

*Chapter 1*

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Kibataro Oki, Pioneer of  
Telecommunications Industry  
(1881-1912)

# *1. Kibataro Oki and Development of Telecommunications Industry*

## **Dawn of telecommunications in Japan**

When looking back at the history of the telecommunications industry in Japan, it is immediately seen that the industry did not develop based on government protection. Rather, the road to development of the new industry was paved with energetic entrepreneurial initiatives and robust business activities. Companies unable to take advantage of the new business opportunities that emerged as changes occurred in the marketplace eventually declined.

A most important event in the earliest period of the Japanese telecommunications industry was establishment in 1881 of Meikosha, Ltd., by an entrepreneur named Kibataro Oki. Oki began the new business of producing and supplying communications equipment, mainly to the government. In contemporary jargon, Oki established and managed a venture business. While struggling to procure the funds needed to run Meikosha, he gradually raised the company's level of technology and made the efforts needed to cultivate the newly emerging communications equipment market. He responded perceptively to new business opportunities and Meikosha filled the early demand from customers in the telephone business, thus moving ahead of other companies in the same line of business to become a leading communications equipment manufacturer. This chapter takes a close look at the pioneer Kibataro Oki and his entrepreneurial activities in the early telecommunications industry.

In January 1874, 27-year-old Kibataro Yoshizaki (his family name was later changed to Oki) arrived in Yokohama by boat from Hiroshima. Born to a farming family in Hiroshima prefecture, Kibataro from a young age was taught how to produce and repair arms for the Aki Clan. After his family left him in the care of the Yoshizaki family, Kibataro was apprenticed to a silversmith. A diligent young man, Kibataro developed within a few years into a first-class silversmith.



*Kibaturo Oki*

But he became restless and eventually decided to leave his home province and seek his fortune in Tokyo. He had made no prior arrangements for finding employment, however, and met with difficulties when he arrived in the capital city. He contacted several persons from Hiroshima prefecture in hope of finding work, and before long was introduced to Ryuzo Harada, manager of the School of Technology under the Telegraph Bureau of the Ministry of Industry. After meeting and talking with Kibaturo, Harada was impressed with the young man's accomplishments and took him under his wing.

About five years before then, in 1869, the new Meiji government had begun promoting the telegraph business. In 1871, barely three years before Kibaturo arrived in Tokyo, the government established the Telegraph Bureau in the Ministry of Industry to handle the nation's telegraph affairs. Recognizing the need to develop communications as an extremely useful medium for distributing information, including information related to military and police matters, the new government invited electrical and other engineers from England, men who subsequently helped to build Japan's first telegraph lines. The first line was installed in 1869 between the Yokohama Tomyodai Government Office and the Kanagawa Court House—the equivalent of a prefectural office at the time. Telegraphic service between Tokyo and Yokohama was begun in that same year, and between Tokyo and Nagasaki in 1873. As the domestic telegraph network was thus gradually expanded, a need arose to educate and train telegraphic operators and maintenance personnel. In April 1873, the government established a Production Division under the Telegraph Bureau. In this way, it was only by great coincidence and good fortune that around

the time the domestic telecommunications business was just getting underway in earnest, Kibataro Oki happened to arrive in Tokyo and came to meet Ryuzo Harada of the Telegraph Bureau.

Not long after Kibataro joined the Telegraph Bureau, his supervisors began to recognize the unique skills he had developed as a silversmith. One result was that in April 1874 he was officially employed as an apprentice in Ryuzo Harada's School of Technology. A German engineer named Luis Schaefer, employed by the government, began providing technical guidance in the Telegraph Bureau from January 1872 on methods of producing communications equipment. Schaefer was highly respected by Japanese engineers in the Telegraph Bureau for his knowledge of high-precision processing technology, and apparently Kibataro was one of Schaefer's students. At any rate, Kibataro was promoted in 1875 to advanced technical apprentice, 14th class. He continued to develop rapidly afterward, and was promoted to 9th class in 1877 and subsequently to 8th class in 1878. These were quite fast promotions for a young man who began his career as a silversmith, and it can thus be said that Kibataro's supervisors in the Telegraph Bureau evaluated him highly.

In the spring of 1877, at the age of 30, Kibataro married Take Kano, a young woman eight years his junior. Take was the daughter of Sadanobu Kano, head of the famous Kano family of artists formerly patronized by the Tokugawa shogunate.

## **Engineers in Telegraph Bureau**

Many of the men destined to become pioneers in Japan's telecommunications and electrical machine manufacturing industries worked at one time or another in the state-run Telegraph Bureau. Yasuyo Ishimaru, for example, was appointed head of the new Telegraph Bureau in 1871, and played a leading role in establishing Japan's telegraph business. One large-scale project he oversaw was installation of the first telegraphic line between Tokyo and Nagasaki. At that time, Ishimaru asked Hisashige Tanaka, who had experience in making telegraph equipment, to produce equipment for the Telegraph

Bureau. Tanaka came from a family of craftsmen who worked with tortoise shell, and he was known for the mechanical dolls and perpetual clocks he devised. He had a nickname, “Karakurigiemon,” that referred to his skill in designing tricky mechanisms.

Tanaka came to Tokyo from Saga prefecture in Kyushu. Although records of his early years are scanty, he is said to have set up a temporary workshop in the early 1870s in the Azabu section of Tokyo. There, in 1873, he reportedly produced ten Henry telegraph devices. He also produced dozens of Morse code telegraph machines for the Telegraph Bureau for use in training telegraph operators. Two of Tanaka’s apprentices were Daikichi Tanaka and Ichitaro Kawaguchi, both of whom later worked in the Production Division of the Telegraph Bureau and helped to produce telegraphic equipment. Daikichi later left the government’s employ and succeeded to Tanaka’s business. He eventually relocated Tanaka Engineering Works to the Shibaura section of Tokyo. This company, later renamed Shibaura Engineering Works, was the predecessor of today’s Toshiba Corporation, a foremost heavy electrical equipment manufacturer.

