

The Danish Monopoly on Telegraph in Japan

-A case study of an unequal communication system in the Far East-

By Eiichi ITOH*

The Asia-Pacific Region is now home to approximately one-third of international telecommunication services.

The number of Internet subscribers in China has risen above 100 million. It is reported that the three Asian languages account for 27.85% of all Internet users.¹

As of this date, it seems a matter of course that the Asia-Pacific Region has succeeded in overcoming tremendous difficulties related not only to the communication system itself but also to technical and economic conditions such as the use of Chinese characters. Their use was once seen as a burdensome factor for transmission and processing on international telecommunication networks, but now is seen as the most promising characteristic of the Asian information revolution.

Nevertheless, it should not be forgotten why it has taken nearly 140 years of struggling against foreign domination, and how important it was to urge cooperation and concerted efforts among Asian people to develop prosperous Asian communication.

Tracing the “bloody and tearful” history of international telecommunication in the region back to the mid-19th century, the focus here will be placed on the history of one telegraph company to illustrate how Asian countries have been whipsawed and manipulated from the mid-19th century until quite recent times.

While this paper focuses mostly on the mid-19th century, it is believed that the basic pattern of obstacles to media convergence can be seen in this early history.

To break away from the yoke of the Danish company that dominated the telecommunication services in the Far East, it was necessary to achieve mutual understanding and cooperation among the Asian countries that had won back their freedom from colonial or quasi-colonial conditions.

Image and Concept of “telegraph” in Japan - historical itinerary to be remembered -

It was in 1866 that the Japanese term 傳信 [den-shin] was introduced in translating “telegraph” into Japanese, by Yukichi Fukuzawa.²

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Even though the “telegraph” itself had been known in Japan, e.g. the telegraph transmission experiment connecting “2 telegraph instruments by 4 bundles of telegraph wires”³ presented by Matthew C. Perry, the Commodore of the U.S. Navy’s East India Squadron, during his second visit to Japan in 1854, we can easily imagine that the telegraph or its concept had not been well known or easy to understand.

In contrast to such unfamiliarity at that time, after the year 1866, still 2 years before the Meiji Restoration, the word 傳信 (“telegraph”) occurs in various documents and places. One of the distinguished contributors to this trend was Yukichi Fukuzawa (1835–1901). In his bestselling book entitled *Seiyou Jijou* (*Conditions in the West*), especially in the First Part published in 1866, he introduced several Western things to his readers utilizing Chinese characters such as newspapers (新聞 [shin-bun]) and telegraph (傳信 [den-shin]).⁴

To introduce such unknown or unfamiliar things to Japanese readers at that time, he managed to use Chinese characters creatively. For example, to translate “telegraph”, he used a combination of two characters, 傳 [den= to transmit and/or transport] and 信 [shin=message and/or what is said by people].⁵

Making full use of the merits inherited by and contained in Chinese characters, Fukuzawa visualized and made understood Western or foreign things. How his Chinese-characters word is so pertinent and suitable from then and on into the future can be understood if we reconsider the meaning of 傳信 (“telegraph”) including and subsuming from classical semaphore⁶ à la française to a modern medium by optical means, regardless of electrical one (電信=electric telegraph) or not.⁷

Describing “telegraph networks”, including the entrepreneurial venture of laying the Atlantic telegraph cable, Fukuzawa furthermore, figured out that “the telegraph network” was similar to “a spider web.”⁸

This can provide a good example of the positive and effective utility of using Chinese characters in moving and taking off smoothly towards modernization and/or industrialization while overcoming cultural and social shocks at that time.⁹

Global telegraph networks and the Far East

Global Impact of the Atlantic telegraph cable

The crow’s-flight landscape in which the international or intercontinental telecommunication cable networks were laid was completely different at that time.

The successful completion of the Atlantic telegraph cable¹⁰ was realized in 1866, exactly the same year that Fukuzawa’s best-selling book was published. Arthur C Clarke described this venture as the Victorian equivalent of the Apollo project. However, this laying of the Trans-Atlantic undersea cable is the result of

retrial, as reported by Fukuzawa, and based on the experiences gotten from the international telegraph services commenced in the 1850s. The business success of such services or its customers like Reuters provided the motivation for realizing the “Apollo project” of the time. The colossal or gigantesque scale of the cable system can be imagined from the fact that the cable-laying ship the *Great Eastern*¹¹ was the world's largest steamship at that time, depicted as “l'île flottante” (floating island) by Jules Verne.

The success of the Atlantic cable¹² impacted on other cable projects, especially on the landline cable project connecting the European and American continents through Siberia and Russian America (i.e. Alaska).

This gigantic Trans-Siberian landline cable project was finally abandoned in mid-construction because of the success of its competitor.

The discontinuation of this grandiose project left history with two mementos.

One is the telegraph line that crosses the vast expanse of Siberia to the Japan Sea. The other is the purchase of Alaska from Russia by the United States.

