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Telecommunication and the Japanese Empire:
A Preliminary Analysis of Telegraphic Traffic

Daqing Yang [*]

Abstract: *»Telekommunikation und das japanische Kaiserreich: Eine vorläufige Analyse des telegraphischen Verkehrs«.* The study of information flow has been under-developed in telecommunications history in part due to the paucity of traffic data. Interestingly Imperial Japan has left a remarkably large collection of telecommunication traffic data, perhaps unmatched by other imperial powers. Given the enormous importance Japan placed on its telecommunications network at home and in East Asia, it is only appropriate to ask how it was used and what kind of information went through it. As a preliminary analysis of the traffic data in the Japanese empire over its fifty-year history, my paper examines the content, volume, and direction of information flows as well as the underlying economic, political, and technological factors. Such an analysis can enrich our understanding of how a modern empire operates in terms of its control of information flows. It can provide empirical flesh to the structural theory of imperialism, as proposed by Johan Galtung and others.

Keywords: Japanese Empire, telegraphic traffic, press telegrams, money order telegrams, photo-telegrams.

Telecommunications is now commonly accepted as an essential "tool of empire" for the colonial powers. Telegraph cables, as historian Daniel Headrick pointed out nearly thirty years ago, formed "an essential part of the new imperialism."[1] Headrick considers telecommunications to be among the several key technological developments most crucial to European imperialism, "either by making imperialism possible where it was otherwise unlikely, or by making it suitably cost-effective in the eyes of budget-minded governments." Telecommunications, argues Headrick, gave value to a handful of mostly deserted islands in the most isolated parts of the world, and in a few instances helped empires to expand. More important was the fact that cable and wireless communications served to tie the European empires together. In times of peace, they were the lifelines of the ever-increasing business communications that bound imperialist nations to their colonies around the world. In times of crisis, they were valuable tools of diplomacy. And in times of war, communications were security itself. Headrick distinguishes several stages of European imperi-

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[1] Daniel Headrick, *Tools of Empire* (New York: Oxford University Press, 1981), 160-164.

alism that begin with penetration and are followed by conquest. In the final phase of consolidation, he notes, "the links that tied the colonies to Europe and promoted their economic exploitation included steamship lines, the Suez Canal, the submarine telegraph cables, and the colonial railroads."[2] As Headrick phrases it, the "web of power that tied the colonial empires together was made of electricity as well as steam and iron."[3]

Given the enormous importance attributed to the telecommunications networks, it is only appropriate to ask how they were used and what kind of information went through them. For instance, can telecommunication traffic between the home country and the overseas possessions help us better understand the nature and process of imperial expansion? Can the information flow reveal anything new about the dynamics and structure of empire? Surprisingly, such questions are largely absent in most works on telecommunications and European imperialism that have appeared in recent decades. Much more common is the descriptive approach using narrative evidence quoted in the opening paragraph.

In contrast, telecommunication traffic – volumes of telegrams sent and received, number of words sent, frequency and length of phone calls – can be measured in precise units, as can letters, postcards, and parcels. Such traffic data can be useful for a variety of practical reasons – for, among other things, calculating tariffs, assessing the capacity of cable and wireless circuits, and forecasting future growth. For historians of telecommunications, however, such data can be useful but not always available. Partly due to its strong government monopoly and control over telecommunications, Imperial Japan (1868-1945) has left a remarkably large collection of telecommunication traffic data.[4] The government-run telegraph offices, under either the Ministry of Communications or Communications Bureaus in the colonies, compiled basic traffic data on a monthly basis. After Japan occupied Manchuria, it set up a public-private joint venture known as the Manchurian Telegraph and Telephone Company (MTT) to operate telecommunications in the region as a monopoly. This model was later adopted in occupied areas in China during the Sino-Japanese War when Japan set up the North China Telegraph (NCTT) and Telephone Com-

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[2] Headrick, *Tools of Empire*, 11-12.

[3] Headrick, *The Tentacles of Progress: Technology Transfer in the Age of Imperialism*, 1850-1940 (New York: Oxford University Press, 1988), 98. See also his *The Invisible Weapon: Telecommunication and International Politics, 1851-1945* (New York: Oxford University Press, 1992.

[4] For a discussion of the purpose and process of data collecting, see *Denshin denwa jigyô shi* (hereafter as DDJS) 1: 658-87. Due to the different methods of recordkeeping as well as human errors, it is impossible to produce one set of reliable telecommunication data covering the entire 1870-1945 period. Data-gathering became much more sporadic after 1942. For a relatively complete set and explanations of various discrepancies, see *DDJS* 7: 440-631. In this chapter "telecommunication" is used when describing the traffic

pany and Central China Telecommunications Company (CCTC). These Japanese-controlled telecommunications companies in wartime occupied China also compiled traffic data.

An explanation about data and methodology is in order here. To begin with, the measurable units of communication traffic – the amount of information in a technical sense – should not be confused with the value of the information, since that depends on the content, which is beyond quantitative measurement.[5] Moreover, electronic communications was by no means the only mechanism of information transmission in Japan and its empire. Throughout Imperial Japan, the postal service was still the most widely used means of public communication. If we broaden our definition of information flow to include one-way communication, mass media such as printed publications and radio broadcasting clearly had an enormous, albeit a different, impact on society as well. As a preliminary analysis of the traffic data in the Japanese empire, this chapter examines the content, volume, and direction of information flows as well as the underlying economic, political, and technological factors.[6]

Before such an analysis is attempted, a brief history of telecommunications history in modern Japan is necessary. Both the telegraph and telephone were introduced to Japan in the later half of the nineteenth century. Despite its humble start, Japan's domestic telegraph network expanded at an impressive pace in the early 1870s. The 1,340-kilometer Tokyo-Nagasaki trunk line was completed in 1873, followed two years later by the completion of the 825-kilometer Tokyo-Aomori trunk line. Telegraph construction also went on in Hokkaido and Kyushu simultaneously. It took only six years for the Meiji government to link all major Japanese cities, from Sapporo in the north to Kumamoto in the south, in a nationwide telegraphic communication network. In 1875 Japan's total telegraph lines had reached 1,760 li (6,912 kilometers or 4,294 miles), carrying 612,000 telegrams a year. As Fukuzawa Yūkichi – Meiji Japan's most influential intellectual on modernization – observed with apparent excitement at the opening of the Tokyo Central Telegraph Office in 1878,

> [w]hen we think about the function of the telegraph, we can either say that the distance of 1,700 *li* has been reduced to naught, or that the body of the Japanese has been extended to all locales. Since there are also telegraph lines in fo-

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[5] See Nakamoto Hideshirō, *Jōhō o kangaeru* (Tokyo: Maruzen, 1993), 20.