Another key person around this time was Shoichi Miyoshi. Like some of the other men, Miyoshi was an inventor. He designed a treadle-type multicocoon reeling machine, for example, for the Tomioka Filature Plant in Gunma prefecture. Also, he was awarded a certificate of merit at the First National Industrial Exhibition, held in Tokyo in 1877. After studying at the Telegraph Bureau’s School of Technology, he went to work in the Production Division in 1877. Kibataro Oki was already working there and was thus senior to Miyoshi. Miyoshi left the government in 1883 to establish Miyoshi Electric Works, which mainly produced electric lighting equipment. The company’s principal customer was Tokyo Electric Light, Ltd. It also supplied communications equipment to the Ministry of Communications.

According to the Statistics Annual for 1887 published by the Tokyo Metropolitan Government, Tanaka Engineering Works had 465 employees, Miyoshi Electric Works had 53, and Oki Works had 12, making Tanaka Engineering Works by far the largest of the three companies. As with Tanaka, Miyoshi, and Oki, many of the electrical machinery manufacturers of this period were established by entre-

preneurs who had formerly worked in the Production Division of the Telegraph Bureau. Many unusually skillful men thus worked together around this time in that division, and they shared a strong drive to develop new technology and new products.

Around this same time, Kibataro Oki, Shoichi Miyoshi, and Chujiro Taoka organized a research group called the “Yarukisha.” They worked together to develop materials and components for use in communications equipment. Kibataro Oki, for example, designed a paper-made Daniel cell and lacquer-coated electric wire. Shoichi Miyoshi, for his part, designed a silk-wire winding machine. The Ministry of Industry presented commendations to Oki and Miyoshi because all three of their innovations effectively replaced imports, thus contributing to the promotion of domestically made products.

Kibataro Oki purchased two foot-pedal lathes in 1879 and began supplying the Ministry of Communications with parts and materials for communications equipment. These included carbon electrodes for electric batteries used by the Telegraph Bureau. Initially, two or three employees performed that work, headed by Totaro Katoh, formerly with the Telegraph Bureau. Kibataro and men like Kansuke Araki helped out during off hours from their regular duties at the Production Division. It was around this time that Kibataro decided to leave the government and start his own company to manufacture communications equipment.

Kibataro submitted his resignation to the Telegraph Bureau in January 1880 and it was accepted in December. Like Kibataro Oki, many engineers who worked in government positions, such as in the Telegraph Bureau, later left to work in the private sector. There they usually disseminated the technology they studied and developed while working for the government.

### **Oki Electric’s Roots—Establishment of Meikosha, Ltd.**

Kibataro Oki founded Meikosha, Ltd., in January 1881. He had moved forward with preparations for becoming independent even before leaving the Telegraph Bureau, and borrowed enough money

from friends to rent a two-story building with space for an office and a working area. The building was one of the many red brick buildings lining the streets in the Ginza section of Tokyo around that time, symbols of Japan's increasing modernization.

Actually, a disastrous fire on February 26, 1872, provided part of the reason for constructing these red brick buildings. The fire broke out near the Wadakura Gate of the Imperial Palace. Fanned by strong winds, it quickly spread toward the Ginza. Before it was extinguished, 19,872 persons had been killed or injured and over 2,000 buildings destroyed. Following that disaster, the Meiji government decided to rebuild central Tokyo to give it an appearance more fitting as the nation's capital. The government chose incombustible red brick as the main building material. The reconstruction project took five years, until 1877, to complete. As part of the project, the main street in the Ginza section was fitted with sidewalks on both sides, and was also lined with trees and gas streetlights. The sidewalks, trees, gas streetlights, and long rows of red brick building with balconies on their second floor presented an urban scene never before seen in Japan.

Although the red brick building housing Meikosha had two stories, it was rather small in floor area. Still, it was there, in those humble beginnings, that Kibaturo Oki opened for business the small company destined to develop into today's Oki Electric Industry, Co., Ltd.

### **Invention of “microsound” device**

Kibaturo Oki displayed a “microsound” device, a telephone that used carbon powder, at the Second National Industrial Exhibition held in March 1881. The device's transmitter was a tooth powder box made of paulownia, and its diaphragm was a thin board made of Japanese cypress. Natural carbon powder was compacted into the box and an electric current was passed through it to allow the transmission of sound. Eight Daniel cells were used as the power source. It is said that the device transmitted messages clearly.

The first Edison telephones were imported into Japan in 1878.

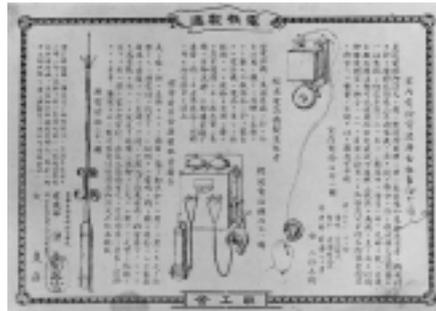
They used carbon rods, not carbon powder. The Ministry of Communications first produced the same type of telephone domestically in 1883. In contrast, the telephone Kibataro Oki produced in 1881 used carbon powder, which raised its sensitivity. Kibataro's idea was a preeminent one, and records of the Second National Industrial Exhibition in 1881 show that he received a second-place award in his device category. As reasons for the award, the judges said: "The device has been produced with great precision, and even faint sounds can be heard at a great distance. Replacing silk yarn with baked lacquer for insulating the copper wire was an especially outstanding idea." The judges further commented that if the device were improved it would find a wider range of uses, thus suggesting it was still at the invention stage.

At start-up, Meikosha had 10 employees, not counting Kibataro. Among them were Totaro Katoh, mentioned earlier, Kibataro's nephew Umakichi Oki, blacksmiths, and others. The company's production equipment included three small lathes. About a year after starting in business, Kibataro ran into serious financial difficulties. The main problem was a lack of operating funds, due mostly to a low level of demand for communications equipment. The lack of funds was so severe that even the company's lathes were seized for debt.