The latter can be explained as follows. The American partner in this project, the Western Union Telegraph Company, was the telecommunication entity in the U.S. that was to undertake the operation of the North Pacific telegraph line by its Russian-American Telegraph extension. The President of Western Union, Hiram Sibley, realized during negotiations with Russia concerning the lease of Alaskan lands that Russia was more inclined to sell Alaska outright than to take the trouble of assigning passage and usage rights. Sibley therefore recommended the purchase of Alaska to the U.S. Congress. Congress at first opposed this recommendation, believing that it was sheer madness to spend such a huge amount of federal funds on barren land. However, Secretary of State William H. Seward, who concurred with Sibley's views, eventually managed to persuade Congress to drop its opposition. In 1867, Alaska was purchased from Russia for the sum of \$7.2 million dollars. Although some Americans were at first strongly critical of this purchase, they later realized what a bargain it was. But, this purchase is still remembered as “Seward's Folly.”¹³

The former, the extension of the submarine cable linking Vladivostok with China and Japan, attracted the attention of telecommunication firms in five countries, including U.K. and France. In the end, however, the Russian government granted a concession to the Great Northern Telegraph Company (GNTC) of Denmark in October 1869.¹⁴

There were several reasons why Russia selected GNTC.

Firstly, GNTC had already succeeded in laying submarine cable under the Baltic Sea, and this cable was useful to Russia, since part of it could be easily linked to the Trans-Siberian line. Moreover, Denmark was a small country, so there was no imminent threat of political interference. A close relationship also existed between the Russian Imperial Household and the royal family of Denmark. In

addition, it has been revealed that the Russian Imperial Household held the majority of the shares of GNTC at the time.

In order to advance its plan, after being granted the concession for the Russian part, GNTC established on 9 January 1870, as its subsidiary, the Great Northern China and Japan Extension Telegraph Company.

Concerning this concession, it should also be necessary to relate how or why the cable-landing license or concession of Chinese and Japanese counterparts was granted on a monopoly basis. But, owing to lack of time, I am constrained to limit my focus.

International telegraphic transmission of Chinese characters on a commercial basis

After the successful completion of telegraphic cable from Hong Kong to the rocky island of Gutzlaff, GNTC extended its link to Shanghai. In “*An Outline of the Company’s History 1869-1969*” published by GNTC, the inauguration of transmission services utilizing Chinese characters is described as follows:

“Operations on this cable commenced on the 18th of April 1871 between the Company’s recently established stations in Shanghai and Hong Kong. In order to overcome the obstacle of not being able to transmit the Chinese characters directly in the Morse alphabet, the Company had edited a special “dictionary” before the opening of the telegraph service. In the dictionary each Chinese character was represented by a group of numerals¹⁵ which could be transmitted in the Morse alphabet. This dictionary proved of great value in the development of telegraphic correspondence in the Chinese language.”¹⁶

It was said that GNTC developed a four-figure code (four-digit numerals) which assigned a serial number for transmission purposes to each of the commonly used characters.

When the ITU published *From Semaphore to Satellite* on the occasion of its centenary in 1965, it was mentioned that the first official list of Chinese characters for telegraphic usage using four-digit numerals was published in 1882, whereby the transmission services of more than 6,000 Chinese characters became possible.¹⁷

Monopoly and/or duopoly of telecommunications services by foreign entities

The description of the commencement of international telegraph by GNTC¹⁸ continues as the following:

“The activities in the Far East were conducted from the Company’s administrative office in Shanghai which had been opened in August 1870, and

the completion of the projected cable network was accomplished quickly and without serious mishaps. After the Company had opened telegraph stations at Vladivostok and Nagasaki, the Shanghai - Nagasaki and the Nagasaki - Vladivostok cables were laid in the summer of 1871 and immediately brought into use. However, connection between the Extension Company's cables in the Far East and the Northern's cables in Europe was not established until the end of the year, when the Russian Administration had completed the construction of the Trans-Siberian landline to Vladivostok. The route between Europe and the Far East via Russia was officially opened for public correspondence on the 1st of January 1872.

After the Far Eastern cable system had been completed and connected with the European system, the Extension Company was merged with The Great Northern Telegraph Company on the 23rd of February 1872, with a Board of the members of the Boards of the amalgamated companies.”¹⁹

From this description, we can see that GNTC's administrative office in Shanghai ranked at a higher level than other offices operated by GNTC, and see how the international link connected East Asia and Europe.

Here, to see whether GNTC had enjoyed monopolistic power in the Far East, we would like to look at its competitor's document.

The story of Cable and Wireless, a British company known by its Far Eastern subsidiary called 大東電信, the meaning of whose Chinese/Japanese name is identical with the name of the cable-laying ship “The Great Eastern” likened to “l'île flottante” by Jules Verne as I mentioned earlier, tells us the history as being quoted below:

“When the following year France expressed a desire to have a connection with the big new All-Sea telegraph trunk route to the Far East, the Marseilles, Algiers and Malta Telegraph Company was formed in London to lay and operate a cable which would give Marseilles and her French colonial empire in North Africa access to the line at Malta. The 800 mile cable made and laid by Telcon provided the French with a very much quicker route to Egypt, India, Cochin China, and China than the 1,300 miles of landline down Italy.

The ideal of the single company to administer the London-Bombay telegraph had not been attained, but in June 1869 British-Indian Submarine and Anglo-Mediterranean entered into an agreement for twenty-one years of cooperative working. But Pender was looking further ahead yet, and in December 1869 formed the China Submarine Telegraph Company (capital £525,000) to lay a 1,700 mile submarine cable between Singapore and Hong Kong via Saigon. Telcon was to make the cable and have it laid and working by June 1871.

In doing this he was entering a part of the world in which he found his main

competitors were Scandinavians - The Great Northern, China and Japan Extension Telegraph Company.”²⁰

If they had actually found several competitors, it might have made all the difference in this region.

Negotiations with GNTC in Japan

Here, it will be examined how and why the Japanese concession was granted on a monopoly basis.

