme Command of the Allied Powers (SCAP) introduced drastic reforms in a wide range of areas, under the twin goal of demilitarization and democratization.⁸⁸

Telecommunications was one of the areas where major changes were introduced. Due to the ITC's extensive ties to the military and its active part in overseas expansion, SCAP considered it “the hub of a small communications *zaibatsu*” (financial clique). With 30 percent of its assets located outside Japan proper and thus considered totally lost, the ITC was in financial distress and was ordered disbanded.⁸⁹ MOC officials strove to save its operations on the grounds of their technical superiority, but to no avail.⁹⁰ One of the most useful tools of Japan's overseas telecommunications expansion and operation was dismantled.

The technical capability and industrial strength developed during this period were not completely lost in the home islands and would serve as the basis for Japan's postwar recovery despite occasional obstacles.⁹¹ In the field of transmission technology, the Japanese were told to discontinue their research, although they managed to continue it behind the backs of the Americans. In certain areas, such as ionospheric research, Japan was allowed to continue its work even during the Allied occupation, thanks to its obvious lead in the field and the usefulness of its findings. Scientists at Fujikura Wire Works studied captured American cable used in radar in Singapore and began research on plastic conductors in 1943, at the request of the government. Under the guidance of the Research Institute for Physics and Chemistry, Fujikura and Hitachi began test manufacturing by the end of the year.

88. For a general history, see John Dower, *Embracing Defeat*.

89. SCAP CCS, “Reasons Why ITC Should Be Absorbed by the Ministry of Communications” (December 27, 1946); SCAP CCS, “ITC's Small Zaibatsu” (January 14, 1947); Box 3188, RG 331, National Archives.

90. See memo “Technical Superiority of ITC,” and “Reasons Why the Company Conducting Construction and Maintenance of Wireless Facilities Is to Be Kept When ITC Is Re-arranged.” They were prepared by ITC and submitted to SCAP on December 11, 1946, Box 3188, RG 331, National Archives.

91. For an analysis in the chemical industry, see Molony, *Technology and Investment*, 318–19.

Although the war came to a close before their final product was ready, their studies would prove useful for postwar recovery.⁹²

Although the hardware that remained from Japan's empire-building was plain to see, what Japan had gained from the experience of building a vast wartime empire was less obvious but equally important.

The human factor was perhaps the most important link between Japan's imperial project and its postwar economic resurgence. To be sure, this link was not completely intact. One estimate put the total number of Japanese who worked in communications in Manchuria and China after 1931 at 25,000 to 30,000.⁹³ Many never made it back to Japan, either perishing in the last phase of the war or dying in custody in Siberia and elsewhere. The nine Japanese female telephone operators in southern Sakhalin who committed suicide by taking poison before the arrival of the Soviet troops were perhaps the most well-known example. A monument was later built to them in northern Hokkaido years later and would be favored with imperial visits.⁹⁴ The majority survived, however, and returned to war-ravaged Japan.

Several top executives were purged. Watanabe Otojirō, returning from seven years in China, served briefly as director of the Telephone and Telegraph Bureau when Matsumae Shigeyoshi was president of the Board of Communications, but was relieved of public duty in early 1947 because of his connection with the NCTT. Since it was difficult to find a qualified replacement, SCAP allowed Watanabe to hold office longer than specified.⁹⁵ Nonetheless, the postwar career of one of Japan's most talented telecommunications specialists was unremarkable, as if the scale of post-imperial Japan was too small for him.

Technicians survived better than their administrative counterparts. Although Japan's effort to build telecommunications hegemony in East Asia did cost many lives, many of its "communications men," such as engineers associated with the NLC network, not only survived but

92. Fujikura densen kabushiki kaisha, *88-nen no ayumi*, 233–34.

93. Matsuo Matsutarō, "Tairiku ni katsuyakushita teishinjin (I): Manshū," in Teishin gaishi kankōkai, *Teishin shiwa* II: 213.

94. See Karafuto teiyūkai, *Tsuioku no Karafuto teishin*. Also Matsuo Tatsutarō, "Gaichi hikiage to junshoku hiwa," in Teishin gaishi kankōkai, *Teishin shiwa* III: 221–41.

95. SCAP CCS, "Personnel Changes in the Ministry of Communications" (April 4, 1947), Box 3188, RG 331, National Archives; Teishin dōsōkai, comp., *Senpai ni kiku*, 655–71.

went on to play influential roles in postwar Japan. Shinohara Noboru, Matsumae's less outspoken but equally capable lieutenant, became associate director of the new Science and Technology Agency.⁹⁶ Matsumae, who had contributed more than anyone else to the development of NLC technology for the East Asian network, founded the large, multi-campus Tōkai University. Known for its strong engineering departments, the university embodied Matsumae's vision for a future Japan. Several others played key roles in postwar telecommunications (see Table 14).⁹⁷