[6] For an excellent discussion of the approaches and problems in studying the flow of information, see Hamid Mowlana, *Global Information and World Communication*, 2nd ed. (London: Sage Publications, 1997), chap. 2. A pioneer in studying the flow of information, including mass media, is Ithiel de Sola Pool. See "Tracking the Flow of Information," *Science*, New Series 221, no. 4611 (1983): 609-613. It is noteworthy that Sola Pool's study was partly influenced by the postwar Japanese efforts to conduct communication flow census.

reign countries, not only Japan but the entire world will be shrunk and made more manageable."[7]

After some internal debates, the Japanese government established monopoly over the postal and telecommunications service. Beginning in 1885, the Ministry of Communication (hereafter MOC) was put in charge of a broad range of public utilities such as postal, telecommunications, as well as shipping. The only exception was international cable telegraphy, secured by the Danish company the Great Northern Telegraph Company in a series of agreements with the Japanese government.

As Japan consolidated state-building and embarked on industrialization at home, it extended its influence and control beyond its shores. Beginning from 1895, when Japan's victory over China in the Sino-Japanese War secured its first overseas colonies, Japan emerged as a full-fledged colonial empire by the time of World War I. After defeating its rival Russia in the Russo-Japanese War of 1904-05, Japan acquired South Sakhalin (renamed Karafuto) and secured areas of influence in the Chinese northeast (known as Manchuria). In 1910, Japan annexed Korea, after making the latter a protectorate. Japan's participation in the Great War as an ally of Britain was rewarded with trusteeship of the former German possessions in the South Pacific.[8]

After a decade of peace, Japan resumed territorial expansion with the 1931 occupation of Manchuria, where the puppet state of Manchukuo was established in 1932. By summer of 1937, tension with China escalated and led to the outbreak of the Second Sino-Japanese War. Four years later, in December 1941, Japan declared war against the United States, Britain, and the Netherlands. By mid-1942, Japan was in control of a vast territory that was nine times of the Japanese Empire in 1930. As with other colonial powers, telecommunications played a crucial role in Japan's overseas expansion into colonies as well as its wartime empire in the entire East Asia.[9]

The Structure of Empire

Available telecommunication traffic data shows a steady increase in communication within Japan's sphere of influence at the beginning of the 1930s after a decline in the years of the Great Depression. In contrast, international traffic

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[7] Wakai Noboru and Takahashi Yūzō. *Terekomu no yōake* (Tokyo: Denki tsūshin shinkōkai, 1994), 76-78, 97.

[8] For a more detailed discussion, see my "Submarine Cables and the Two Japanese Empires," in *Communications Under the Seas*, ed. by Bernard Finn and Daqing Yang (Cambridge, MA: MIT Press, 2009), 225-252.

[9] For a fuller examination, see my forthcoming book, *Technology of Empire: Telecommunications and Japanese Expansion in Asia, 1883-1945* (Cambridge, MA: Harvard University Asia Center, 2010).

remained largely flat and then declined significantly after the outbreak of the Pacific War. This has as much to do with the demand as with the re-designation of some international communication traffic as East Asian communication (within Japan's imperium). In 1940, 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 (see Figure 1).[10]

Figure 1: Telegraph Traffic with Colonies, Imperium and the Rest of the World, 1929-42.
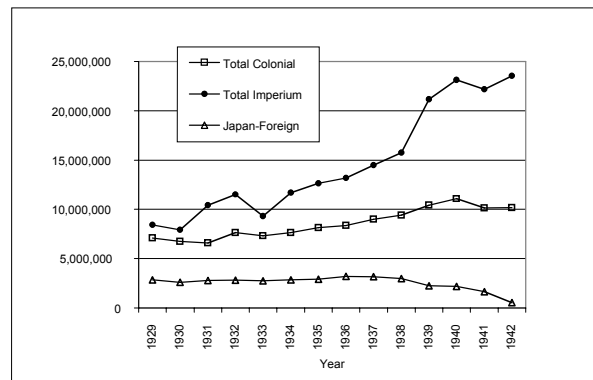
Source: *Denmu nenkan* 1942, 297-99; *Denmu nenkan* 1943, 336-37; *DDJS* Bekkan 594; *Denshin denwa nenkan* [1951], 630.

To better understand structural dynamics within the imperium, one must go beyond the aggregate traffic data. In 1933, after years of severe financial constraints on domestic telecommunications infrastructure, the Japanese Government passed the Communication Special Account, which promised to ensure some financial independence of the government-run communications including telecommunications. Three months later, an energized Ministry of Communication conducted the most comprehensive survey of telegraphic use in Japan. A nationwide survey of all paid telegrams at nearly all 7,000 telegraph offices throughout Japan proper was conducted over an eleven-day period between July 10 and 21.[11] It measured all government, civilian, and press traffic that went through Japanese domestic telecommunications system with the exception of those related to its operations, which were free.

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[10] *Denmu nenkan 1942*, 297-99; *Denmu nenkan 1943*, 336-37. The accounting year covers twelve months from March of each year.

[11] Teishinshō, Denmukyoku, *Denpō kōryū jōkyō ni kansuru chōsa* (Tokyo, 1935).

Figure 2: Distribution of Colonial Telegraphic Traffic, 1933.
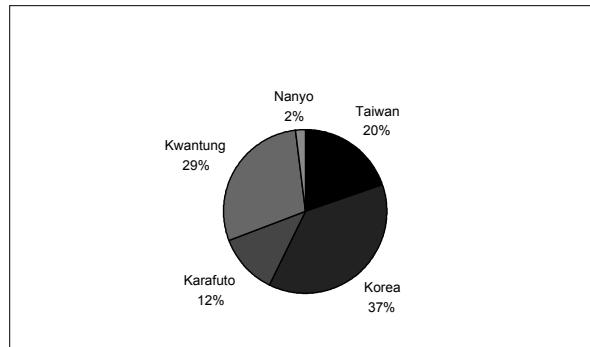
Source: Teishinshō, Denmukyoku, *Denpō kōryū jōkyō ni kansuru chōsa* [Tokyo: 1935].