In 1867, a year after the first publication of Fukazawa’s *Seiyō Jijō*, the magistrate for foreign affairs of the Tokugawa shogunate received a proposal from the Russian consul stationed in Hakodate concerning the landing-connection of a submarine cable in Japan. The essential points of this offer were as given below:²¹

1. Russia was in the process of constructing a telegraph line to the Siberian coast, and was considering the possibility of connecting it to Japan via submarine cable upon its completion. This telegraph line would afford Japan great benefits, since it would allow Japan to communicate with countries around the world, not only with Russia and Europe but also with North America as well.
2. This cable could also be extended from Japan to the Chinese seaports.
3. Russian trading companies would undertake construction of the cable. However, the governments of the relevant countries would have to grant licenses for such work or else the necessary funds could not be procured.
4. The Japanese government would need only to construct telegraph lines to the point of landing and provide permits for construction of necessary buildings. Great benefits for Japan would flow from this.
5. If the Japanese government announced its agreement, the trading companies could be formed quickly.

This proposal, however, never progressed beyond this point. The year 1867 would see the beginning of the political uprising in Japan which would lead to the overthrow of the shogunate and the restoration of imperial rule. Beginning in January 1867, conflict erupted throughout the country, with major battles in Toba and Fushimi near Kyoto, a clash between shogunate troops and pro-imperial forces in the Ueno district of Edo, and battles at Aizu and Hokkaido. This last battle or rebellion by the shogunate troops, proclaiming an independent republic, was led by Takeaki Enomoto (1839-1909).²² He was the one of the prominent students sent to Europe by the Tokugawa shogunate, and a military observer dispatched in 1864 to witness the Denmark War on Schleswig and Holstein, where he realized

the important function of a military telegraph network such as used by the Prussian Army.

Since the country was in turmoil, Russia postponed any further action on the submarine cable.

In 1870, the foreign affairs office of the newly established Meiji government received another proposal for the landing-connection of a submarine cable to Japan. This time the offer came from the Danish company, GNTC, with the blessing of the Russian Imperial Household.

Negotiations with GNTC at this time were handled principally by Japan's Minister of Foreign Affairs Munenori Terashima (1832-1893).

An analysis of the contents of various documents relating to these negotiations reveals that Terashima showed considerable wisdom in responding to GNTC's request. For example, Denmark requested that cables be landed at and connected to all of Japan's open ports, insisting that this would be to Japan's benefit, since each port would be able to communicate with the outside world. In his reply, Terashima asserted that since the Japanese government would construct the country's domestic communications lines, GNTC should land its cable in Nagasaki alone. In the end, as a compromise, the landing points of the cable were limited to Nagasaki and Yokohama. Denmark also requested that licenses to land submarine cables in Japan be limited to Denmark. However Terashima, knowing that Japan had also been approached by the U.S., explicitly rejected this demand.

In its initial telecommunications negotiations, Japan had managed to avoid assigning monopoly rights to foreign firms. But Japan would soon willingly sign away its telecommunications autonomy to further its own ambitions in Asia. Dominance over Korea was a favored principle at that time, and Japan had a long-awaited opportunity to project its power into the Korean peninsula. A communication line linking Japan and Korea was therefore regarded as indispensable. However, Japan's technical capabilities at the time were not up to the task, and so the country had to request GNTC's help merely to relocate a submarine cable in Hokkaido in 1880. The government had also depleted its funds in suppressing the Southwestern Rebellion around the Kagoshima area.

There was therefore no option left for Japan of laying such a cable by itself. In July 1882, prompted by an incident in Kyongsong (the present Seoul) in which several Japanese residents were slaughtered, the Meiji government engaged GNTC to lay a Japan - Korea submarine cable, granting ownership to GNTC. In December 1882, as collateral for the construction of the cable, Japan granted a new license. In article 6 of this license, the Japanese government agreed to lay no submarine cables either between Japan and the Asian continent or between Japan and the islands in the region (i.e. Taiwan, Hong Kong, and the Luzon archipelago) for a period of 20 years from the day the license went into effect. Moreover, Japan would not license any company other than GNTC. Japan further agreed that if any licenses granted to

GNTC by another government were extended to 30 years, Japan would revise the term of its license from 20 years to 30 years. In agreeing to these provisions, Japan handed over monopoly rights to GNTC. These monopoly rights, which would extend over the next 30 years, would prevent Japan from developing an autonomous system of international telecommunications.

It was also testified by a Japanese delegate that, during the later negotiations, GNTC insisted that the grant by the clause mentioning the “right to continue to operate its cable in connection with the government telegraphs” extend for an indefinite period.

Extension of GNTC's Privilege

Contrary to a long-standing expectation, the Trans-Pacific Submarine Cable constructed by the Commercial Pacific Cable Company (CPC) landing at Chichi-jima (the Father Island) of Ogasawara (Bonin Islands)²³ did not bring with its opening in 1906 any further reduction in price despite the competition between GNTC and CPC that Japan had hoped would materialize.²⁴ Japan regarded this situation with suspicion, and it was not until 1921, in a U.S. congressional hearing, that the truth was uncovered: GNTC and the Eastern had secretly established a major interest in the Japan-U.S. submarine cable. In 1904, CPC concluded a secret agreement with both these companies, allowing GNTC and the Eastern Extension Company, to establish, respectively, a 50% and 25% capital interest in the cable.²⁵

True competition with GNTC would not appear until 1916, when an offer by the U.S. Marconi Co. (later purchased by Radio Corporation of America or RCA) led to the commencement of wireless communication in Japan. In 1925, the Japan Wireless Communications Company was established under the leadership of Eiichi Shibusawa, enabling Japan, for the first time, to take the initiative in international telecommunications.²⁶ But it would not be for several decades before the Japanese government would completely recover the submarine cable landing/connecting and operation rights held by GNTC in Japan.