Thus Japan's empire was lost, but its empire-building experience and techniques were not. In some cases, wartime experience proved quite useful for rebuilding postwar Japan. For example, urban planning in Manchukuo in particular exerted much influence on postwar Japan.⁹⁸ Perhaps the most successful large postwar project that had a wartime genesis was the *Shinkansen*, the world-famous bullet train.⁹⁹ Dreams during the war became a reality in peace. Although the United States wielded much clout in early postwar Japan, there is evidence that Japan's postwar telecommunications policy was influenced by its wartime experience as well. Although state control of telecommunications had been a firmly established principle in Japan, private involvement in international communications had always been considered an alternative that could be used to overcome political complications. The relative financial and political success of these private operations in the imperium provided firsthand experience to many MOC officials. At the sugges-

96. For a Japanese work on the connection between the Science and Technology Agency and the legacies of wartime experience, see Ōyodo Shōichi, *Miyamoto Takenosuke to kagaku gijutsu gyōsei*, 518–28. Shinohara himself later commented that his earlier experience was very helpful in his work as vice minister of the Science and Technology Agency; see Nippon denshin denwa kōsha, *Denki tsūshin jishu gijutsu kaihatsu shi [hanso denwa hen]*, 36.

97. Recollections by Fujikawa in Teishin dōsōkai, comp., *Senpai ni kiku*, 666–67.

98. Writing on the Japanese civil engineers and architects who were active in Manchukuo, Koshizawa notes that "technology is developed through actual work, and technology is transmitted not through publications and documents alone but rather through the movement of people. Through work, pupils are trained who, in turn, form the group of technicians" (Koshizawa Akira, *Manshūkoku shūtō keikaku*, 29).

99. For a fascinating study, see Takashi Nishiyama, "War, Peace, and Nonweapons Technology: The Japanese National Railways and Products of Defeat, 1880s–1950s," *Technology and Culture* 48 (April 2007): 286–302.

Table 14
Transwar Personnel Continuities in Japanese Telecommunications

Name	Pre-1945 position & accomplishment	Major postwar position(s)
Fukuda Kon	President, CCTC	Executive Director, KDD
Hanaoka Kaoru	MOC official GNTC negotiations	Director, KDD
Kajii Takeshi	MOC engineer MTT establishment NLC adoption	Founding president, JTTPC Science and Technology Committee
Kobayashi Kōji	NEC engineer NLC development	President, NEC
Matsumae Shigeyoshi	MOC engineer NLC development	Founder & president, Tōkai University
Ōhashi Hachirō	Director, IRAA President, ITC Telecom Committee	Diet member 2nd President, JTTPC
Shinohara Noboru	MOC engineer NLC development	Associate Director, Cabinet Science and Technology Agency Science and Technology Committee

NOTES: IRAA: Imperial Rule Assistance Association; JTTPC: Japan Telegraph and Telephone Public Corporation.

tion of Watanabe Otojirō, many promising young MOC employees had been transferred to a national policy company like the NCTT for two years before returning to Tokyo, thus gaining firsthand experience of telecommunications operations in a quasi-private environment. When they returned to Japan after the war and resumed important positions in the government, it became obvious that postwar telecommunications were not going to be the same.¹⁰⁰ Accordingly, in early 1950, the advisory Telegraph and Telephone Revitalization Council proposed that a

100. Later it would become a problem, when calculating years of service, whether to include those in the "national policy companies" such as the MTT. That those in favor finally prevailed, according to one MTT veteran, was partly due to the fact that these companies operated under military orders during times of emergency, although they were private enterprises otherwise. Watanabe Tatsuki, "Mōkyō haken," in *Manshū denden tsuikuroku kankōkai*, *Akai sekijō*, 259.

public enterprise incorporating the advantages of private management would be the most appropriate format for telecommunications in Japan.

During the Upper House deliberations in 1952 over the form of telecommunications in postwar Japan, Endō Shin'ichi, a former MOC bureau director who had served as executive vice president of the MTT, testified as one of nine expert witnesses on the government's proposal to create a public corporation for telecommunications. Endō's experience at the MTT proved especially pertinent. "Although the idea of a 'public corporation' is said to have recently come from America," Endō told Diet members, "in fact in Manchukuo we were already operating according to the concept of a public corporation a long time ago." He was referring not only to the SMR but to the MTT, which had been founded in 1933 as a semi-public entity. Although in appearance the MTT had been a private stock company, Endō explained, "in essence I believe it was what we would call a public corporation." Endō had little doubt about the appropriate form of ownership of telecommunications in postwar Japan, arguing that, "seen from the essence of telegraph and telephone enterprise, public corporation is the most appropriate form. Neither state management nor private management is sound."¹⁰¹ In the end, the Japan Telegraph and Telephone Public Corporation (*Nippon densen denwa kōsha*; JTTPC) was launched in August 1952 to operate domestic telegraph and telephone service under a monopoly it enjoyed until its privatization in 1983.

