

# 工学主義——田中林太郎・不二・儀一の仕事

**Pio-engineers in Modern Japan**  
Rintarō, Fuji, and Giichi, Three Generations of Tanakas

東京大学総合研究博物館

The University Museum, the University of Tokyo (UMUT)

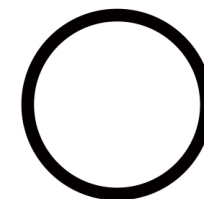
2019



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Koishikawa Annex Special Exhibition

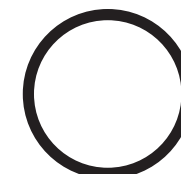
**Pio-engineers in Modern Japan**

— Rintarō, Fuji, and Giichi, Three Generations of Tanakas

[Dates] February 4 to June 11, 2017

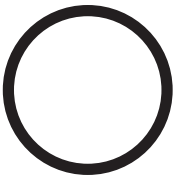
[Venue] Koishikawa Annex, The University Museum, the University of Tokyo 1F

[Organizer] The University Museum, the University of Tokyo (UMUT)



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小石川分館特別展示



# 田中林太郎・木二儀の仕事

## Pio-Engineers in Modern Japan—Rintarō, Fuji and Giichi, Three Generations of Tanakas

2017.2/4sat—6/11sun

東京大学総合研究博物館小石川分館

KOISHIKAWA ANNEX, THE UNIVERSITY MUSEUM, THE UNIVERSITY OF TOKYO

時間：10:00—16:30（入館は16:00まで）

休館日：月・火・水曜日（いずれも祝日の場合は開館）

会場：東京大学総合研究博物館小石川分館1階

主催：東京大学総合研究博物館

入館料：無料

お問い合わせ：03-5777-8600（ハローダイヤル）

[um.u-tokyo.ac.jp](http://um.u-tokyo.ac.jp)



田中不二／自著『機械製作法』序文用飾り文字原図／大正8年以前

## Greetings

The University Museum, the University of Tokyo (UMUT) is publishing the exhibition catalog of “Pio-engineers in Modern Japan: Rintarō, Fuji, and Giichi, Three Generations of Tanakas” (February 4–June 11, 2017, Koishikawa Annex), on the occasion of the publication of the symposium report “Pio-engineers in Modern Japan,” which was held on November 17, 2018 at JP Tower Museum INTERMEDIATE (IMT).

The Tanaka family is a descendant of Tanaka Hisashige (1799–1881), a famous inventor and engineer during the late Edo and Meiji periods. Having graduated from the Imperial College of Engineering, Tokyo Imperial University, and Waseda University, respectively, the three Tanakas—Rintarō (1856–1924), Fuji (1877–1922), and Giichi (1902–1985)—contributed to essential works in modern Japanese engineering, constructing the Imperial Palace and the Tōgū Palace, authoring the first Japanese-language textbook on mechanical engineering, and furnishing the interior of the Imperial Diet Building.

UMUT houses and researches approximately a thousand items—including documents, photographs, commodities and books—related to the Tanakas, who contributed to develop engineering in modern Japan. Materials on Rintarō, Fuji, and Giichi form the bulk of the collection. The special exhibition was the first opportunity to present the Tanaka Collection and introduced the main works of these three generations of Tanakas.

The Japanese word for engineering, *kōgaku* 工学, denotes an academic discipline that Japan imported from Western countries when it modernized during the Meiji Era. It can also refer to the Western engineering techniques that sustained Japan’s transition into a modern state. However, the word also describes a concept that predates Japan’s westernization. In its *kunyomi* reading, the first of the two characters, *kō* 工, corresponds to the Japanese word *takumi*, which describes dexterous or masterful craftsmanship. Thus, *kō* also denotes the craftsmanship that underpins works from the smallest crafted ones to the largest edifices. On the process of how engineering developed in Japan—both as an academic discipline and as artisanal techniques—it would be found that modern technologies imported from the West intermingled with Japan’s indigenous technology. One of the practitioners was Tanaka Hisashige. Through the works of Rintarō, Fuji, and Giichi, people can view what makes the development of Japanese engineering so interesting within the context of not only an engineering history but also a cultural phenomenon unique to a particular time.