To improve the company's situation, Kibataro began a busy round of visits to government and police offices, official government residences, and even the offices of retailers and wholesalers to introduce and promote the sale of his company's products. Meikosha's product line at the time comprised mainly the supply, leasing, and installation of Oki-type tabletop telephones, room bells, and various displays, and sales of popular electric medical equipment. Meikosha's fortunes changed somewhat in 1882 when it won a contract from the Army to produce a prototype portable printer based on an imported German model. The company eventually supplied a large number of these printers for use by the Army Signal Corps. Together with this favorable turn in business, at the end of 1884 Meikosha rebuilt a single-story wooden building behind its head office into a two-story structure to handle expanded production. The general demand for communications equipment was still not growing noticeably, however, and

Kibaturo wracked his brain considering various business possibilities. He saw potential in many areas. In 1885, for example, while receiving an order from the Kanagawa prefectural office for electric bells, on the one hand, Kibaturo purchased hemp yarn, mosquito netting, and towing rope from suppliers in Hiroshima, on the other hand, and began selling those products in Tokyo. One order from the Navy was for four tons of towing rope. While none of these products sold well, the manufacture and sale of electric wire for use in communications equipment began to increase, gradually turning into the company's most important business.

As related earlier, while he was working in the Production Division of the Telegraph Bureau, Kibaturo had come up with the idea of using a lacquer coating to insulate copper wiring. Applying this same idea, Kibaturo exhibited lacquer-coated wire at the International Exhibition of Inventions held in London in January 1885. Judges at the exhibition awarded the product a silver prize. In February of the following year, Meikosha built an electric wire factory in the Shintomi-cho section of Tokyo, mainly for producing lacquer-coated wire used in coils. That same year saw the establishment of Tokyo Electric Light. Afterward, the demand for electric wire expanded to cover not only communications equipment but also various types of electric lights. At the end of 1890, Meikosha added a second story to its electric wire factory in Shintomi-cho, and began manufacturing products such as silk-covered wire, cotton-covered wire, electric cords, and assorted types of wire for electric lights. In an advertisement dated circa 1887, Meikosha offered customers the monthly lease of home-use electric bells for 35 sen, and explained that the company was producing and



*Meikosha pamphlet advertising home-use bells, telephones, and lightning rods*

selling handy telephones, and selling reasonably priced lightning rods. The advertisement is evidence that Meikosha made efforts in the late 1880s to expand the sale of products to the private sector, and offered reasonable prices to stimulate business.

### Ministry of Communications starts telephone service

In 1890, Japan's first Lower House elections were held and its first Diet Session was opened, marking the start of the nation's legislative system. This same year also saw construction in the Asakusa section of Tokyo of the 12-story Ryoukaku, Japan's tallest building at the time, built as a copy of the Eiffel Tower. The luxurious Imperial Hotel was also completed in 1890. Such structures not only made Tokyo more colorful, but also invigorated its urban functions. Near the end of this important year in Japan's history, on December 16, the Ministry of Communications opened telephone exchanges in Tokyo and Yokohama, and telephone service became available in and between both cities. It had taken 21 years from the start of telegraph service until telephone service finally came to be offered in Japan.

Because the general populace did not appreciate the convenience offered by telephones at the time, the Ministry of Communications expected difficulties in signing up subscribers. As well, telephone usage fees and per-call charges were necessarily high, making cost a negative factor working against subscriptions. The ministry advertised in leading newspapers, and asked for support from leaders in commerce and industry. As a result, initial subscriptions numbered 215 in Tokyo and 45 in Yokohama. Of these, the number able to obtain lines before service began was 155 in Tokyo and 42 in Yokohama. In terms of Tokyo's population at the time, the diffusion rate was less than one telephone per 10,000 persons. Telephone number 1 was assigned to the Tokyo Metropolitan Government and number 2 to the Ministry of Communications. Oki Electric Works (the new name of Meikosha from February 1889) was assigned number 39. Other subscribers included government offices, newspaper companies, and private corporations.

Saitaro Oi, a senior engineer with the Ministry of Communications, was appointed chief of the Tokyo Telephone Exchange. After graduating from the Imperial College of Engineering of Tokyo (today's Engineering Faculty in the University of Tokyo) in 1882, Oi entered the Ministry of Communications. In 1888, he traveled to the United States and several countries in Europe to observe how telephone services were being provided. While in the U.S., Oi visited the offices of Western Electric Co. (WE) in Chicago where he met Harry B. Thayer, manager of WE's International Department. He also purchased a switchboard made by WE and took it back to Japan. In effect, that purchase reflected a decision by the Ministry of Communications to adopt WE's product as the standard for Japan. In preparation for beginning telephone services in Japan, the Ministry of Communications imported single-system switchboards made by WE. These same switches were manufactured at the production facility that had by then succeeded the Telegraph Bureau's Production Division. Instead of Edison telephones, meanwhile, Gower-Bell telephones were imported. The Ministry of Communications had improved the Gower-Bell telephones it was manufacturing and began supplying them to subscribers. During the initial period of telephone services in Japan, therefore, imports and products the Ministry of Communications produced accounted for most of the products on the market. Equipment produced in the private sector accounted for only a small percentage of the total.

## **Development of Oki Electric Works**

Oki Electric Works gradually earned a fine reputation as a private communications equipment manufacturer with a high level of technical competence. Kibaturo Oki exhibited telephone receivers and various types of electric machinery at the Third National Industrial Exhibition in 1890, and received a second-place award, as did Shoichi Miyoshi. In a report on communications equipment compiled by judges at the exhibition, the telephone exhibited by Kibaturo and an ammeter exhibited by Miyoshi were cited as outstanding examples

of products especially appropriate for general use. At any rate, the improved reputation of Oki Electric Works served to strengthen its relationship with the Ministry of Communications in the telegraph and telephone service fields. In April 1890, in line with the start of the government's telephone switching service in Osaka and Kobe, Kibatara opened a temporary sales office in Osaka. The company thus put into order an organization that enabled it to smoothly obtain and process orders from the Ministry of Communications in the Kansai region, centered on Osaka.