There was occasional soul-searching on the part of Japan's "communications men" about the fate of Japan's imperial enterprise. An early postwar history of ITC attributed its involvement in government-led expansion in part to the militarism and mass media, which created the fantasy of a continental cable via China to Singapore. Kajii admitted the many failures in Japan's colonial policy and wished Japan's had learned more from Britain, which "sent the best and the brightest" to their overseas colonies.¹⁰² Understandably, many engineers blamed Japan's defeat on a failure of science and technology, vowing not to

101. Excerpts of Endō Shin'ichi's testimony are included in Yamashita Takeshi, *Denshin denwa jigyō ron*, 66–72. The MTT was by no means Japan's only experience with a public corporation in telecommunications. In mid-1942, a public telecommunications corporation had been proposed to operate the pan-East Asian network.

102. *KD'IKKS*, 3; Kajii, Preface to *Hokudenkai*, *Kaboku denden jigyōshi*.

succumb to another "tactless (*mubō*) war." Shortly after Japan's surrender, Matsumae Shigeyoshi, as the president of the Board of Communications, reportedly had a discussion with a young engineer about the fate of "Japan's domestic technology." Although Matsumae still believed in "domestic technology," he now had to agree with the young engineer that Japan must abandon the pursuit of Japanese-style technology that excluded foreign input; only through technical exchange with foreign countries, could Japan develop and export standards universal to the world.¹⁰³ And when Kajii Takeshi became the first president of the JTTPC, he immediately ordered the importation of all recent foreign innovations, even at the risk of bankrupting the young company. During his overseas tour in 1953, Kajii was surprised to find that "in foreign countries, they are making great efforts at producing coaxial cables." He was disappointed that Japan was not doing so.¹⁰⁴ After years of technological isolation, Japan apparently had much catching up to do. As one Japanese writer pointed out, Japan's telecommunications manufacturers benefited handsomely from technological transfer from the U.S. military, particularly in the area of FM wireless in the early Cold War years.¹⁰⁵

Revival

Japan's return to early postwar Asia met with mixed results.¹⁰⁶ Like many Japanese who had worked on telecommunications in wartime China, Matsumae wondered after the war what had happened to the NLC network in Manchuria and China. He remained convinced of China's need for Japanese technology: "To bring these superior circuits back to life, one has to bring vacuum tubes and cables from Japan, or these lines can't be maintained. . . . Since they have to rely on Japan for such products, this is how Japan can expand its exports." Making products that could not be imitated overseas, Matsumae asserted, was

103. *DJGKS*, 268.

104. *Ibid.*, 40–41.

105. See Nakamura Fumio, "Chōsen sensō to tsūshin," *DJ* 33 (May 1983): 56–57.

106. For instance, Jane Robbins has noted in *Tokyo Calling*, her study of Japan's overseas broadcasting, that its wartime experience helped Japan to become a leader in international broadcasting in postwar Asia.

the task facing the Japanese economy at the present and in the future.¹⁰⁷ In some ways, Japan's technological presence in the pre-1945 era helped re-establish postwar links with Asia, especially after its own economy recovered and took off.

After the People's Republic of China's initial economic recovery, it launched its first Five-Year Plan, with the Soviet Union and its Eastern European allies as China's suppliers of equipment, technology, and funding in areas such as telecommunications. Still, because much of the equipment produced by Japanese companies in Manchuria and North China remained in use in China, spare parts and repairs were necessary. Eager to re-enter the China market, Japanese telecommunications manufacturers managed to obtain information about the conditions of telecommunications facilities there from Japanese repatriates and visitors to the People's Republic. Having ascertained the demand for Japanese telecommunications products, the industry lobbied the Japanese government to relax COCOM (Coordinating Committee for East-West Trade Policy) restriction of exports of certain items to China. In June 1954, special permission was granted to export small quantities of radio parts and vacuum tubes. An executive of Japan's Wireless Communications Industry Association (*Nihon musen tsūshin kikai kōgyōkai*) even took to the airwaves of NHK's Chinese-language programs to promote Japan's products. As a result, by the end of 1954, Japan received an order for 20,000 vacuum tubes valued at \$20,000.¹⁰⁸ The Cold War confrontation, however, prevented Japan from playing a larger role in the technological development in mainland China until the 1970s.

Outside the Communist bloc, the revival and strengthening of ties with Japan proceeded with more success, albeit unevenly. In 1959, at the suggestion of Kondō Giichi, a former MOC official, the Asian Telecommunications Assistance Association (*Ajia denki tsūshin kyōryoku kai*) was founded. The organization consisted of representatives from government, industry, and Japan's two major telecommunications

107. Matsumae, Preface to Matsumae Shigeyoshi ronbunshū kankōkai, *Hatsumae e no chōsen*, 44–46.

108. "Tsūshin kiki no Chūkyō muke yushutsu," *Tsūshin kōgyōkai hō* 3 (February 1955): 8–9. For an account of conditions in China after the war by a former Japanese employee of the MTT, see Suzuki Yūji, "Chūgoku ni okeru tsūshin shisetsu to un'ei," *Tsūshin kōgyōkai hō* 3 (February 1955): 12–14.