In April 1943, it was said that such rights terminated definitely. However, after the Second World War, GNTC claimed indemnities amounting to more than two billion yen at that time (over ¥2,000,000,000.-) or the favorable operating right for the cable system connecting Nagasaki and Vladivostok. On 20 September 1955, it was agreed to indemnify the claim amounting to ¥304,328,761.- (= US\$ 845,357.57)²⁷ and to recognize the certain privilege²⁸ of GNTC. Therefore, even after the agreed amount had been paid by the end of 1955, the presence of GNTC continued in construction of the Japan Sea Cable (JASC) system for telecommunications services between Japan and European countries as a member of the Japan-CEPT²⁹ pooling system, known as the “JASC Pool.”³⁰

Transmission of Chinese characters - as proprietary to GNTC

The Telegraph Agency³¹ of the Japanese government and GNTC concluded an operational agreement for connecting GNTC's undersea cables and the Japanese landlines on 27 December 1873. This agreement was signed on 9 March 1874. Article 6 stipulates as follows:

Art.6. Transmission of telegrams written in Chinese characters shall be carried out by methods adopted by the Company³² (i.e. GNTC).

If we compare the date of commencement of international telegraph, taking as an example that between Shanghai and Japan implemented on 1 January 1872, the adoption of Chinese characters for telegraph transmission was carried out with celerity. (The ministerial order to construct the domestic telegraph network was promulgated in December 1868. Domestic telegraph service in Japanese between Yokohama and Tokyo commenced in December 1869.)³³

However, this article indicates clearly that the adoption of methods was at the discretion of GNTC. The simple know-how about the reference or the dictionary and the numbering as well as the selection of Chinese characters that could be used were, therefore, not at the hand of cultural administration to be determined as a cultural property but rather at the mercy of a foreign profit-oriented entity as a commercial property.

In addition to such conditions, the tariff rate set out by GNTC was at a higher level, and the service area was rather restricted.

Telegraph services by a foreign provider and national security

To some extent, France relied on the British cable network for its own communications, and was the one of countries to realize that such dependence not only resulted in economic losses but was also tantamount to putting itself at the mercy of British. From the mid-19th century, when France had extended its power to Indochina, reports sent to France by the Tonkin Expeditionary Force were known at the London Stock Exchange before they reached le quai d'Orsay (French Ministry of Foreign Affairs) in Paris. During France's clash with Siam in 1893, moreover, final instructions and other important telegrams sent from France to the scene of the conflict were relayed to London before they were delivered to the destination receiver in Siam. In both instances, the information was exploited not only by the British government but also by British financiers.

Britain's control of the submarine cable network had other strategic uses. During the Second Boer War (or simply the so-called Boer War) in 1899, Britain was at an early disadvantage and also became concerned about Boer sympathizers

amassing all over Europe. So, in October of that year, Britain imposed censorship on telegrams sent from Aden to South and East Africa, and also prohibited coded telegrams. These measures enabled Britain to withdraw its forces under favorable conditions. It is clear that the submarine cable network was the prime means of diplomatic and military communication in emergency and war situations.

During the 1905 peace negotiations in Portsmouth for ending the Russo-Japanese War, which helped Theodore Roosevelt become the first American president to win the Nobel Peace Prize, a telegram sent from Japan to Ambassador Jutaro Komura containing Japan's acceptable treaty conditions not only had to pass across Russian territory but was sent via the telegraph lines of the Russian capitalized GNTC. The content of these cables leaked to Russia.

The strategic value of telecommunication systems is also illustrated directly by the "All Red Route" concept of the British Empire. In 1893, representatives of the governments of Great Britain, Canada, Australia and New Zealand met in Wellington where they formulated a plan to operate, by means of British capital, a submarine cable extending around the world, linking Great Britain with the self-governing colonies and all overseas territories. This cable system, entitled "All Red Route," was completed by 1902, with a long-distance cable linking Canada and New Zealand. This meant that all territories in the British Empire could communicate with each other by means of a round-the-clock cable network. At the same time, this concept illustrates how important were the secrecy and security of contents communicated over the communication infrastructure.

Questions remaining unsolved

Nevertheless, not the slightest shadow of doubt still remains about the monopolistic power enjoyed by foreign entities in Asia.

1. Undersea cable techniques employed by GNTC were not specific ones. Cables installed and laid were manufactured by Siemens, Felten und Guilleaum³⁴ at a later stage, etc. These products were also to be purchased by other entities. It was also possible to acquire know-how about laying cables.
2. The dictionaries or reference books of Chinese character codes which had been used (or invented in accordance with GNTC's arguments and arrangements) were rather primitive. If GNTC had some kind of supremacy, GNTC operated several offices in Asia and paid to coordinate among several administrations. But such coordination and enhancement of dictionary should have been carried out by Asians.
3. Pooling systems or joint-purse accounting methods utilized even after the Second World War. Their disproportionate sharing of revenue, e.g. an

uneven share was given to GNTC from the mid-19th century, has been maintained till quite recently.