In September 1890, an Oki Electric Works catalog listed the following products and businesses.

- Communications machinery—printers, carbon telephones, communications devices for military use
- Various machinery—electric generators, medical equipment, displays, electric bells, lightning rods, incandescent lights, arc lamps
- Testing equipment—ammeters, condensers
- Batteries—Daniel cells, portable batteries for military use
- Wiring equipment—telephone wires, lamp cords, insulators
- Construction and installation—installation of telegraph lines, installation of telephone lines, installation of wiring for electric lights,
- Subcontracting related to testing—electric wiring tests, insulation experiments, lightning rod tests

Besides producing communications equipment and electric wiring, Oki Electric Works specialized in construction and installation work for telephone lines, electric bells, and lightning rods for government offices in Tokyo. When the company installed telephone lines to enable communication between the first and twelfth floors in the Ryounkaku, the project received much attention. Lightning rods and arc lamps that Oki Electric Works installed on the roof of the Ryounkaku



*Plant in Kyobashi,  
after expansion*

effectively advertised the company's technical capabilities.

Oki Electric Works built a new factory in October 1894 in Tokyo's Kyobashi section. Production at the old electric wire factory was halted and transferred to Kyobashi in November. The old factory was then refurbished and the sales department was moved there. According to the Statistics Annual for 1894 published by the Tokyo Metropolitan Government, Oki Electric Works had 83 employees in 1894, 71 more than the number listed in 1887. It can be said, therefore, that the start of the telephone business by the Ministry of Communications led to expanded operations for Oki Electric Works, turning it into Japan's top manufacturer of communications equipment. An advertisement placed in the *Denki no Tomo* trade magazine in November 1895 listed Oki Electric Cable Works, Oki Electric Works, the company's sales department, and its Osaka office. It asked that all inquiries and orders be directed to the company's sales department. One aim of the advertisement was to inform the public that the company had expanded operations at its covered-wire factory, adding new equipment and hiring new employees. This advertisement shows that the company's electric wire business had become an increasingly important part of its overall business. Then, in March 1896, the company spun off its sales department to establish Oki & Co.

## *2. First Telephone Expansion Plan, and Oki Electric Works*

### **Sino-Japanese War, and First Telephone Expansion Plan**

The Sino-Japanese War that broke out in 1894, and the First Telephone Expansion Plan of the Ministry of Communications that started in 1896, after the war ended, had a substantial positive effect on the business of Oki Electric Works. Japan declared war on China on August 1, 1894, thus marking the beginning of the Sino-Japanese

War. The Japanese Navy subsequently installed telephones at all its domestic observation stations, and installed signaling equipment aboard its warships and at land-based signal stations. The Navy, meanwhile, installed an exclusive telephone line between Tokyo and Yokosuka, a large naval port south of Yokohama. One result of this activity was that orders from the government to Oki Electric Works increased rapidly. The company also supplied the Army Signal Corps with various types of equipment and facilities, including portable telephones, although this ended up being a temporary demand.

Japan and China eventually signed a peace treaty in April 1895, ending the war and halting the surge in military demand for communications equipment. Fortunately for Oki Electric Works, however, the government introduced the First Telephone Expansion Plan, a seven-year project, beginning in 1896. Actually, the entire Japanese economy enjoyed a period of prosperity from 1895. Many industries flourished, centered on the spinning industry and including electric power and other industries. When this boom period ended, however, the business environment surrounding the electrical machinery industry worsened. Heavy electrical machinery manufacturers suffered particularly bad setbacks: Miyoshi Electric Works bankrupted, and Shibaura Engineering Works' business slumped noticeably. In contrast, Oki Electric Works benefited from introduction of the First Telephone Expansion Plan and its business grew. The fact that Kibaturo Oki had concentrated on the communications equipment business was a key factor in the growth of Oki Electric Works at this time.

Not long after the start of the government's telephone service, applications for telephones exceeded initial expectations, partly because the Sino-Japanese War spurred the rate of subscriptions. The use of telephones increased so quickly in Tokyo that subscribers began complaining about poor service. When the military budget was increased during the war, however, government spending for telephone service in the private sector was cut. The backlog of applicants continued to grow, therefore, but no service was available. In that backdrop, the first advertisements by telephone dealers offering to buy and sell telephones appeared in December 1896. A proposal for expanding telephone service was submitted to the Diet around this

same time, and politicians discussed the idea of privatizing telephone services. At any rate, the Ministry of Communications was not able to supply sufficient telephone service to meet demand. To rectify that situation, a telephone expansion plan was proposed after the Sino-Japanese War ended, with revenues provided by issuing government bonds. Initially, the Ministry of Communications proposed a five-year plan with expenditures of 5.6 million yen, an extraordinarily ambitious amount compared to earlier such budgets. Ministry of Finance policy specified, however, that government bonds could be issued only for projects with budgets of 10 million yen or more. The Ministry of Communications thus had to revise its plan, and its final proposal increased expenditures to more than double those in the initial proposal.

In the Ministry of Communications, it was actually a young 22-year-old engineer named Ryuji Nakayama who pulled together the telephone expansion plan, working under Kenjiro Den, head of the communications division, and Saitaro Oi, head of the engineering section. At the time, Den and Oi felt it would be immensely difficult to prepare the details of such a large-scale plan in the short time allotted. Over a period of 10 months, however, Nakayama devoted all his time to preparing the plan, working long hours and sometimes foregoing sleep and food. He discussed the technical details especially closely with Oi, and finally finished a proposal for a seven-year plan budgeted at 12.8 million yen. The proposal was formally presented to the Diet in December 1895. It was an ambitious proposal, calling for establishment of telephone exchange offices in 40 cities, and an increase of 22,800 subscribers. It also called for installing an additional roughly 400 kilometers of long-distance telephone lines.