operators. Most projects involved export of telecommunications equipment to Southeast Asian countries. Also in 1959, Furukawa Electric Company and NEC sent top executives on a tour of Thailand, Cambodia, Laos, and Vietnam. Kajii reported that those who had visited Japan before “welcomed Japan’s cooperation because they knew the excellence of Japan’s technology.”¹⁰⁹ In cooperation with these two manufacturers, the association set up the Japan Communications Assistance Company (Nihon tsūshin kyōroku kaisha) to investigate and design telecommunications facilities overseas. As Japan’s economy took off in the 1960s, investment and export would bring much of Asia within Japan’s embrace.¹¹⁰ In Japan’s former colony of Taiwan, where 400 km of three-channel non-loaded telephone cable between Taihoku (Taipei) and Takao (Kaohsiung) had been completed by the ITC by the end of 1943, Japanese technology continued to influence telecommunications development well after the war. In the late 1960s, the F-24 coaxial cable made in Japan, with technical assistance provided by the JTTPC was completed between Taipei and Kaohsiung and became a major toll trunk line in Taiwan.¹¹¹

Although the re-established technological links helped launch Japan into postwar recovery and onto the international stage, its history of imperial expansion also made Japan’s presence often politically sensitive in Asia. Statements by Japanese officials about the “positive contributions” during Japan’s colonial rule certainly did not help. The submarine cable between Japan and Korea, used largely by the U.S. forces stationed in both countries, became a major bone of contention between Tokyo and Seoul. Japan insisted on the mid-point between Pusan and Tsushima as the dividing line for maintenance of the cable, whereas Seoul insisted on the mid-point between Fukuoka and Pusan. In 1958, a Japanese ship repairing the cable was accidentally shelled by the South Korean Navy because it was inside Korean waters as defined by the so-called Syngman Rhee Line. And in a move reminiscent of the 1880s, the Japanese government ended up hiring a GNTC cable ship to do repair work in 1961. The dispute was not resolved until after the

109. DDJS, 6: 972–76; Kajii, *Waga bansei*, 514.

110. See Hatch and Yamamura, *Asia in Japan’s Embrace*.

111. DTJGKS, 250–51.

signing of the Basic Treaty between Japan and the Republic of Korea in 1965, under the Park Chung Hee regime.¹¹²

Given the new political boundaries, it is not surprising that many of Japan’s technological blueprints during its empire-building era failed to turn into reality after the war. The planned underwater railway tunnel between Korea and Japan, not to mention the grand concept of a trans-Asian continental railway, was among the projects that never materialized. As a junior partner in U.S.-dominated East Asia, Japan’s role had limits. In 1958, the Japanese government proposed that the International Telecommunications Union extend the world telephone cable network to Southeast Asia, the Far East, and Japan. In addition to Japan, other potential regional members included Singapore, Thailand, the Philippines, and Taiwan. The Japanese government convened several international meetings in the early 1960s to discuss the project, but the plan was eventually abandoned.¹¹³ Although it repaired a few existing submarine cables, Japan was unable to build new cables outside its own territorial waters. Since Japan’s new cable ship, built in the late 1960s, would be used only for close-to-shore operations, it was only 1,700 tons, compared to ships at 3,000 tons and above built before the war.¹¹⁴ Post-imperial geopolitical realities as well as the bitter legacies of empire together made such ambitious overseas projects distant dreams.

On the other hand, the revival of Japan’s economic presence in Asia was often accompanied by imperial nostalgia in many recollections and histories compiled after the war. It was not long before Japanese wartime technological projects were recast as well-intentioned developmental efforts in Asia that had been derailed. As one former NCTT executive noted, “Needless to say, since it was during the war, we often had to follow the military’s orders along the lines of the so-called national policy. Our hearts, however, were filled with the pure love for telecommunications operations. We put our lives at risk for the sake of peace in East Asia, by restoring abandoned telecommunications facilities on the continent, building housing, lines, equipment, and wireless

112. Nippon denshin denwa kōsha, *Kaiteisen shisetsu jimusho, Kaiteisen hyakumen no yumi*, 631–33, 667–70. For a recent Japanese work from a strong nationalist perspective, see Ishihara, *Kokusai tsūshin no Nihon shi*, 207–9.

113. Hanaoka, *Kaitei densen to Taipei yō no hyakumen*, 265–68.

114. Nippon denshin denwa kōsha, *Kaiteisen shisetsu jimusho, Kaiteisen hyakumen no yumi*, 752–64.

receiving centers."¹¹⁵ A former MOC engineer suggested after the war that although Japan's wartime plans for establishing telecommunications companies in Southeast Asia did not materialize, "As we come to discuss the development policy of underdeveloped countries, since there will be more and more opportunities for Japan's telecommunications technology to enter East Asian countries, even if only part of the wartime plans could be revived, it would be a huge contribution to the development of these newly independent countries."¹¹⁶ Nakamura Jun'ichi, who served as the Director of Telecommunications Bureau during the Pacific War, appeared to agree wholeheartedly:

Although we lost the war, it is beyond doubt that the footprints left by the communications men on the continent or in the Southern Region have contributed to the postwar recovery and development of these areas. . . . Development aid to underdeveloped regions for the purpose of peace and prosperity has become an important task for the world as well as for Japan. Our telecommunication and related industries can provide more effective and appropriate assistance as they meet the peaceful and constructive nature of communications. In this sense, our experience in various areas during the war, regardless of the outcome, is worth re-examination today.¹¹⁷

By the 1970s people like Matsumae seemed to have recovered their belief in Japanese technological prowess: "The research on non-loaded cable that we spent a long time on is one research, at least, that was ahead of other countries. And such research is not something foreign countries can catch up with, even through [they are] trying. We are convinced that it is through creating such technologies that Japan's economy can be established through Japan's industry." Matsumae was far from alone; techno-nationalism, mixed with traces of imperial nostalgia, regained some lost influence in high-growth Japan.

115. Hokudenkai, *Kaboku denden jigō shi*. In *Kokusai denki tsūshin kabushiki kaisha shi*, published in 1949, the company pled its innocence by blaming the government and the military; see *KDITKS*, 47.

116. Tsuda Ryūzō, "Taiheiyō sensō toki no gaichi tsūshin," in *Teishin gaishi kankōkai*, *Teishin shiwa* II: 588–89. For other examples of Japanese business ties to Southeast Asia revived after the war, see Adachi Hiroaki, "Furukawa kei kigyō no Nanpō jigō tenkai," in Hikita Yasuyuki, *Nanpō kyōeiken*, 476–77.

117. Nakamura Jun'ichi, "'Daitōa tsūshin seisaku' jidai kara Denden kōsha tanjō zen'ya made," in *Teishin gaishi kankōkai*, *Teishin shiwa* III: 438.

Japan's imperial telecommunications network was once a living creature. It functioned as both the nerve system of government and other institutions as well as the artery of daily life for millions of individuals. By the war's end, however, Japan's far-flung empire resembled a fatally wounded beast, with its brain and nervous system still functioning, albeit at reduced capacity. Before the age of telecommunications, the empire would have disintegrated once crucial transportation lines were severed. Paradoxically, the imperial telecommunications network, as damaged as it was, may have prolonged the life of Japan's empire, for better or for worse.

As this chapter has shown, the total defeat and disintegration of the empire did not wipe the slate of Japan's techno-imperialism clean. In terms of human resources as well as technological linkages, legacies of Japan's empire survived well into the postwar era. If, at the moment of defeat, technological self-doubt was prevalent even among Japan's techno-imperialists, it was gradually replaced by the revival of confidence: once dismissed as inadequate, wartime technological accomplishments at home and in the imperium have now come to be seen as a force of modernization and development and a source of national pride in Japan. As a result, empire-building itself has been recast in the collective memory as well. It is the task of historians to re-establish the link between empire-building and technological development by examining the phenomenon of Japan's techno-imperialism *in toto*. It is this task to which I turn in the Conclusion.

CONCLUSION

Just hours after the broadcast of Emperor Hirohito's speech on August 15, 1945, outgoing Prime Minister Suzuki Kantarō went on the radio, exhorting the Japanese people to rebuild Japan by supporting the *kokutai*—Japan's emperor-centered national polity—and improving the country's scientific knowledge. In a confidential interview with his closest attendants a few months later, the emperor himself attributed Japan's defeat to the country giving too much weight to the fighting spirit while slighting the power of science. The emperor repeated his view a few years later in a letter to the crown prince discussing Japan's defeat.¹ It may not have been a coincidence that both the prime minister and the emperor mentioned science but not technology. In the immediate postwar period, the reputation of technology was more tainted by the war and its destruction, whereas pure science could be cast as a shining embodiment of hope for a new, peace-loving Japan.

As if to echo the Japanese leaders, historians of modern Japan have also viewed its scientific and technological development largely as a failure.² Even after Japan's postwar economic "miracle" produced many explanations of its success, historians still tend to disassociate science and technology from war and empire, attributing Japan's spectacular expansion in the 1930s to a runaway military, spiritual fanaticism, or the failure of diplomacy.

This is unfortunate. It is true that fundamental causes of Japan's defeat included its overall national strength and lack of material resources, which had much to do with the level of its science and technology. It

1. The eight-hour interview was published in 1999 as "Shōwa tennō dokuhakuroku," *Bungei shinju* (December 1990). See also Takahashi Hiroshi, *Shōwa tennō hatsugenroku: T'ai-shō 9-nen Shōwa 64-nen no shinjitsu* (Tokyo: Shōgakusan, 1989), 115. I thank Timothy George for bringing this additional source to my attention.

2. An influential work that breaks with this trend is Bartholomew, *The Formation of Science in Japan*.

does not follow, however, that Japan's own scientific and technological achievements did not contribute to its overseas expansion and empire-building in significant ways. Japan's fateful decision to launch simultaneous attacks in the mid-Pacific and in Southeast Asia in December 1941 was certainly a risky gamble, but it was taken *after* a relatively successful decade when Japan harnessed modern technologies in conquering and controlling the vast imperial space in Asia.