The 1933 survey showed that within Japan's imperium colonial Korea was the largest recipient and originator of telegraphic traffic with Japan until the mid-1930s. Such a distribution was not static, however. Changes in and directions of Japan's imperial telecommunication traffic often reveal dynamics that are not always obvious otherwise.

Figure 3: Telegraph Traffic within the Imperium, 1929-42.
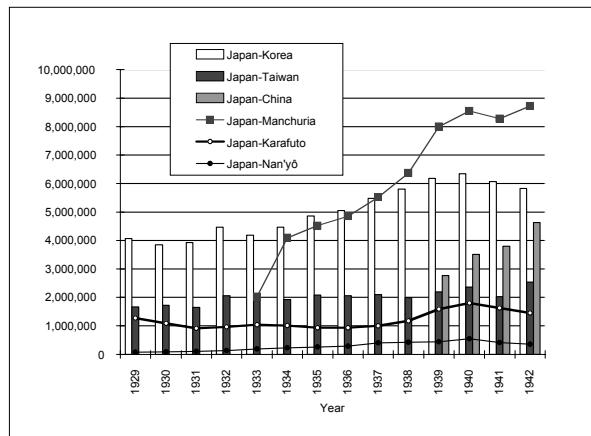
Source: *Denmu nenkan 1943*, 338-39.

After the establishment of Manchukuo, telegraphic traffic between Japan and Manchuria/Manchukuo shot up exponentially due to a combination of

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factors: infrastructure improvement, launching of industrialization and settlement programs (see Figure 3).[12]

Like the movement of goods, money, and people, the flow of information is never an isolated phenomenon. Changes in traffic volume generally can be attributed to a combination of many factors: cost, access, and capacity, as well as user demand. To begin with, the access to modern communications services was unevenly distributed within Japan's imperium. As can be seen in table 1, a huge gap existed in the overall communication capacity between Japan proper and its major colonies with large native populations such as Taiwan and Korea. In contrast, frontier colonies with high concentration of Japanese population, either the remote Karafuto (southern Sakhalin) and Nan'yō (South Sea Islands) or the strategically important Kwantung Leased Territory, registered high volumes of per capita usage.

Table 1: Communication Indexes in Japan and Its Colonies (1935).

	Japan Proper	Taiwan	Korea	Karafuto	Nanyō	Kwantung Territory
Area (sq km)	382,265	35,961	220,769	36,090	139	3,748
Population (1,000)	69,255	5,316	21,891	323	105	1,637
Telegraph Offices	8,232	213	878	91	9	211
Area per telegraph office (sq km)	47	169	252	397	16	18
Population per telegraph office	8,413	24,956	24,933	3,544	11,653	7,758
Telegram Sent (1,000)	73,860	1,902	7,992	905	254	4,113
Telegram Sent per person	1.067	0.358	0.365	2.807	2.419	2.513
Telephone sub-scription	870,564	16,800	39,763	5,535	392	21,321

Source: Chôsen Sôtokufu comp., *Chôsen teishin tôkei yôran* (1936).

A number of factors influence the use of telecommunications. The cost of telecommunication services, especially compared with the alternative postal or express mail service, has always had a major influence on usage. Expanded access is likely to increase use. The fluctuation of demand, complicated as it is, is especially influenced by the level of economic activities (for business com-

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[12] Teishinshō, Denmukyoku, *Denpō kōryū jōkyō ni kansuru chōsa.*

munication in particular), political events (especially for press telegrams), and natural disasters (personal telegrams).[13]

The telegraph service, more widely established and less costly compared with the telephone, played by far the greater communication role, but the telephone was used with increasing frequency inside the imperium. Technological progress and the subsequent increase in capacity or reduction in unit cost is also a major factor in the volume of telecommunications. For instance, the completion of non-loaded telephone cable between Japan and Manchukuo via Korea made it possible to meet the increased demand for phone calls in all three areas. As in the case within Japan proper, however, the telephone was used more often for communication over shorter distances compared with the telegraph, because the cost of telephone calls was determined by distance whereas that of the telegram was often at a set rate for an entire region. This may explain the fact that telephonic traffic between Japan and Korea remained the strongest (see Figure 4).

Figure 4: Telephone Traffic within the Imperium, 1932-42.
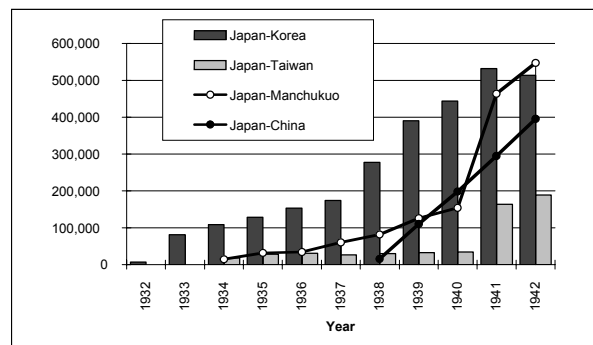
Traffic on the Japan-Manchukuo route before 1940 was measured in three-minute units; Taiwan adopted measurement in minutes in mid-1941. Source: *Denmu nenkan 1943*, 338-39.

## Users, Usage and the Daily Life of Empire

The contents of communication often prove to be the most elusive aspects of the traffic. It was not that the Japanese authorities were not interested in the content. Far from it. In wartime, the government invariably established strict censorship over all forms of communications throughout the empire to screen

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[13] For a long-term analysis of Japan's telegraphic trends, see *DDJS* 1: 659-68. For a prewar effort to correlate the volume of postal communication with economic performance in Japan, see Matsubara Kazuyoshi, "Tsūshin tōkei yōran o nozokite," *TKZ* 339 (November 1936): 79-83.

out messages – especially those sent by news agencies or by foreign citizens – that might compromise Japan's military secrets or harm Japan's reputation. For the same reason, coded messages sent by the public were often banned in areas of active military operation. In peacetime, however, practicality made it impossible to record the content of each of the hundreds of thousands of telegrams sent or each of the hundreds of the telephone calls made everyday in the vast, complex telecommunications network. Only occasionally, telecommunications operators in the empire – be it MOC in Japan or MTT – conducted surveys over a limited period of time, ranging from days to weeks, in which they tabulated the profiles of senders or compiled a rough estimate of types of messages sent. Making use of the 1933 nation-wide survey and supplementing it with local surveys from other parts of the imperium, we may begin to piece together the profile of users of Japan's imperial telecommunications network.