4. For indemnification and compensation claimed by and awarded to GNTC, specific or rather peculiar treatments were used. However, it is still unclear how their losses and damages to the cables have been verified. Among several detailed items, one example is damage to the cable systems laid alongside the Yangtze River and in the vicinity of Amoy which was calculated as \$291,800.-. Specific treatments, keeping other victims not indemnified.
5. Although it is not recommendable, the anti-trust behavior of western telecommunications carriers has been in effect for a long time. Notwithstanding the completion of potentially competitive systems, such as the case of the Trans-Pacific Submarine Cable of the CPC, concerted actions by private commercial entities continued disregarding public and regional interest. By contrast, concerted or coordinated actions among Asian entities have apparently not been workable.

Being whipsawed and manipulated to some extent by European administrations and/or entities, and trapped in a vicious cycle of intra-regional competition, it seems that regional coordination or consultation has seldom been successful in changing inequalities, especially from the mid-19th century up to recently. *Blood was not thicker than water*, in these circumstances.

By contrast, such a monopolistic or oligopolistic foreign entity (entities) ambivalently and ironically protected the functions of national/internal markets at a considerable sacrifice of regional relations and international communication.

Era of Media Convergence overcoming a colonial system

Asian telecommunication traffic in the 19th century

By the way, I cited previously the book by Bush Barty-King with the title *Girdle Round the Earth*³⁵ which reviews the prehistory and the history of the Cable & Wireless Company. The “girdle” in the title is an allusion to the authority of her Majesty Queen Victoria and the British Empire, which helped to support the former Cable & Wireless Company in its early years as it extended its prosperous communications business around the world. This allusion could also indicate the important functions of telecommunications.

This *Girdle Round the Earth* described the share of telecommunication business during the decade of 1880s as the following:

“Britain’s trade with China represented a capital investment of only £30 million, a little more than 1 per cent of her total investment abroad, but it was

half the whole China trade. China stood at the end of the trade routes and telegraph lines. Neither goods nor messages went *through* China. But China was important if only by virtue of its size; the potential was enormous.”³⁶

As we saw, even this is the history of a precursor of the Eastern group or the Cable & Wireless; if we take into account that the regional headquarters of GNTC that dominated and overwhelmed Japan were located in Shanghai, Japan’s situation could have been worse. From the European point of view, that is how the telecommunication environment in Asia has been.

Asian telecommunication traffic in the 21st century

The statistics in the fifth edition of the ITU’s *Asia-Pacific Telecommunication Indicators*³⁷ show us that the Asia- Pacific Region was in 2001 home to over one-third, or more precisely 36%, of the earth’s telephone subscribers. Advertising this publication, the ITU emphasize “the emergence of China as a telecommunications superpower. Never before has a country added so many telephone subscribers so quickly and raised its teledensity so rapidly. China’s overall teledensity (fixed and mobile phones combined) rose from less than one in 1991 to 30 by mid-June 2002. China is overall now the world’s largest telecommunication market. It ranks first in the size of its mobile market and second in fixed telephone lines.”³⁸

In connection with Internet users, the number of Internet subscribers in China has risen above 100 million. It is reported that Chinese-speaking users account for 14.1%, Japanese-speaking ones 9.65%, Korean-speaking ones 4.1%, etc.³⁹

As of this date, the Asia and Pacific Region has succeeded in overcoming tremendous difficulties related to telecommunications.

Asian Initiative and Creativity at the ITU

Since the end of the Second World War, the international telecommunications industry has operated on a foundation of respect for the telecommunications sovereignty of each country. This respect is based on principles laid down by the International Telecommunication Union (ITU), reorganized in the spirit adopted at the Plenipotentiary Conference held in Atlantic City, U.S.A. in 1947. Thus, one might consider that the ITU became a federation of countries which have won back their freedom from colonial or near-colonial conditions, in the same way that Japan broke away from the yoke of GNTC.⁴⁰

Its origins, however, can be traced to a communications treaty concluded between Prussia and Austria on 3 October 1849.

It was decided early in Europe that communications should be governed under an international agreement, since it was recognized that if countries were allowed

to assert their individual viewpoints too strongly, serious difficulties would arise in the course of mutual operations. Thus, even after the reorganization of the ITU at the Atlantic City Plenipotentiary Conference, the consensus-building nature of CCIF and CCIT or their amalgamated body CCITT (currently ITU-T) have been maintained in spite of what were stipulated as the rules and regulations.

On several occasions, it had been criticized for its system of making decisions on a unanimous basis. But we should not forget that such flexibility allowed us to transmit some minority languages like Japanese.⁴¹

It might go without saying, for example in the case of Group 3 and Group 4 Facsimile Transmission services and their terminals (FAX/Fax), someone might believe that such a system should have been adopted by a majority decision, although their main proposals were submitted on an Asian initiative. But it could be testified that smooth and swift adoption of Fax-related CCITT Recommendations and Opinions were indeed realizable due to this unanimous decision process. These Facsimile Transmission services enabling once only dreamed of transmission services regardless of character-types, accounted for 65-75% of trans-Pacific telephone traffic during the 1980s and 90s.

This unanimous-based decision making system has established several precedents that have made it customary to be magnanimous and tolerant, allowing implicitly and coping positively with cultural and linguistic exceptions.