TECHNO-IMPERIALISM IN MODERN JAPAN

As a study of Japanese imperialism from the standpoint of telecommunications,³ this book has sought to restore the important nexus between technology and empire in modern Japan. Several broad characteristics of Japan's techno-imperialism can be drawn.

First, techno-imperialism traces its genesis to at least the Meiji era. As Japan borrowed and adapted advanced military and industrial technologies as well as institutions from the West, the country not only preserved its independence but also quickly gained ascendancy as a regional power after defeating China and Russia. The birth of Japan's colonial empire at the turn of the twentieth century would have been inconceivable without a plethora of modern technologies. However, techno-imperialism matured as Japan developed its indigenous scientific and technological expertise and progressed with industrialization, and it gained momentum as Japan embarked on a new phase of continental expansion in the 1930s. Hence, the decade saw the construction not only of an intercontinental telecommunications network but also of gigantic hydraulic dams, high-speed trains, and a modern metropolis in the empire. Indeed, technology and empire had become so intertwined that the period can be appropriately considered as the golden age of Japan's techno-imperialism.

By then technological advances and network expansion had become indispensable to Japan's vision of an integrated imperium in Asia. As Japan sought to build a regional political and economic bloc in Asia, fortified and improved telecommunications links became the "nerve

3. I borrow this expression from Donald Robinson's introduction to Davis and Wilburn, *Railway Imperialism*, 5.

system" facilitating close political, economic, and cultural integration. With its capacity and promise to overcome space and enhance control, telecommunications—perhaps better than other types of technology—thus helps clarify the link between Japan's imperialist dreams and modernist visions. The Greater East Asia Co-Prosperity Sphere was not simply a construct of imperial dominance through force; it was to be enhanced and facilitated by powerful modern technologies—railway, aviation, advanced telecommunications such as long-distance telephones and phototelegraphy—that would strengthen the "bonds" among the regions and peoples in the sphere and fortify Japan's position as its undisputed leader. The new Japanese imperium after the 1930s was, in this sense, a technologically imagined community.

Techno-imperialism is not driven by technology alone; rather, it is better conceived as entire systems of institutions as well as individuals with their aspirations. Japan's communications bureaucracy—which had direct responsibility for telecommunications in Japan as well as its colonies and the informal empire—is a good case to illustrate this point. Lack of financial resources, in large part due to domestic budget constraints, forced the bureaucracy to relinquish some control over construction and maintenance of core hardware in order to attract private funds for new facilities overseas. In occupied Manchuria and China proper, Japan borrowed from earlier experience and found a partial solution by creating nominally private joint ventures that remained under the complete control of Japanese directors and employees. Requirements of bureaucratic or diplomatic "correctness" also favored a less conspicuous presence of Tokyo outside Japan. In Southeast Asia, another semi-governmental company was used to extend and consolidate Japan's control. Still, Japan's communications bureaucrats encountered resistance not only from the Chinese and other foreign interests but also from other Japanese interests as well. Given the institutional basis of technology, a major dimension of techno-imperialism was the political struggle over its control and application.

Japan's techno-imperialism was, to a great extent, a collective endeavor of technology bureaucrats. The elevation of technologies for empire was linked to the political transformation in Japan in the 1930s, as engineers associated with technological developments and applications became energized and active. The Japanese engineers and bureau-

crats who strove to bring about Japan's telecommunications hegemony in East Asia might not be imperialists in the conventional sense of the word. Many of them were preoccupied, above all, with ridding Japan of its technological dependence on the advanced industrial countries of the West. At the same time, they were eager to exploit Japan's technological superiority over its "backward" neighbors, beginning with Korea and China. Although engineers and bureaucrats might differ with Japan's military leaders on specific issues of policies, they were never against continental expansion per se. Matsumae, for example, opposed Tōjō's decision to continue the war with the United States because Japan lacked comparable productive capabilities, but he had no objection to working closely with the military to extend Japan's strategic telecommunications network on the Asian continent.

Though certainly far from omnipotent, Japan's techno-imperialism was effective. If integration is understood in the minimalist sense of holding different parts of the empire together, then Japan's imperial telecommunications network did almost too well, for all its problems. In facilitating movements of people, news, and social interactions within a rapidly expanding empire, the communications network almost certainly made a multifaceted contribution to fostering imperial consciousness. Ironically, the success of techno-imperialism in the 1930s also sowed seeds of its own destruction by leading Japanese leaders to overextend themselves. When the war finally came to an end in August 1945, Japan's vital shipping lanes were almost entirely cut off, whereas many of its key communications circuits remained in working order, if only to coordinate the broadcast of the emperor's speech and to send orders of surrender throughout the imperium.