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 (98.6 percent) of non-government use of Japan's telecommunications network is noteworthy. This was also true with telegraph traffic between the home islands and major colonies (see Figure 5) according to the same survey.

Figure 5: Composition of Colonial Telegraphic Traffic, 1933
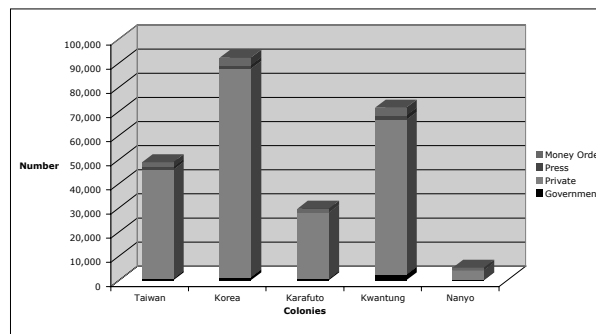
Source: Teishinshō, Denmukyoku, *Denpō kōryū jōkyō ni kansuru chōsa* [Tokyo: 1935].

Within Japan's colonies, the share of government telegrams was only minimally higher. A survey in Taiwan found that paid telegrams for government affairs occupied only 3 percent in 1934.[14] According to surveys conducted by MTT in 1938 and 1939, among all paid telegrams sent and received in Man-

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

chukuo, the share of government telegrams was only slightly higher at 5-6 percent.[15]

In terms of traffic and revenue, therefore, Japan's telecommunications network before the Pacific War was largely used and sustained by nongovernmental users.

Who were the leading groups of telegram users in the Japanese empire then? By far the largest share of telegrams in the 1933 Japanese survey fell under the category of private telegrams (95.1 percent), while press telegrams and money order telegrams (*kawase denpō*) counted for 0.6 percent and 2.9 percent, respectively. In the colony of Taiwan, as many as 63 percent of all paid telegrams were related to business transactions or the stock market, followed by a 24 percent related to social functions, according to the survey in 1937.[16] 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).[17] Obviously, both institutional and individual users of telecommunications service in the Japanese empire deserve further analysis.

Institutional Users

It should not be surprising that business-related telegrams were the largest category of paid telegrams. Telecommunications services have played a crucial role in expanding the geographical sphere of economic activities since the Meiji era. As Japanese business interests, large and small, eagerly joined Japan's endeavor to build the Greater East Asia Co-Prosperity Sphere, the overwhelming majority of business branches established in the post-1937 period were to be found in China and Southeast Asia. Research by Japanese historian Kaneko Fumio shows the geographical distribution of large Japanese companies: in the case of the five large banks and trading companies, for each branch office in Japan proper there were seven branch offices outside Japan, mostly in East and Southeast Asia.[18] A more inclusive survey conducted by the Overseas Entrepreneurs Central Association for Postwar Affairs shortly after the war similarly found large numbers of Japanese businesses all over East and Southeast Asia. Of all the 1,814 Japanese businesses operating outside Japan proper before the surrender, for instance, 324 were in Korea, 366 in Manchuria, and

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

[16] Ishida, "Taiwan ni okeru denshin gyōmu no gaikyō," 13.

[17] Kishimoto, "Wagasha no kokumin no kojinteki seikatsu ni taisuru kōken," 269.

[18] Kaneko Fumio, "Taigai keizai bōchō no kōzu," in *Nihon no senji keizai*, ed. Hara Akira (Tokyo: Tōkyō daigaku shuppankai, 1995), 195.

457 in Southern Region.[19] These Japanese business enterprises made up the bulk of institutional users of Japan's imperial telecommunications network. Further research into company archives is needed to yield greater knowledge about how the information exchange had affected their operations in the imperium.

The relatively small shares of press telegrams in the surveys can be misleading. For one thing, press telegrams tended to be much longer than average telegrams, since they enjoyed a discount rate since 1906 (see Figure 6).

Figure 6: Press Telegrams Between Japan and Its Colonies, 1933.
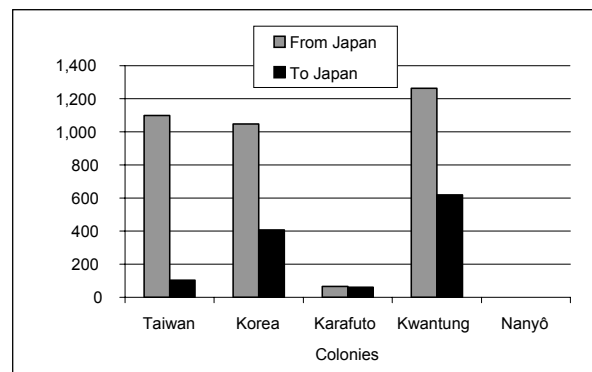
Source: Teishinshō, Denmukyoku, *Denpō kōryū jōkyō ni kansuru chōsa* [Tokyo: 1935].

As part of the government effort to strengthen control over the news media, all of Japan's news agencies were consolidated under the Domei News Agency in 1936,[20] which co-existed with the three major newspapers. Japan's news agencies and newspapers often maintained their own special wireless facilities in Japan and other parts of Asia, before the Japanese military discontinued the practice in August 1943. After 1943, they had to rely on the public telecommunications network or Domei for sending and receiving news stories. The latter maintained a vast network of correspondents, offices, and wireless connections in Japan and throughout East Asia except Manchukuo, whose own Manchurian News Agency doubled as Domei branches. In 1944, Domei employees were present throughout the empire: in addition to nearly 3,000 employees working

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[19] Japanese Ministry of Foreign Affairs Postwar Records E'1.2.1.2-5. Established on November 27, 1945, at the Yokohama Specie Bank, the Overseas Entrepreneurs Central Association for Postwar Affairs consisted of about 150 member-institutions, but their geographical designations were not given.
[20] For an in-depth study of the Domei News Agency, see Roger W. Purdy, "The Ears and Voice of the Nation: The Domei News Agency and Japan's News Network, 1936-1945" (Ph.D. diss., University of California, Santa Barbara, 1987).