The value of production at Oki Electric Works in 1896, the first year of the telephone expansion plan, increased to 1.9 times that of production in 1894. The make-up of production for both fiscal years shows that electric wire accounted for 40 percent or more of the value of total production, pointing up clearly the importance to the company of the electric wire business. Also, although until about 1894 the percentages of the value of production of telegraph equipment and telephone equipment were about the same, once into 1896

the value of the latter began increasing, reflecting the positive effects of the telephone expansion plan.

Together with introduction of the telephone expansion plan, the demand for telephone equipment and telephone wire increased rapidly. Up to that point, the Ministry of Communications had followed a policy of procuring telephone equipment made domestically, especially telephone switchboards and telephone sets made at its production facility. After demand began increasing, however, it became impossible for the ministry to maintain its policy of self-sufficiency. Until about 1894, the production facility's output of telephones and the number of telephone sets tested there were about the same. In 1897, however, its telephone production output was 1,000 sets while it tested 9,083 sets. This difference shows that the production facility was also testing other Japanese products and imports. Both in production capacity and technical capabilities, the domestic manufacturers had limitations, and imports increased rapidly to meet demand. The value of imports in 1897 was equivalent to about 14 percent of the expansion plan's expenditures.

As orders from the government to overseas manufacturers increased, domestic communications equipment manufacturers already doing business with the Ministry of Communications, and trading companies with importing experience, began to act as agents for imported products. Oki & Co. took advantage of this business opportunity and moved to expand the line of imported products it handled, adding products made by WE.

In this way, the First Telephone Expansion Plan quickly made the business of importing communications equipment more attractive, and Kibataro Oki also recognized the benefits of handling imports. According to records dated November 1897, in fact, Kibataro Oki said that Oki & Co.'s "profits on jobbing sales are larger than on manufactures." During the period of the First Telephone Expansion Plan, and in the background of the business Oki & Co. was doing with the Ministry of Communications, the company ranked on a level with specialized importers and played an active role as a wholesaler of imported products.

*Sales office of Oki & Co.,  
Mizutani-cho, Kyobashi*



## Oki Electric Works and Oki & Co.

Oki Electric Works and Oki & Co. were introduced in the trade magazine *Denki no Tomo* in 1897. Oki & Co. was described as having its offices located in a two-story red brick building, with a showroom and reception area on the first floor and business offices on the second floor. Kibaturo Oki and the engineer Kiyoshi Itoh had offices on the second floor, along with several office workers. Itoh was in the first graduating class of the Telegraph Bureau's School of Technology, and had worked as an assistant engineer in the Ministry of Communications. Afterward he worked for Tokyo Electric Light and Tanaka Engineering Works before joining Oki & Co. in 1893. Itoh was very capable and Kibaturo appointed him in charge of sales.

At Oki Electric Works, meanwhile, Totaro Katoh was in overall charge. He appointed electrical engineers and others responsible for production equipment, coordination, wire manufacturing, and electrical testing. The factory was in a two-story building. The first floor was dedicated to wire manufacturing and had several dozen lace-up machines lined in two rows. Lines of female employees were busily producing various cords there for use with telephones and switchboards. Other female employees worked on the second floor producing switchboard cables and cords for telephone handsets, and finishing telegraph and telephone coils.

Kibaturo Oki, owner and head of both Oki Electric Works and Oki & Co., worked closely with family members and employees to manage and operate the two companies. In general, the overall business comprised a production division (Oki Electric Works) and a sales

division (Oki & Co.). Kibataro directly managed Oki & Co., and Totaro Katoh—a long-time employee from Meikosha days—managed Oki Electric Works. None of the records of Oki Electric Works or Oki & Co. remain from around 1897, but W. T. Carleton of Western Electric later noted that Oki Electric Works had 110 regular factory workers and 38 apprentices while Oki & Co. had 28 employees, including office clerks.

### **Business discussions between Oki & Co. and WE**

Even as the First Telephone Expansion Plan was being carried out, Kibataro Oki came to face a major business decision. The strong possibility emerged of his organization having business ties with WE, the manufacturing arm of the Bell System in the U.S. WE was familiar with the telephone expansion plan of the Ministry of Communications and had begun studying entry to the Japanese market, fully expecting the demand in Japan to increase for telephones, switchboards, and other telephone-related equipment.

Harry B. Thayer, manager of the International Department of WE, visited Tokyo in 1896 to gather information on Japan's telephone expansion plan and on how to do business with the government. He returned to WE's head office after confirming that the telephone business in Japan had a promising future.

In October 1897, WE sent Walter T. Carleton—Thayer's assistant—and two other men to Japan. Carleton met, first of all, with Kunihiko Iwaware, WE's agent in Japan. He also met and talked with Saitaro Oi, chief engineer of the Ministry of Communications, and others to gather first-hand information. Iwaware, who later established Nippon Electric Co., Ltd. (NEC), in a joint venture with WE, was the agent in Japan for General Electric and other companies in Osaka at the time.

A graduate of the Imperial College of Engineering in Tokyo, Iwaware had lived and worked in the U.S. under Thomas Edison at Edison Electric. He had the rare experience for a Japanese of having done business in the U.S. He was fluent in English and was one of



*Kunihiko Iwadare*

very few internationally minded Japanese businessmen at the time.

While in the U.S., Iwadare had visited WE and met Thayer. Thayer thus trusted him. Carleton met with Iwadare soon after arriving in Japan, and was impressed with how capable he was. He described Iwadare as having a “samurai spirit,” and he came to have confidence in him. Iwadare played a key role in business discussions between Kibaturo Oki and WE.