The legacies of Japan's techno-imperialism are mixed. At home, operational experience in the empire was valuable to postwar Japan. It did not, however, produce significant levels of technological transfer to the colonial subjects. The Koreans, Taiwanese, Chinese, and Southeast Asians occupied the lower echelon of Japan's vast wartime telecommunications operations. Perhaps with the exception of a few well-placed Chinese, technology—both engineering and administrative skills—remained largely in Japanese hands. This was intentional since Japan was to assume the leadership role in technology; yet it was also unforeseen due to the relatively short lifespan of the empire. Once

Japan's empire disintegrated, these Asians soon found new sources of technologies, from the Americans, Soviets, or the British. It would not be until decades later that Japan would return, this time as truly a technological giant in the world.

COMMUNICATIONS IMPERIALISM IN PERSPECTIVE

Despite the wartime Japanese rhetoric distinguishing Japan's project of building a "co-prosperity sphere" in Asia from Western colonialism, Japan's experience with communication imperialism was far from unique.⁴ In fact, a study of telecommunications as Japan's technology of empire helps place the Japanese experience within the annals of communications imperialism.⁵

To begin with, there were many similarities between Japan's communications imperialism and that of Great Britain, despite the vast differences in the histories, composition, and sizes of their empires. In terms of institutions, Britain's telecommunications hegemony was accomplished for the most part through private business endeavors, although government subsidies also played a huge role. When shortwave began to pose a serious challenge to the existing cable network, the British government was galvanized into combining cable and wireless operations to form a mammoth communications enterprise, Imperial Cables and Wireless, in 1928. The amalgamation of Cables and Wireless provided a model for Japan, where state dominance had been strong since the dawn of telecommunications in the Meiji era. In response to external challenges in the area of telecommunications in the 1920s, the Japanese bureaucracy was able to modify the strict state monopoly and create close state-business collaborations without giving up total control. To better facilitate overseas expansion, Japan resorted to a hybrid private-public form of telecommunications construction and management, beginning

4. Gann, "Western and Japanese Colonialism."

5. In a seminal 1971 essay entitled "The Structure of Imperialism," Johan Galtung first coined "communication imperialism" as a category distinct from economic, political, military, and cultural imperialism. The concept of "communications imperialism" used here is broader than Galtung's, which focused on the exchange of information, and is closer to "railway imperialism," as conceived in Davis and Wilburn, *Railway Imperialism*.

with wireless and culminating in wartime telecommunications national policy companies in occupied areas in Asia. In the end, Japan's experience confirmed Daniel Headrick's observation that "private and government ownership of international telecommunications were never mutually exclusive alternatives but points along a spectrum of increasing government involvement."⁶

There are also parallels in the internal tensions of their respective imperial networks. Japan's military as well as civilian bureaucrats in Tokyo and in the colonies fought bitter battles over control of the expanding communications network. The alienation between Britain and Canada over the Pacific cable in the 1920s bears some resemblance to the friction between Japan and its colonial government in Korea over Japan's new cable project in the late 1930s. The dominions of Australia and New Zealand similarly voiced objections even as they signed Britain's Merger Agreement of 1928, transferring the Pacific cable to a private company over which they had little control.⁷ When the dominions attained autonomy in 1931, their governments sought to establish their own direct wireless communications with other members of the Commonwealth, just as the Japanese-controlled telecommunications enterprise in North China sought to do a decade later. It has been suggested that even though the submarine cable did strengthen the British empire through its contribution to defense and commerce, it did less to draw the empire together politically than was thought at the time.⁸ The same was true with Japan.

Japan's expansion in the 1930s has often been compared—not the least by the Japanese themselves during the war—to that of Germany, its wartime ally. There are certainly parallels in their communications strategy. As a resurgent Germany under Hitler prepared for war, it built up its domestic telecommunications system. Modernization of the infrastructure proceeded as in Japan, and coaxial cables were used to connect major urban centers—Berlin, Nuremberg, Munich, Hamburg,

6. Daniel R. Headrick, "Public-Private Relations in International Telecommunications Before World War II," in Bella Mody, Johannes M. Bauer, and Joseph D. Straubhaar, eds., *Telecommunications Politics: Ownership and Control of the Informational Highway in Developing Countries* (Mahwah, N.J.: Lawrence Erlbaum Associates, 1995), 31.

7. Barty-King, *Girdle Round the Earth*, 211–12, 223.

8. Robert Boyce, "Submarine Cables as a Factor in Britain's Ascendancy as a World Power, 1850–1914," 99; idem, "Canada and the Pacific Cable Controversy, 1923–1928."

Frankfurt, Vienna, and Hanover. After German forces subjugated the majority of European countries during the war, a "telecommunications geopolitik" emerged step by step. In October 1942, at its apex of domination, Germany organized a convention in Vienna of the European Postal and Telecommunications Union that integrated the respective administrations of the German-dominated countries. To smooth organizational coordination and control, Germany posted special telecommunications attachés at its embassies.⁹ There were some differences, however. In contrast to Germany, where the telephone system was transferred from the civil bureaucracy to the exclusive control of the Nazi party, Japanese telecommunications did not undergo such a drastic reorganization at home. A greater degree of continuity prevailed.