in Japan and the formal colonies, 1,000 worked in 23 branches in China, and 700 in over 30 branches offices in Southeast Asia.[21]

Outside Japan proper, a new system was created to facilitate news-reporting from the field during the Pacific War. By special arrangement with the telegraph office, news agencies or newspaper companies could send special dispatches over the telegraph, to be paid by the recipient rather than by the correspondent in the field. By late 1943, for instance, the Japanese-controlled Central China Telecommunications Co. (CCTC) had granted a total of 69 permits to newspapers and news agencies to send news dispatches by telegraph from their branch offices in Shanghai, Nanjing, and other cities in Central China. Close to two thirds of them (41) were for dispatches bound for Japan, one third for destinations within Central China, and remaining 5 percent for either Manchukuo or North China. Not surprisingly, 55 (80 percent) of these permits were issued to three large Japanese newspapers (*Asahi*, *Nichinichi*, *Yomiuri*) or the Japanese news agency, Domei. The official news agency of the pro-Japanese Wang Jingwei government, China Associated Press, received four; nine permits were issued to foreign agencies.[22]

In addition to regular news dispatches, sending photos over the telegraph became increasingly frequent. The first decade of regular telephotography service in Japan saw it limited to the trunk circuit between Tokyo and Osaka. Though still costly, telephotography technology improved steadily and played an important role in Japanese media coverage of the 1936 Berlin Olympics. During the 1930s, events on the Asian continent, especially the war in China, called for rapid expansion of telephotographic service as well as improved quality. Temporary service was provided for news agencies during special events, mostly by way of wireless. For example, during the flood in North China in the summer of 1939, the Japanese blockade of the British Settlement in Tianjin in August 1939, and the border clashes between Japanese and Soviet forces, the Japanese press was able to send photographs back to Japan using telephotography.[23] The telephotography circuit between Nanjing and Tokyo, which used to handle an average of three messages per day, saw the daily traffic sharply rising to ten in late March 1940. The Central Political Conference convened by Wang Jingwei and his fellow Chinese collaborators in the pro-Japanese government in Nanjing, produced a flood of requests for telephotography service, many of which had to be turned away due to the limited capacity.[24]

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[21] *Mainichi shinbun 70-nen shi*, 321; Tsūshinsha shi hensankai, *Tsūshinsha shi*, 940-94.

[22] "Shinbun denpō shonin ichiran" (October 1, 1943), *Huazhong Dianqi Tongxun Gongsi Bao* 457 (October 14, 1943): 631-37.

[23] See the July 1939 issues of *Tōkyō Nichinichi shinbun* and *Tōkyō Asahi shinbun*.

[24] *Tōkyō Asahi shinbun*, April 1, 1940. The article also noted a rising demand among the business to transmit letters and photos of sample products via the telephotography service.

The completion of the Japan-Manchukuo Trunk Cable in late 1939 greatly improved the prospects of telephotographic service in the imperium. In May 1940, the Tokyo-Mukden line was extended to Beijing and Tianjin, making the 3,000-km route the longest in the world for telephotographic transmission. Photographs were not the only items to be sent, however. It was also particularly recommended for sending letters, tables, and graphic designs. The newspaper *Manshū Nichinichi* in particular welcomed it as a "great leap" in accuracy for telegrams, since the message sent via telephotography did not need to be transcribed into codes. One MTT employee later recalled that the use of telephotography on the Tokyo-Mukden line was almost entirely limited to the military and government, since the important objective was to eliminate errors.[25] Judging from the traffic data during the first ten days, however, half the sixteen photo-telegrams sent from Osaka and Tokyo to Mukden were commercial correspondence. In contrast, seven of the nine photo-telegrams sent from Mukden were news photographs.[26] When Henry Pu Yi, the puppet emperor of Manchukuo, made his second visit to Japan in June 1940, the Domei News Agency made use of the telephotographic service linking Shinkyō (present-day Changchun), Keijō (present-day Seoul) and Fukuoka. 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 telephotography circuit had become a crucial component of the Japan-Manchukuo media network.[27]

Thanks to advances in wireless technology, news broadcasting via telegraphy became a major enterprise during the 1920s. Japan began receiving foreign news broadcasting in 1924 and started its own overseas news broadcasting the following year. Unlike the regular radio service aimed primarily at individual listeners, news broadcasting was designed for news agencies, Japanese and otherwise. With the cooperation of Domei, MOC inaugurated circular wireless telegraphic (*dōhō musen denshin*) news service in 1936, in order to better disseminate processed news from Japan. Using facilities provided by the ITC, Japan broadcast fifteen times each day in 1937, for a total of 3,500 words. The majority of the broadcast was in Japanese and beamed toward China, eleven

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[25] Manshū *nichinichi shinbun*, October 1, 1939; Muda Hidekiyo, "Zai-Man rirekisho," *Akai sekiyō*, 210. The Japanese newspapers had wishfully predicted that the largest photo-telegram could contain as many as 4,200 characters, thus reducing the cost by one third as compared to sending the same document in a regular telegram. In reality, due to low resolution, it never was able to send characters in the same size used in the newspapers

[26] "Nichi-Man shashin denpō riyō jōkyō chōsho," MOC Papers II-228.

[27] *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.

times a day and a total of 2,700 words.[28] After September 1941 and throughout the Pacific War, Domei broadcast news by wireless telegraphy toward the Great East Asian Co-Prosperity Sphere. Each day between 8:30 a.m. to 10:00 p.m., some 40,000 to 50,000 words of news were broadcast to all Domei offices. The volume on December 8, 1941, the day Japan declared war on the United States and Britain, reached an all-time high of 66,000 words. By the beginning of 1943, a total of 53 locations throughout the world, including a few in Korea, Taiwan, Manchukuo, and North China, were receiving such news services. As one senior Domei official put it, this simultaneous news service was far superior to the transmission by telephone previously used by news agencies in Japan.[29] The targeted audience was expanded to include non-Japanese as well. Conducted in Japanese, Chinese, and English, Japan's telegraphic news broadcasts amounted to over 30,000 words each day in early 1943.[30] Although "Greater East Asia" was the main target area, the news broadcast was also intended for Europe and the Americas. The International Telecommunications Company (ITC), a government-controlled facility company in Japan, devoted five 20-kW shortwave-telegraph transmitters for this purpose alone. In addition to the widely publicized overseas radio broadcasting, the Wireless Telegraphic News Service had become a major component of Japan's information warfare.