Telecommunication by teletype-writing has now become obsolete. However, the Teletype Exchange Service (Telex/TLX/Tx) had been the leading star of business telecommunication services during the 1960s and 70s. But, to give one example, the Japanese domestic Teletype Exchange Service to accommodate Japanese characters transmission, the NTT adopted the 6-unit codes for Telex. The international signal and code conversion facilities between domestic 6-unit codes and international 5-unit codes were operated jointly by NTT and KDD, until the termination of the international Telex service on 31 March 2005.⁴²

Not only for telegraph-type services like Telex, but also for Packet Data Transmission services by means of packets containing 256 bits of information including Japanese & Chinese characters have been allowed. As the packet size of 128 bits was introduced for international services in accordance with the CCITT, the conversion facilities between the 128-bit packet and 256-bit packet had been installed.⁴³ Asian countries have been active and creative at the ITU and other international organizations in working for the future of communication.

As for word-processing techniques, a great deal of effort went into the development of an Asian-character input method. When the first Japanese word processor JW-10⁴⁴ was released on a commercial basis, an easy-to-operate Asian language typewriter similar to a European language typewriter⁴⁵ became available on the market.

Now, the Asia-Pacific region leads the conversion capabilities of all types of

telecommunication services no matter how large the volume or what the type of information and without any distinction of broadcasting (one-way) or two-way communication.

Conclusion

Technology powerful enough to convert any kind of information regardless of its type might also contribute to revitalizing and protecting cultural diversity, or, on the contrary, tend to damage cultural diversity from unanticipated side effects.

In the case of the monopoly of telegraph services in Japan by GNTC, it has taken nearly 140 years of struggling against foreign domination, but those who have been urging cooperation and concerted efforts among Asian people to enhance Asian prosperity while maintaining cultural continuity and diversity will soon see the success of their efforts.

A once flourishing but now obsolete business is the telegraph. The telegraph, with its transmission capability of only 50 bits or less per second, caused several difficulties, as we saw above.

Now, the era of tera-bits per second or much swifter transmission is coming.

Telecommunication techniques, including broadcasting or Internet use, are becoming an increasingly useful means to realize the dreams of Asian people.

As an example, very many people now communicate with Chinese characters, which contain hieroglyphs enhancing mutual comprehension. Chinese characters, once seen as burdensome to transmit and process on international telecommunication networks, are now considered to be the most promising characteristic of the Asian Information Revolution.

Being reborn or being regenerated in this digital age, we shall no longer be whipsawed or manipulated because of miscommunication among us.

For the benefit of all people, by sharing our Asian cultural heritage such as Chinese characters, we shall greatly enrich two-way communication.

NOTES

1. Chinese-speaking Internet users account for 14.1%, Japanese-speaking Internet users for 9.65%, Korean-speaking Internet users for 4.1% of the whole Internet population. <http://itpro.nikkeibp.co.jp/free/ITPro/USNEWS/20050407/158620/>
2. ITOH Eiichi (1998). "Media no Yuugo to Shin-En-Shakai"[Media Convergence and Credibility in a Networked Society]. *Keio SFC Review*. 3. 73-80.
3. cf. http://www.history.navy.mil/library/special/perry_openjapan1.htm
4. BERTHO Catherine(1984). *Histoire des Télécommunications en France*, Enès, Paris.
5. ITOH Eiichi (1998). "Media no Yuugo to Shin-En-Shakai"[Media Convergence and Credibility in a Networked Society], *Keio SFC Review*. 3. 73-80.
6. cf. L'Union internationale des Télécommunications (1965). *Du sémaphore au satellite Sémaphore*, Genève. UIT. cf. The International Telecommunication Union (1965). *From Semaphore to Satellite*, Geneva. ITU.
7. The Chinese characters expressions used in Japan changed like 傳信⇒伝信⇒電信 or 傳信⇒電信⇒伝信 depending on time and place. Conforming with the "Definition of Certain Terms Used in the Convention and in the Regulations of the International Telecommunication Union", "Telecommunication" is defined as "Any transmission, emission or reception of signs, signals, writing, images and sounds or intelligence of any nature by wire, radio, optical or other electromagnetic systems." This term does connote various systems without excluding non-electrical ones. e.g. *International Telecommunication Convention*, Nairobi, 1982.
8. 「現今西洋諸国には海陸縦横に線を張ること恰も蜘蛛の網の如し。」("Nowadays, in Western nations, networks of landline and undersea cables are constructed like a spider web.") FUKUZAWA Yukichi (1866). *Seiyou Jijou* 1st edition vol.1. reedited by Keio Gijuku Shuppankai.
9. ITOH Eiichi (1995). "Jouhou bunnmei to Kanji jouhou no gurobaruka" [Civilization of Information and Global Informatization by Chinese characters], in *Shigaku Kouron [Public Opinion of Private Universities]*, 28, 28-33.
10. "Described by the writer Arthur C Clarke as the Victorian equivalent of the Apollo project, the laying of the Atlantic telegraph cable was successfully completed in 1866. Between 13th and 27th July, the world's largest steamship, the Great Eastern, with James Anderson as Captain, laid the cable." <http://www.cwhistory.com/history/html/TransAtlCb.html>
11. http://www.netvalley.com/internet_history-right1.htm
12. FIELD Henry M. (1893). *The Story of the Atlantic Telegraph*. New York. Charles Scribner's Sons. 415.
13. <http://www.mrlincolnswhitehouse.org/inside.asp?ID=93&subjectID=2>
14. "From various quarters considerable interest was shown in obtaining the