What, then, distinguished Japan's quest for telecommunications hegemony in Asia? Japanese imperialism differed from Western imperialism in both space and time. One obvious difference is the fact that Japan's empire was closer to home than were the colonial possessions of most European powers, with the exception of Germany's expansion during World War II. This geographic congruity grew out of concerns for security, but quickly served as justification for closer economic integration. It also made an East Asian telecommunications network based on costly land cables more feasible. Moreover, the racial and cultural affinity Japan had with the peoples in its empire in Northeast Asia often led to a greater emphasis on cultural integration, facilitated by the use of modern communications technology such as facsimile. Such affinity, however, did not produce a greater degree of technology transfer. If technology transfer to the local population under European colonialism was, as Raymond Betts puts it, a "surface affair," Japan's communication imperialism was not fundamentally different.¹⁰

Another key difference that separates Japanese imperialism from most Western counterparts is its timing: Japan's emergence as a modern industrializing country and an imperial power occurred considerably later than that of Britain and France. Japan built its nascent empire after the advent of intercontinental telecommunications. Perhaps more importantly, Japan acquired nearly all its modern technologies after they

9. Frank Thomas, "The Politics of Growth: The German Telephone System," in Mayntz and Hughes, eds., *The Development of Large Technical Systems*, 179–214.

10. Betts, *Uncertain Dimensions*, 91.

were first developed in the West.¹¹ As the only non-Western member of the imperialist club, Japan's engineers and officials became increasingly self-conscious and uneasy about its technological dependency on the West. Ultimately, this ambiguity threatened to undermine Japan's claim to a revitalized Asia under its leadership. A distinctive character of Japan's communications imperialism, then, was the sensitivity—at times obsession—on the part of many Japanese to this ideological dimension of technology in its imperial expansion. No Western imperialist power was quite as obsessed with catching up and defining a cultural identity of technology the way modern Japan was. It is here that Japan's communications imperialism comes close to being unique.

In the 60 years since the majorities of colonial empires disintegrated, the rapid development of information technologies (IT)—such as satellite communication and integration of computing and communicating, as in the Internet—has drastically altered the landscape of international communications. Visionaries of the “global village” have predicted that the new and more powerful communications technology will obliterate all barriers of time and space, bringing freedom for all.¹² In reality, the widely shared belief that new information technologies would vastly enhance productivity has already contributed to a dot.com boom and bust in the United States. A communications network based on an open architectural design could very well offer new potential to empower the individual,¹³ but ultimately, even the new telecommunications technology does not simply “liberate,” as global village prophets would like us to believe. Critical communications scholars have called attention to the “digital divide” and focused on news communication to demonstrate the unequal relations between the advanced core and underdeveloped periphery.¹⁴ It is obvious that today international communications capacities are far from being evenly distributed, and powerful governments and

11. For a recent work that examines this issue from the perspective of “cultural materiality,” see Wittner, *Technology and the Culture of Progress in Meiji Japan*.

12. See, e.g., Ithiel de Sola Pool, *Technologies of Freedom*, and idem, *Technologies Without Boundaries*.

13. Janet Abbate, *Invention of the Internet* (Cambridge, Mass.: MIT Press, 1999). Or, as Niall Ferguson puts it, “the technological possibilities of the late nineteenth and early twentieth centuries favored imperialists over the individual troublemaker” (Ferguson, *Empire*, viii).

14. See, e.g., Alleyne, *International Power and International Communications*; and Sussman, *Communication, Technology, and Politics in the Information Age*.

business conglomerates are striving to enhance their control capabilities to gain strategic or economic advantages.

Interestingly, disillusionment with the failed promise of a new world order after the end of the Cold War has produced a re-assessment of bygone empires as well as the lessons for global power.¹⁵ In this context, the Japanese experience with imperial telecommunications provides a timely reminder about the exercise of a crucial dimension of structural power: that an expanding communications system is always fraught with increasing tension from the inside. Japan's quest for telecommunications hegemony in Asia was full of conflicts and contradictions: although the telecommunications network was supposed to foster integration and unity within the imperium, telecommunications policies often turned out to heighten rivalries among different Japanese bureaucracies and exacerbate tensions between the Japanese and non-Japanese. This book thus confirms that control is always contested, not just between the controlling and the controlled, but among all those who seek to wield that control. Ultimately, Japan's experience with telecommunications as its technology of empire confirms “the paradoxical fact,” namely, communications technologies simultaneously bring enormous enhancements of control to governments, corporations, consumers, and voters, and a quite new order of chaos and uncontrollability—which brings, in turn, a sense that control is unachievable.¹⁶ Technology can produce unintended consequences, and the technology of empire was no exception.

15. See, e.g., Niall Ferguson, *Empire: The Rise and Demise of the British World Order and the Lessons for Global Power* (New York: Basic Books, 2003); and Maier, *Among Empires*. From a critical perspective, Michael Hardt and Antonio Negri use “empire” to describe the “sovereign power that governs the world”; see Michael Hardt and Antonio Negri, *Empire* (Cambridge, Mass.: Harvard University Press, 2000).

16. Mulgan, *Communication and Control*, 2–7.