Individual Users

At a fundamental level, 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 to Manchukuo, travel in the imperium can be attributed largely to administrative and business activities in the wake of Japan's military occupations.[31] 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. Postwar government estimates may give some clue to their geographical distribution: Manchuria saw the largest concentration (29 percent of all Japanese outside Japan), largely as a result of Japan's government-sponsored agricultural migration projects during the 1930s. It was followed by Korea (20 percent), China proper (14 percent), Taiwan (14.6 percent), and Karafuto (Sakhalin) and the Kurile Islands (13 percent). The rest were mostly in the southern region – Southeast Asia.[32]

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[28] Miyamoto Yoshio, "Tsūshin jigyō to jōhō seisaku," *Teishin kyōkai zasshi*, 15.
[29] Takaguchi Hisashi, "Daitōa kyōeiken to dōhō musen denshin," *Tōa denki tsūshin zasshi* 3.1 (January 1943): 21-26.
[30] Tsūshinsha shi hensankai, *Tsūshinsha shi*, 900-904; *Kokusai denkitsūshin kabushiki kaisha shashi*, 436-37.
[31] Kaneko Fumio, "Taigai keizai bōchō no kōzu," 177.
[32] Jiji tsūshinsha, *Jiji nenkan 1947* (Tokyo, 1947), 393.

Meeting the communication needs of these millions of Japanese residents and travellers, 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 in the imperium. As cited earlier, surveys conducted by MTT in 1938 and 1939 show that between 35 to 46 percent of all paid telegrams sent and received in Manchukuo fell in the category of personal use. According to a single-day study by the MTT 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 of announcing arrivals of passengers or shipment of goods.[33]

Telegraphic use was closely related to personal travel, typically for announcing arrivals or departures. A survey by the Japanese-controlled North China Telegraph and Telephone Co. (NCTT) in 1939, for instance, found that 26 percent of all telegrams exchanged between Japan and North China were related to personal travel.[34] 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 nonbusiness telegrams dealt with personal travel.[35] 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 telegram fourfold (4.7 times in incoming telegrams), a fact the author attributed to the active "exchange of personnel due to the current situation."[36]

In newly occupied areas such as Southeast Asia, telegrams related to personal travels were even more important, as other means of communication were either nonexistent or too time-consuming. A survey in July 1942 shows that of the 60 outgoing telegrams from Japan to Batavia in the Dutch East Indies over a two-day period, 43 were inquiries regarding health and safety as well as conveying good wishes. Ten dealt with business or commercial matters. The 22 incoming messages from Batavia consisted of news, commerce and "social telegrams." A survey of traffic with Manila over a five-day period in August 1942 found similar results: Of 211 outgoing telegrams from Japan, 70 were concerned with business, 83 with well-being and 52 with other matters. Of 167 incoming telegrams from the Philippines, 44 were business-related, 61 informed the recipient of the sender's safe arrival and 62 were concerned with

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[33] Kishimoto, "Wagasha no kokumin no kojinteki seikatsu ni taisuru kōken," 269-71.
[34] (NCTT) *Eigyō geppō* 25 (August 1940), 39.
[35] "Denpō kōryū ni kansuru chōsa" (Ka-Nichi denpō), NCTT Papers, 2028/1352.
[36] Ibid.

expressing general well-being.[37] Clearly, telecommunications greatly facilitated the movement of people within Japan's imperium.

Figure 7: Money Order Telegrams between Japan and Colonies, 1933.
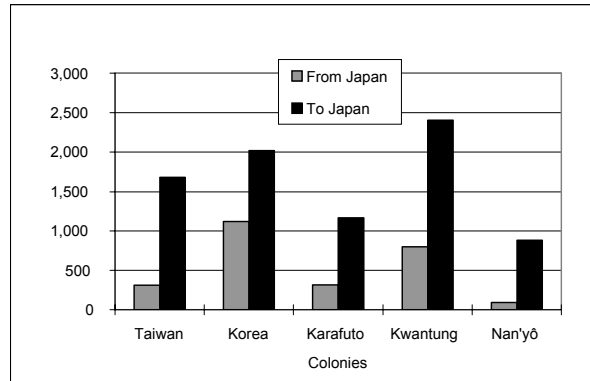
Source: Teishinshō, Denmukyoku, *Denpō kōryū jōkyō ni kansuru chōsa* [Tokyo: 1935].

Telegraphic money orders played an increasingly important role for individuals as well as institutions in Japan's imperium (see Figure 7). 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 activities in North China and elsewhere. In December 1939 NCTT revived a prewar Chinese practice and reintroduced the service in "telegrams with monetary attachments" as part of the "etiquette telegrams" (*kōsai denpō*). Money of an unlimited amount could be telegraphed for the purposes of greeting, mourning, or expressing gratitude, for a 2 percent charge. Given the inadequacy of financial institutions in North China during the war, this service became very popular and was expanded to almost all of North China by June 1940. A total of 47,838 such telegrams with monetary attachments were sent in 1942, amounting to 20 percent of all money order telegrams handled in North China. Among those sent within North China, telegrams with monetary attachments were favored by 5 to 1.[38]

Telegraphic money orders were also used widely for sending money between different parts of the imperium. In 1940, for instance, money transfer telegrams accounted for slightly over 10 percent of all telegrams exchanged

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[37] "Batabiya musen sōshin naiyōbetsu chōsho"; "Batabiya musen raishin naiyōbetsu chōsho"; "Manila musen sōshin naiyōbetsu chōsho"; "Manila musen raishin naiyōbetsu chōsho"; all in MOC I-297.

[38] *Kahoku denden jigyō shi*, 140-42. The prewar Chinese service of "telegram with flowers," however, was not revived, due to lack of demand.

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 regions within the imperium.[39] In 1943, a total of 345,935 money order 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.[40] The extremely high volume of money order telegrams sent from China to Japan (including Korea) shows that it has become an important channel of monetary flow between Japan and occupied areas.

Japanese vs. Non-Japanese Users

As can be expected in a colonial setting, the unequal power relations affected the use of telecommunications. Imperial Japan's communication data collectors often paid close attention to which categories the individual users belonged to. Data on telegraph use in Manchukuo and occupied China shows a clear 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 only sent 23 percent, compared with 67 percent sent by Japanese.[41] 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.[42]

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.[43] 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

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[39] "Denpō kōryō ni kansuru chōsa" (Ka-Nichi denpō), NCTT Papers, 2028/1352.