In November 1897, the month following Carleton’s arrival in Japan, Iwadare presented Carleton with a proposal for business ties between WE and Oki & Co. In the proposal, 300,000 yen was to be invested in Oki & Co., with WE investing half the amount and Kibaturo Oki and some government-related persons investing the other half. The plan included utilizing the production facilities of Oki Electric Works.

Before receiving that proposal, Carleton, bewildered by the differences between American and Japanese business practices, had energetically collected information about the telephone business in Japan, meeting not only with Kunihiko Iwadare but also with lawyers, Saitaro Oi of the Ministry of Communications, and managers from two other companies already selling WE products in Japan—Takada & Co. and Okura-gumi Co. Carleton quickly came to appreciate the difficult business situation in Japan. He also knew that revisions to the Japan-U.S. Treaty of Commerce and Navigation, scheduled for mid-1899, would make it possible for foreign companies to invest directly in Japanese companies. In that backdrop, Carleton had been studying several options. He thus decided not to accept Iwadare’s proposal for doing business with Oki & Co. Instead, he said that for the time

being he would appoint a trading company to act as the exclusive agent in Japan for handing WE products.

Becoming the exclusive agent for WE was an attractive business opportunity for Oki & Co., Takada & Co., and Okura-gumi Co., and by the end of December 1897 all three companies submitted business proposals to Carleton. Carleton hoped to respond to these proposals by the end of January 1898, but the detailed proposals stimulated his thinking further. He recognized that all three companies had both strong points and shortcomings, and from the experience he gained from talking with so many people in Japan and reviewing the three business proposals he realized that WE could not succeed in Japan without business ties with a local partner. A distinct advantage of tying up with Oki & Co. was that Oki Electric Works possessed technology and production facilities. At the same time, though, Oki & Co. was producing its own brand of products and was thus a strong competitor of WE. Trading companies, meanwhile, had advantages such as having strong sales organizations and financial stability; two of their disadvantages were having neither technical know-how nor production facilities.

In mid-February 1898, WE in Chicago made its policy preferences clear. Thayer informed Carleton that WE wanted business ties with Oki & Co., and instructed him to spend whatever time was necessary to draft an agreement that would appoint Oki & Co. immediately as WE's exclusive agent in Japan and that would eventually allow the two companies to cooperate in business. Carleton contacted Iwadare, explained WE's instructions, and asked him to act as an intermediary in negotiations with Oki & Co.

On March 1, 1898, Carleton presented a set of three conditions for appointing Oki & Co. its exclusive agent in Japan. First, concerning products the Japanese government ordered directly, WE would sell the products to Oki & Co. for delivery to the government. Second, Oki & Co.'s payment to WE for those products would be by promissory note at 6 percent interest. The largest allowable promissory note, however, would be 50,000 yen. And, third, the Yokohama Branch of WE would transfer half of its profit to Oki & Co., and Oki & Co. would transfer half of its profit to the Yokohama Branch.

Subsequent discussions between Carleton and Kibaturo Oki came very close to reaching an agreement, but in early June 1898 they were abruptly terminated.

The special circumstances in Japan at the time help to explain why the discussions between WE and Oki & Co. ended without an agreement. In the Treaty of Shimonoseki (April 1895) ending the Sino-Japanese War of 1895-96, China had ceded the Liaodong Peninsula to Japan. Intervention by Russia, Germany, and France, however, compelled Japan to return the peninsula. One result was a rapid increase afterward in military expenditures as Japan moved to strengthen itself. As part of strengthening the nation, the government also promoted localization of a wide spectrum of products. And, in fact, it was just as Oki Electric Works was making great efforts to localize the production of telephones and telephone switchboards that WE presented its proposal for a joint venture. It is easy to imagine, therefore, how difficult it was for Kibaturo Oki to decide against business ties he perhaps wanted badly. At the same time that Kibaturo felt official pressure not to enter into business ties with WE, he also faced demands from WE about the method of evaluating Oki Electric Works' assets and the sharing of profits. In the end, then, these several factors combined to force a termination of the business discussions between WE and Oki & Co.

### *3. Second Telephone Expansion Plan, and Establishment of Oki & Co., Ltd.*

#### **Russo-Japanese War and increase in demand for telephone service**

Even after completion of the government's initial telephone expansion plan the demand for telephone service continued unabated. Usage increased as well. The number of local telephone calls, totaling 130.4 million calls in 1903, more than doubled to 262.5 million in

1907. The increase in new subscribers, meanwhile, was always higher than the number of new lines installed, and the backlog of applications doubled from 21,000 in 1903 to 42,000 in 1907. Because of the supply shortage, the business of buying and selling telephone rights also turned brisk. The price for buying an existing telephone number in Tokyo from a broker tripled between 1903 and 1907. The business temptation was so strong that an extreme imbalance emerged between the demand for, and the supply of, telephone service. As a result, sometimes when a new telephone exchange opened, telephone brokers would mobilize a large number of persons and monopolize all subscription applications. During 1905, moreover, about 7,000 cities and towns requested that telephone exchanges be set up in their areas. Officials in these cities and towns approached the Ministry of Communications and requested the start of telephone service. Several conditions were set, however: the cities and towns had to call for donations from local residents for purchasing construction sites for telephone exchanges, for example, and even for constructing the exchange buildings and installing telephone poles.

The Ministry of Communications had early on felt the need to expand telephone services. Although new telephone expansion proposals were submitted to the National Diet in 1902 and again in 1903, however, neither was passed. And when the Russo-Japanese War broke out in February 1904, the national budget for expanding private-sector telephone services was drastically reduced. It was thus not possible at this time to resolve the problem of a shortage of telephone service. In the spring of 1904, though, military requirements led to new central telephone exchanges being built in nine locations, including at naval ports in Yokosuka, Kure, and Sasebo, and at locations where army divisional headquarters were located. New long-distance lines were also installed, likewise for the military. Worth particular mention is the 1,550-kilometer long-distance line installed between Sasebo in Kyushu and Tokyo. Funds came from an extraordinary military account, and the line was installed in the record time of 10 months.