- concession to provide and operate these cables; but in October 1869 the concession was granted to a group of Danes.” The Great Northern Telegraph Company: An Outline of the Company’s History 1869-1969, Copenhagen, 1969, 11.
15. <http://www.atlantic-cable.com/CableCos/GreatNorthern/index.htm>
 16. The Great Northern Telegraph Company (1969) *An Outline of the Company’s History 1869-1969*. Copenhagen. 12.
 17. L’Union internationale des Télécommunications (1965). *Du sémaphore au satellite*. Genève.81-83. The International Telecommunication Union (1965). *From Semaphore to Satellite*. Geneva.81-83.
 18. In Japan, the GNTC has been called 大北電信 [taihoku-denshin]. “The Great Northern, China and Japan Extension Company: This Company was set up in 1870 to carry out the Russian contract. Hooper’s Telegraph Works Limited were contracted to manufacture and lay the relevant cables. They sub-contracted the armoring of the cables to Siemens Bros. Three cable ships, CS Great Northern, CS Cella and CS Africa, undertook the main cable laying work with a Danish naval vessel, the Tordenskjold, laying some of the shore ends. This ship was the first Danish vessel to pass through the Suez Canal. Three cables were laid during 1870-1871: Vladivostok - Nagasaki 772 nm; Nagasaki - Shanghai 491 nm and Shanghai - Hong Kong 950 nm. They opened for traffic on 1 January 1872. At the same time the Extension company merged with the parent company.” <http://www.atlantic-cable.com/CableCos/GreatNorthern/index.htm>
 19. The Great Northern Telegraph Company (1969). *An Outline of the Company’s History 1869-1969*. Copenhagen. 11-12.
 20. BARTY-KING Hugh (1979). *Girdle Round the Earth, the story of Cable and Wireless and its predecessors to mark the group’s jubilee 1929-1979*. London. Heinemann. 27-28.
 21. HANAOKA Kaoru (1968). *Taihoku Denshin Kaisha ni kansuru Shijitsu [Historical Facts concerning GNTC]*. Nippon Telegraph and Telephone Public Corporation. 125. MURAMOTO Shuuzou (1984) *Kokusai Denki Tsuushin Hattatsushi (Nihon-hen) [History of International Telecommunications Development (Volume 2 – Japan)]*. Kokusai Denshin Denwa Co. Ltd.(KDD). 171.
 22. ITOH Eiichi (1993). “Tsutaeru Rekishi tanpou 5” [Investigating History of communication 5]. in *On the line*. 5 - 10.
 23. The Japanese domestic cable extension was laid by steamship Okinawa-maru from May 1905 to June 1906, linking the Ogasawara-Chichijima (Father Island) postal station and the Kawasaki offshore landing station. This landing station was afterward transferred to Kamakura. Japanese domestic cable extension extended a length of 650 nautical miles. Undersea cable was manufactured at the Silvertown Telegraph Cable Works of the Telegraph Construction and Maintenance Company (known as Telcon) in London. The international section

of 909 nautical miles between Ogasawara and Guam was laid by the steamship Silvertown laying cable manufactured by Siemens. Such combinations of cable-laying steamships and cable manufacturers could be quite interesting. cf. MURAMOTO Shuuzou (1984). *Kokusai Denki Tsuushin Hattatsushi(Nihon-hen) [History of International Telecommunications Development (Volume 2 – Japan)]*. Komuro. The College of International Communication at Kokusai Denshin Denwa Co. Ltd. (KDD). 52-53.

24. “The Telegraph Construction and Maintenance Company was formed through the amalgamation of the Gutta-Percha Company and the cable makers Glass Elliot of Greenwich.” <http://www.cwhistory.com/history/html/Cablemakin.html>
25. OKA Tadao (1941). *Eikoku wo chuushin ni mitaru Denki Tsuushin Hattatsu-Shi [History of telecommunications Development from British Perspective]*, Tokyo. Tsuushin Chousa Kai.
26. YOSHINO Keizo (1934). *Kokusai Musen Denshin Jigyuu ni tsuite [About International Wireless Telegraph Business]*, Tokyo. Shinyou Chousa Koukyuu Kai.
27. The total amount paid to GNTC in 1955 was as follows:

1, Cost of Reconstructing cables disconnected by the Japanese Army in the vicinities of Pusan, Shanghai and Amoy(Xiàmén)	\$169,002.07
2, Loss of cable systems around the Yangtze River and Amoy	\$291,800.00
3, Loss of the corporate property in Wu Song, Shanghai and Singapore	\$384,555.50
Total of indemnities and refunds to be paid by Japan to GNTC	\$845,357.57

HANAOKA Kaoru(1968). *Taihoku Denshin Kaisha ni kansuru Shijitsu [Historical Facts concerning GNTC]*. Nippon Telegraph and Telephone Public Corporation. 122-123.

28. One impact of this privilege is reflected in the unequal sharing of investments for the construction of the undersea cables. It was agreed on 24 August 1967 in Copenhagen, that for the construction of the Japan Sea Cable system (JASC), that the 75% of total capital investment be carried by KDD and the remaining 25% be put by GNTC, notwithstanding that an equivalent scheme to maintain effectively and in substance the equal (50:50) revenue sharing mechanism has been crafted and adopted. This peculiar system was a residue of an exploitative mechanism on the one hand, being a precursor of the B.O.T. (Build-Operate-Transfer) system on the other. The B.O.T. system was first proposed in the latter half of the 1970's by Premier Turgut Ozal of the Republic of Turkey. This B.O.T. scheme was crafted to alleviate the financial burden for developing countries. It is peculiar, however, that by the JASC agreement is the alleviation of the financial burden has been accorded to one private company of the developed country.