[40] "Shōwa 18-nen kawase denpō hasshin jōkyō chōsho," [NCTT] *Eigyō geppō* 68 (January 1944), 15.

[41] Maeda Naozō, "Manshū ni okeru denshin denwa jigyō no keiei," *Teishin Kyōkai Zasshi* 330 (February 1936): 151-61; Manshū denshin denwa kabushiki kaisha, *Manshū denshin denwa kabushiki kaisha 10-nen shi*, 951-52.

[42] Kishimoto Hajime, "Wagasha no kokumin no kojinteki seikatsu ni," 270-71. In the largest category of "miscellaneous telegrams" that included announcing arrivals and sending money, close to 30 percent were sent by Koreans and Chinese.

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

(including Korea). All but 2 percent were in Japanese.[44] According to a survey conducted in Central China by the CCTC in mid-1939, nearly 60 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.[45]

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 extremely 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 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.[46]

It is true that throughout the imperium, Japanese access to and use of telecommunications service was disproportionately high. Nevertheless, it is important to note that even in its formal empire, the Japanese were far from the only ones making use of the modern communications facilities. Many colonial subjects had access to telecommunications either in the formal empire or in newly occupied areas in China or Southeast Asia. Indeed, 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). The NCTT revival of the "telegrams with monetary attachments," which seemed to be mostly used by the Chinese, was a case in point. 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 local population they sought to control. That the first and foremost objective of Japan's imperial telecommunications network was to serve Japanese needs was never in doubt, as was the necessity to retain control over all important telecommunications operations in Japanese hands. After all, as communication scholar M.J. Mulgan puts it, the

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[44] NCTT, Eigyōbu, Eigyōka, Eigyō chōsa kakari, "Denpō kōryū ni kansuru chōsa" (Nikka) (May 1941), NCTT Papers 2028/1352. Strictly speaking, of course, some Chinese might have sent telegrams in Japanese due to better rates.

[45] Kōain, Kachō renrakubu, *Chū-Shi ni okeru denpō kōryū jōkyō, denwa tsūwa jōkyō chōsa setsumei shiryō* (November 1939), esp. 1-3.

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

"distribution of control capacities" in an information society is even more important than the access to information as such.[47]

Directionality of Information Flow

Contrary to common expectations, information flow was not always even in both directions. Such an imbalance was not accidental, but due to structural causes. In a pioneering effort to understand the structural aspects of imperialism, Johan Galtung suggested that a "feudal interaction structure between center and periphery" largely holds true for most world communication and transportation patterns. As evidence, he argued that "Center news takes up a much larger proportion of Periphery news media" and that "the Periphery produces events that the Center turns into news."[48] The traffic data on news telegrams in Japan's imperium seem to bear this out. The 1933 national survey cited above demonstrated an incoming volume of press telegrams from Japan's colonies smaller than the outgoing ones from Japan, although the traffic from the Kwantung Territory (channeling news from Manchuria) was relatively high (see Figure 6) An analysis of press telegrams traffic within Japan's East Asian system shows that the volume of outgoing press telegrams outstripped incoming telegrams by almost 4 to 1, a trend even more pronounced in the category of "urgent telegrams" (more than 5 to 1).[49] The large outflow of news stories from Japan seems to reflect the cultural and political dependency of the periphery on the metropole.

Directionality was also evident in money transfer telegrams in the imperium, albeit for a different reason. The direction of their net flow, as seen in Figure 5, was the opposite to that of press telegrams between Japan and its colonies during the prewar period. In all of Japan's five colonies and administered areas, the number of outgoing money orders to Japan outstripped incoming ones by a significant margin. This can be a bit misleading, however. According to a survey in North China in late 1940, although the volume of outgoing telegrams from North China to Japan (including Korea) was 4.7 times that of the incoming ones, their average amount was much smaller (149 yen) than the latter (489 yen). Even more interesting is the fact that the overwhelming majority (65.5 percent of telegram volumes, but 93.5 percent of total amount) of the incoming

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[47] M.J. Mulgan, *Communication and Control* (Cambridge, Mass.: The Polity Press, 1991), 12. Even if as a whole they were still at a disadvantage compared with the Japanese, many Taiwanese and Koreans with telephone subscriptions were more privileged than the majority of Japanese at a time when telephones were still luxury items in Japan.

[48] Johan Galtung, "Structure of Imperialism," *Journal of Peace Research* 8.2 (1971), 93.

[49] Among Japan's remaining communications with the few foreign countries, the number of incoming press telegrams was about twice as many as the outgoing ones in 1943, although the number of words was about the same; see *Denmu nenkan, 1943* (Tokyo, 1943), 269, 270.

money transfers to North China were from colonial Korea. The NCTT explained that the Japanese businessmen typically worked for large companies and thus used banks instead of telegrams to send money to North China, whereas Korean businessmen, with smaller capital and more scattered in North China, found money order telegrams more convenient.[50] In contrast, the outgoing ones were individuals transferring part of their income to family members in Japan. Kumamoto, Hiroshima, and Osaka topped the destinations of these money transfer telegrams from North China. This has to do with the fact that Japanese working in the new empire outside the metropole often had greater opportunities for promotion and typically received a variety of bonuses and subsidies. Japanese who worked at MTT, for instance, on average, were paid three times the amount of their base salary.[51] For instance, when the 30-year old Mutō Tomio left Japan to become a ranking official in Manchukuo's Justice Ministry, he was said to be making the same salary as a Higher Court Justice at home.[52]

Quantifying Integration?