Telephones were used much more widely during the Russo-Japanese War than during the earlier Sino-Japanese War, with about 32,000

kilometers of telephone wire installed. As well, when a Japanese ship confirmed that the Russian Baltic Fleet was heading for the Japan Sea, the information was sent in a radio message to the Japanese Combined Fleet. That information contributed to the defeat of the Russian fleet. This advantageous use of radio communications was a major event in the history of military action.

### **Entrepreneurial activities of Kibaturo Oki**

Kibaturo Oki died on May 29, 1906, at the age of 58. In effect, after establishing Meikosha in 1881, Kibaturo had dedicated his entire life to the manufacture of telegraph and telephone devices. He had no particular hobbies, nor did he indulge in any luxuries. His single interest was the growth of Oki & Co., and he witnessed the company's success before passing away.

In looking back over his life, it can be said that Kibaturo was a typical example of a person who began his professional career as a craftsman and then later became an entrepreneur just as Japan was entering the modern age. In reviewing the history of Japan's machinery industry, in fact, it can be pointed out that craftsman technology from the early modern age played a principal role in that industry's development. In the communications equipment industry as well, the technology developed and nurtured by outstanding craftsmen employed by the Telegraph Bureau of the Ministry of Communications formed the foundation for the industry's later development. But merely being a craftsman and developing technology did not guarantee success. The difference was whether or not a person possessed the special characteristics of an entrepreneur. During the period after the Sino-Japanese War, in particular, there was a weeding out of companies in the electrical machinery industry, and some major companies failed. What factors enabled Oki & Co. to eclipse other companies and become the largest company in the communications equipment industry?

The first factor that allowed Kibaturo Oki to succeed as an entrepreneur was that he always remained very close to manufacturing,

to the building of things. He was an outstanding craftsman who involved himself personally in work operations. He was also an enthusiastic inventor and designer of new products. He invented a microsound telephone device, for example, and also came up with the idea of lacquer-coated electric wire. In the Oki Electric Works factory, he worked at the front line of operations, often working with his shirt off and pushing around racks of components and products just like other workers. He also personally conducted tests on semi-finished goods. Kunihiro Iwadare described Kibaturo to Carleton as “a person whose greatest enjoyment was getting his hands dirty in the factory.”

Key to Oki & Co.’s success was the company’s close relationship with the Ministry of Communications. Carleton pointed out this mutually close relationship between Oki & Co. and the Ministry of Communications by describing how people from Oki & Co. frequently visited the ministry and how people from the ministry often visited Oki Electric Works. This relationship had its roots in the subcontracting relationship between Meikosha, Oki Electric Works’ predecessor, and the Telegraph Bureau. The company gradually came to manufacture telegraph and telephone equipment. The engineers at the Ministry of Communications appreciated those efforts and nurtured the relationship with Oki Electric Works first of all because the company continually made the efforts needed to develop and reinforce its technical capabilities.

The second factor that made Kibaturo Oki a successful entrepreneur was his aggressiveness in taking advantage of new business opportunities. Around 1896, for example, a foreign trading company approached Kibaturo and asked if he were interested in handling machinery. Shortly afterward, Kibaturo scouted for and found a person with experience in machinery trading, and set up a separate section in the building next door to Oki & Co. He put that person in charge of the new section, and began the business of buying and selling machinery. In such ways, Kibaturo was aggressive when opportunities presented themselves to participate in new business related to imports. He also showed this same aggressiveness in looking at the Chinese market. In that sense, then, he did much more than merely

“make things.” He was a true entrepreneur, and his central interest never veered far from business related to communications equipment. Compared to Tanaka Engineering Works and Miyoshi Electric Works, which entered a wide range of product fields, including heavy electrical equipment, Oki & Co. concentrated almost exclusively on communications equipment. This concentration improved the company’s competitiveness.

### **Establishment of Oki & Co., Ltd.**

The Russo-Japanese War ended in September 1905. In December 1906, the Japanese Diet approved the Second Telephone Expansion Plan, a six-year plan scheduled to begin from 1907. The plan called for expansion of the telephone system to include another 90,000 subscribers, 419 central telephone exchanges, and 48,000 kilometers of long-distance telephone lines. At the conclusion of the plan in 1913, there were scheduled to be a total of 138,400 subscribers, 95 central telephone exchanges in operation, and about 72,000 kilometers of long-distance lines.

In July 1908, while the telephone expansion plan was still being implemented, the second Katsura Cabinet was formed. The new Cabinet decided to rectify the government’s deficit spending by promoting a balanced budget, including halting the issuance of government bonds. Because implementation of the telephone expansion plan depended heavily on funds raised through bond issues, the plan had to be revised and spending had to be severely curtailed. Telephone-related expenditures for 1908 thus decreased. The demand for telephone service continued to expand, however, and to meet the demand, expenditures began increasing again from 1909.

By the end of the plan, funds expended were 30 percent or more above the initial plan, there were 138,600 subscribers, central telephone exchanges numbered 923, and long-distance lines totaled 80,000 kilometers.

In May 1907, Oki & Co., Ltd., was established and all of Oki & Co.’s assets were transferred there. The articles of incorporation of



*Take Oki*

the new company listed its capital as 600,000 yen. The company had six members with unlimited responsibility—Kibaturo Oki Jr., Take Oki, Umakichi Oki, Eitaro Kinoshita, Kiyoshi Itoh, and Totaro Katoh. These were either members of the Oki Family or long-time employees dating from Meikosha days. There were also 11 members with limited responsibility, including Soichiro Asano, Eiichi Shibusawa, Zenjiro Yasuda, and other well-known persons from business and financial circles. These appointments helped to ensure that Oki & Co., Ltd., had a secure financial foundation.