- cf. ITOH Eiichi (1993). "Past, Present and Future of the Telecommunications Business in the Asia-Pacific Region." in WERNER Marcel C. *Asia Pacific Connections*. Amsterdam. IOS Press. 41-74.
29. "La Conférence européenne des administrations des postes et des télécommunications (CEPT) a été instituée par un arrangement intergouvernemental le 26 juin 1959 visant à instaurer une coopération européenne dans le domaine des postes et télécommunications. Les activités de la CEPT couvraient alors la coopération dans les domaines de la politique commerciale, de l'exploitation, de la réglementation et de la normalisation technique. Au fil des ans, la CEPT a grandi, s'est réformée et a donné naissance à diverses organisations européennes (ETSI, ETNO, PostEurop ...) Suivant la politique européenne de séparation des activités d'exploitation postales et de télécommunications, d'une part, des fonctions de décision politique et de réglementation, d'autre part, la CEPT est devenue une instance de décideurs et de régulateurs. La CEPT s'est ouverte aux pays d'Europe centrale et orientale et englobe aujourd'hui, avec ses 46 membres, la quasi-totalité du territoire européen. Depuis 1995, la CEPT traite exclusivement des questions de politique et de réglementation." http://www.telecom.gouv.fr/international/omu_cept.htm
 30. JASC=Japan Sea Cable which was constructed jointly by KDD (Kokusai Denshin Denwa Co. Ltd.) and GNTC in 1969, connecting Naoetsu and Nakhodka. However, the JASC Pool system, continued, even after the satellite circuits had become major links connecting Japan and Europe. Its unequal sharing methods inherited from the mid-19th century and high level of lease charge applied to the trans-Siberian landlines were the curious subjects for the PGT (General Principles of Tariffs) Group in the CEPT and the TEUREM (CCITT SG III "Tariffs for Europe and the Mediterranean Basin Group") members, during the 1970s and 80s. The CCITT (reorganized as the ITU-T) D.3xxR Recommendation were drafted by this Group. The PGT Group was dissolved later in accordance with the EU competition policy. TEUREM=French abbreviation of the « Groupe de la Tarification pour l'Europe et le Bassin Méditerranéen » de la Commission III du CCITT.
 31. The administration of Telegraph services was named Denshin-ryou(電信寮).
 32. Teishin-shou [Ministry of Communication] (1940) Teishin Jigyoushi [History of Communication Business] Chapter 8. 582.
 33. Nagasaki Telegraph Office (1943). *Enkaku-Shi [History of Development]*. 153.
 34. <http://www.atlantic-cable.com/FGCableAd2.jpg>
 35. Hugh Barty-King (1979). *Girdle Round the Earth, the story of Cable and Wireless and its predecessors to mark the group's jubilee 1929-1979*. London. Heinemann.
 36. *Ibid.* 123.
 37. ITU (2002). *Asia-Pacific Telecommunication Indicators*, Geneva.

38. <http://www.itu.int/ITU-D/ict/publications/asia/2002/flyerAP2002.pdf>
39. <http://itpro.nikkeibp.co.jp/free/ITPro/USNEWS/20050407/158620/>
40. <http://kokkai.ndl.go.jp/SENTAKU/syugiin/029/0368/02908120368009c.html>
<http://kokkai.ndl.go.jp/SENTAKU/sangiin/051/0368/05103080368007c.html>
41. The unanimous decision making system has a tendency to consider favourably on behalf of “minority” in many instances. This system is still respected to some extent, as in the following example: “Pendant la période d'études, les travaux relatifs à un projet de nouvelle Recommandation ou à la révision d'une Recommandation existante sont suffisamment stables. La Commission d'études ou le Groupe de travail alors peut décider que le texte est suffisamment stable et qu'il est temps d'engager le processus d'approbation. On procède alors aux derniers travaux d'édition et le Président de la Commission d'études demande au Directeur du TSB de déclarer ouverte une période de consultation de trois mois. Les résultats de cette consultation des Administrations sont communiqués à la réunion suivante de la Commission d'études. A cette réunion, toutes les observations sont examinées et le texte définitif de la Recommandation est élaboré. Au moment voulu pendant la réunion de la Commission d'études, le Président annonce son intention de demander l'approbation de la Recommandation. La décision prise à la réunion de la Commission d'études doit l'être à l'unanimité. En cas d'opposition d'une Administration, le processus d'approbation est suspendu. ” (Procédures de l'UIT-T)
http://www.itu.int/itudoc/itu-t/80718_ww9-fr.doc
42. http://www.kddi.com/corporate/news_release/2004/0603/index.html
43. “Principes spéciaux de tarification à appliquer aux services publics internationaux de communication de données à commutation par paquets assurés au moyen de la communication virtuelle” proposé par Eiichi Itoh au Groupe de travail III/2. Le texte a été adopté à l'unanimité comme l'Avis D.11 du CCITT (le nom duquel a été changé du CCITT en celui de la Recommandation de l'UIT-T de la série D. le numéro 11.
44. JW (stand for Japanese Word processor) became available to the public in the late 1970s, with 6802 types of characters.
<http://www.ipsj.or.jp/katsudou/museum/computer/TSB-JW10.html>
45. The Magnetic Tape/Selectric Typewriter (MT/ST) was released by IBM in 1964, as the first reusable storage medium for typing. The word processors introduced by Dr An Wang during the 1970s were innovative and creative.

All web-sites quoted and/or mentioned above in the Notes are as of 17 October 2006.

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