Social scientists have used different methods to quantify integration. As measurements of integration, economic historians have long studied trade and financial movements. In a pathbreaking work on the relationship between communication and the economy published in the late 1950s, Nishibayashi Tadatoshi of the Nippon Telegraph and Telephone Public Corporation (NTTPC, a successor to the Ministry of Communications) was among the first to emphasize the linkage between communication traffic patterns and economic spheres. Traditionally, Nishibayashi noted, an economic sphere had been defined by the movement of people, the exchange of goods, and the flow of money. As a result, the intensity and strength of the sphere were determined by the conditions of such factors. As "communication plays a leading role in the formation of modern economic spheres," Nishibayashi argued, "the economic activity of an economic sphere can most straightforwardly be assessed by the conditions of communication exchange."[53] The conclusion of his study of telecommunications traffic data in postwar Japan may be obvious: economic spheres defined in terms of demographics and goods tend to form in adjacent areas, whereas economic spheres based on communications are not affected by distance. Political scientists, on the other hand, speak of general "transactions" in studying

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[50] "Denpō ni kansuru chōsa" (Ka-Nichi denpō), 4, NCTT Papers, 2028/1352. The total value of outgoing money transfers to Japan was 1.5 times of incoming ones.
[51] *DDJS*, 6: 385. Chinese employees received a bonus of between 5 and 70 percent.
[52] Mutō Tomio, *Watashi to Manshūkoku* (Tokyo: Bungei shunjū, 1988), 16-17.
[53] Nishibayashi Tadatoshi, *Tsūshin to keizai* (Tokyo: Keibunkan, 1957), 123-43. However, uniform telegram and postal rates are essential. Toll telephone traffic, due to rates based on distance, differs drastically from the former.

integrative processes. In the 1960s the political scientist Karl W. Deutsch and his colleagues suggested that integration is a quantifiable concept and focused specifically on "transborder data flow," but they were never able to devise metrics that would permit accurate assessment. In recent years, the scholarly community has grown less sanguine about such a strictly quantitative approach.[54]

Within each area in Japanese-occupied China, Japan's dominance of telecommunications was reflected in the new patterns of communication traffic. Significantly, in 1939 Central China exchanged more telegrams with Japan – roughly 37 percent of the total number of telegram traffic – than with neighboring North China (28 percent) or within Central China (25 percent).[55] Areas serviced by the NCTT also showed stronger telegram volume within the region in 1939, which roughly equaled those exchanged with Japan and Manchukuo, but as in Central China over 70 percent of all telegrams were in Japanese.[56] A survey in March 1942 showed telegraphic traffic again increased across the board in all areas of North China compared to previous year. Interestingly, traffic with Korea enjoyed the highest rate of growth (48.7 percent) followed by communication with Japan (31.2 percent), Central China (27.7 percent), Inner Mongolia (24.3 percent), and Manchukuo (17.2 percent). In absolute numbers, however, traffic with Japan now dominated, outstripping North China's traffic with other areas combined. Telephone traffic in North China over the same period demonstrated a slightly different pattern: monthly traffic with Japan increased some 142 percent over a year earlier thanks to improved connections as well as demand, whereas the volume within North China increased only 24 percent, with Manchukuo 9 percent, and Inner Mongolia 12 percent. Telephone traffic with Central China declined by 20 percent.[57] In relative terms, then, Japan strengthened communications ties with different regions in China at the expense of ties between these regions.

A similar pattern can be observed in colonial Taiwan's telegraphic traffic over a longer time span. During the entire colonial period between 1895 and 1945, the volume of Taiwan-Japan traffic increased at a greater pace than the intra-island traffic. Whereas in 1897 there were three Taiwan-Japan telegrams for every seven intra-island telegrams, by 1907 the ratio had been reduced to 4 to 6. By 1940, the ratio had reversed to six telegrams exchanged between Tai-

[54] For a discussion of problems involved in measuring integration, see Donald J. Puchala, "Integration Theory and the Study of International Relations," in *From National Development to Global Community: Essays in Honor of Karl W. Deutsch*, ed. Richard L. Merritt and Bruce M. Russett (London: George Allen & Unwin, 1981), 153.

[55] Kōain, Kachū renrakubu, *Chū-Shi ni okeru denpō kōryō jōkyō, denwa tsūwa jōkyō chōsa setsumei shiryō* (November 1939), esp. 1-3.

[56] "Minkoku 28-nen johanki denpō tsūsu oyobi ryōkin chōsho" (July 1, 1939): 26-27, NCTT Papers, 2028/824.

[57] *Denmu nenkan* 1943, 208-9.

wan and Japan for every four telegrams sent within Taiwan. This was largely due to the improved connections between Japan and its colony, but it also reflected Taiwan's growing importance as a springboard for Japan's southward expansion. After the outbreak of the war in China in 1937, Taiwan's role in South China also became increasingly prominent. Telegrams with South China – many of which were relayed to and from Japan – generated 41 percent of all Taiwan's telegraphic income in 1940.[58]

Transborder communications traffic can serve as rough indicators of the degree of dominance and relative intensity of ties. Although any analysis of the information flow can at best give a rough measure of the structural dynamics rather than serve as precise barometers of integration, it is clear that when Japan launched the war in the Pacific in December 1941, it had reordered Northeast Asian space enough to have become the *de facto* center of power in the realm of information flow via telecommunications. In other words, as far as information flow was concerned, the core area of Japan's new imperium had already taken some semblance of imperial integration. Needless to say, quantitative data alone cannot satisfactorily answer the question of integration. How communication may contribute to integration is ultimately a qualitative question as well.

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Studying telecommunications traffic not only offers a new window to examine daily life in the Japanese empire but also helps shed light on its structure and internal dynamics.

This preliminary analysis of available Japanese telecommunications traffic data provides further evidence that empire-building is a multifaceted endeavor and involves much more than just military conquest. In an imperium created by force, Japanese power certainly depended heavily on a comprehensive military command and control network; equally if not more important was the flow of information that made all organized activities possible. Ultimately, sustaining the imperial project and binding the imperium together was made possible by the movement of people, goods, money, as well as information. In that sense, imperial communication served as an indispensable lubricant for the imperium. Although frequently stymied by bureaucratic rivalry, Japan's extensive telecommunications network at home and in Asia made possible an unprecedented degree of administrative centralization and imperial market integration. In the final analysis, Japan's imperial telecommunications network made the Japanese wartime empire more than simply an imagined community, even though the

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[58] *DDJS*, 6: 298; *Tōa denki tsūshin kyōgikai dai-3-kai gijiroku*, 20-21.

role of telecommunications for Japan's imperial integration was as much imagined as it was real.

Needless to say, this chapter has only scratched the surface of a potentially vast subject. More work remains to be done. For one, by measuring information flow between cities and regions within the Japanese imperium, it is possible to establish a more precise information hierarchy as well as its changes over time than presented here. Moreover, a comparison between the Japanese empire and other modern empires from the perspective of information flow will highlight the similarities and differences in their structural dynamics.

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