Members of the company's Management Committee included Kibaturo Oki Jr., Take Oki, Umakichi Oki, Eitaro Kinoshita, and Kiyoshi Itoh. Take Oki had representative authority. Kibaturo Oki Jr., born in 1887, had barely returned from overseas study in the United States when the new company was established. He thus had neither the age nor the experience to immediately participate in directly managing the company. A system was thus established in which the actual business of the company was conducted by Umakichi Oki, who had assisted Kibaturo Oki senior from when Meikosha was established, Eitaro Kinoshita, Kiyoshi Itoh, and Totaro Katoh. The four men headed, respectively, the engineering, accounting, sales, and technical divisions. The company's articles of incorporation listed Soichiro Asano as senior advisor, and specified that important matters across the spectrum of the company's business, and matters relating to personnel affairs, required the senior advisor's approval before taking action. Asano played a key role in managing the new company.



*Soichiro Asano*

There is an interesting story behind Asano assuming the primary role in managing Oki & Co., Ltd. According to Kibataro Oki's biography, Asano's wife Saku was Kibataro's wife Take's niece. So the Oki and Asano families were related by marriage. After Kibataro died, it is presumed that Asano moved to assist the Oki family. The fact that Asano was a powerful person in financial circles also benefited Oki & Co., Ltd., especially since a serious need existed to support its growth by strengthening its fund-raising capabilities.

Although Soichiro Asano started in business with very little capital, he established and developed two large companies—Asano Cement and Toyo Steamship. He also became well known for avidly promoting the Tokyo Bay reclamation project, and was aggressive in all his business activities. And when Asano planned new business ventures, Zenjiro Yasuda and Eiichi Shibusawa were there to support him. Yasuda was especially supportive on the financial side. In a single generation, Yasuda built Japan's largest financial zaibatsu, the Yasuda zaibatsu, centered on the Yasuda Bank. Shibusawa, meanwhile, was a main player in the start up of over 100 different companies. He was known as an outstanding coordinator of business activities, and was a leading figure in financial circles during the Meiji period.

### **Shift toward domestic telephone production**

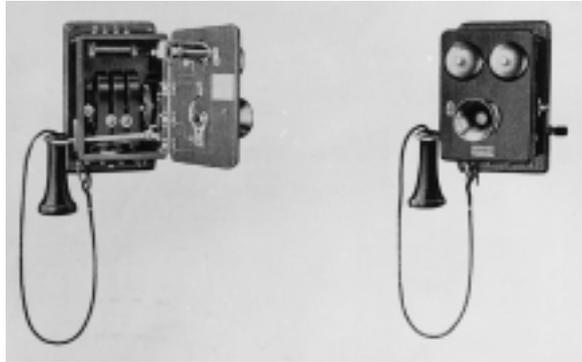
During the period of the First Telephone Expansion Plan, from 1896, domestic communications equipment manufacturers were not able to fully meet the burgeoning demand. As a result, large volumes

of telephones and related equipment made in other countries flowed into Japan. In that situation, Oki & Co. became an agent for imports, also bringing in knockdown components from WE and assembling them at its factory. Doing so enabled Oki & Co. to reduce prices and increase its competitiveness. In fact, even after the business discussions between WE and Oki & Co. failed, Oki & Co. continued to act as an agent for WE imports. In 1899, however, NEC was established as a subsidiary of WE, and in 1904 it became WE's agent in Japan. During that period of roughly five years, Oki & Co. gradually moved away from importing WE products.

Oki & Co. and NEC (WE) thus gradually began to compete strongly with each other, and some instances emerged of extra-low bids being made to win sales contracts. Other domestic manufacturers also entered the communications equipment market, and competition became heated. There were also times, however, when Oki & Co. and WE cooperated to promote business of mutual benefit. In bids submitted on January 8, 1900, for instance, WE won a contract to supply the government with 1,300 sets of Delville telephones and Oki & Co. won a contract to supply 1,500 sets of solid-back receivers. At that time, WE asked Oki & Co. to produce 300 of the 1,300 sets of Delville telephones it had to supply. Of total orders placed by the Ministry of Communications to private industry in 1907, WE (NEC) held a 55 percent share and Oki & Co. held a 45 percent share, thus dividing the market almost equally.

The procurement policy of the Ministry of Communications served to promote the localization of communications equipment. Companies submitted bids after the ministry published its specifications, and the specifications usually included clear conditions, such as that the products must be domestic made, for example, must be foreign made, or must be made by WE. In 1902, moreover, the ministry set up a committee for studying technology related to products for telegraph and telephone. That committee studied technical considerations and then set specifications. In these ways, even under the bidding system it became possible for the ministry to purchase products that reflected its technical requirements.

Under the Second Telephone Expansion Plan that began in 1907,



*Oki-type Delville  
telephone*

the percentage of imports did not increase as rapidly as during the first plan, mainly because domestic manufacturers had become able to a degree to produce communications equipment. Concerning telephones, in particular, localization proceeded smoothly. Oki & Co., Ltd., was able to supply the Ministry of Communications with Delville telephones, and, a bit later, solid-back receivers. In the market for Delville telephones modified for domestic use, Oki & Co., Ltd., came to hold a larger share than NEC. Concerning the newly adopted common-battery switchboard, meanwhile, the shift to domestic production was difficult. Domestic manufacturers could only stand by and watch common-battery switchboards made by WE being delivered one after the other to the government. It took several years before Oki & Co., Ltd., was able to produce common-battery switchboards domestically.

As the Second Telephone Expansion Plan proceeded, Oki & Co., Ltd., expanded its production facilities to meet increasing demand. In 1908, the company constructed a new production facility in the Tamachi section of Tokyo. The existing factory in Kyobashi then came to specialize in wire manufacture, and began processing ebonite and manufacturing rubber-covered wire. In July 1910, Oki & Co., Ltd., increased its capital to 700,000 yen, and in July 1912 recapitalized again, this time to one million yen. As the company's operations expanded, its workforce also did: it grew from 381 employees in 1907 to 772 in 1912.