The exhibition aimed to provide a sense of the chronology of engineering during Japan’s modernization, from its dawn and throughout its development, by showcasing the works of the three generations of Tanakas, which cover a full spectrum of engineering fields, including civil engineering, material engineering, mechanical engineering, architecture, and design. This exhibition concept could uncover the “cultural structures” of Japan’s modernization that are present in the development of Japanese engineering as both an academic discipline and as a set of techniques. The broad sense of “architecture” explored in this special exhibition is derived thematically from Koishikawa Annex’s permanent exhibition, *Architectonica*. The word “Architectonica” encapsulates all material and immaterial architectural phenomena.



The title of the symposium features the word “pio-engineers.” “Pio-engineers” was the title and keyword in the exhibition at Koishikawa Annex for the first time. The exhibition showcased UMUT collections related to the Tanakas’ pioneering spirit as well as the spirit of cooperation they demonstrated in working with those around them to contribute to the development of engineering in Japan. This ethos was described as “pio-engineers”—a portmanteau of pioneer and engineers.

Researchers from the US, UK, and Japan delivered lectures and held discussions on modern Japanese engineering at the symposium according to their study fields and particular interests. The speakers introduced examples of “pio-engineers” and their work, and thus illuminated various aspects of the process of Japan’s modernization. The symposium could provide much food for thought concerning Japan’s past, as well as its present and future, to the participants who were interested in this theme. The result of the symposium is published as a report. We hope that this exhibition catalog will also be a useful tool to support the symposium report in terms of providing further information to people who want to go deeper into the theme.

The University Museum, the University of Tokyo (UMUT)  
March, 2019

## On “Pio-engineers in Modern Japan: Rintarō, Fuji, and Giichi, Three Generations of Tanakas”

*Terada Ayumi*

### Tanaka Collection

The Tanaka Collection which is kept at the University Museum, the University of Tokyo (UMUT) consists of documents, pictures, goods, books, and other items derived from the Tanaka family, and includes not only objects related to engineering but also various historical and artistic materials spanning a variety of fields. The total number of materials exceeds thousands. The special exhibition *Pio-engineers in Modern Japan: Rintarō, Fuji, and Giichi, Three Generations of Tanakas* covered three generations of the Tanaka family through the collection focusing on materials related to engineering, and introduced their work: Rintarō (1856–1924) (**image 1**) who was involved in the construction of the Imperial Palace and the Tōgū Palace; Fuji (1877–1922) (**image 2**) who wrote the first Japanese textbook on mechanical engineering; and Giichi (1902–1985) (**image 3**) who participated in the interior decoration of the Imperial Diet Building.

I researched on the Tanaka Collection for the first time in August 2013, for holding a small exhibition entitled *The Stylishness of Imperial Crafts: From the Tanaka Collection*. We exhibited Japanese craft works from among the objects donated in 2005 and 2007 in the permanent exhibition gallery of the JP Tower Museum Intermediatheque. Among the

exhibits was Bombonière, which was produced as a special gift for a ceremony of the Imperial Court (**see page 112 in Past exhibitions of Tanaka Collection**).

Invitations to Fuji as Professor of the Faculty of Engineering at Tokyo Imperial University have been kept with three of the Bombonières, and we can see at which ceremony the Bombonières were granted. Items such as Imperial Court banquet entrance tickets, ceremonial travel tickets, and dress code notes have also been kept with the invitations, so it is very interesting to form academic value in a complex way, not only the intrinsic value of Bombonière but also of the items related to it.

An additional donation was also received for the collection in 2014, and this contained many photographs of people related to the Tanaka family. For example, in relation to Fuji, there are photographs of the exchanges among Tokyo Imperial University professors at that time, thus of added value as academic documents of the University of Tokyo. However, it is felt that many “private” family pictures recorded for each milestone cannot be handled in view of such “public” interest, but are interesting items that for one reflect a social history of photography.

So, in August 2015, during the *Play IMT 3* theatrical performance event with the theme of love conducted at the Intermediatheque (IMT), a one-day, limited installation using family



pictures centering on Fuji was held under the title “family photographs of love” (see page 113 in **Past exhibitions of Tanaka Collection**).

Thus, the Tanaka Collection is unique, because of the vast amount of material and the diversity of fields that it covers, and has many possibilities. Given this, the research on this collection is still in progress. And in order to develop future research, we believe that it is meaningful to convey to more people the existence and the appeal of the present collection, and in particular, it was decided that it would be opened to the public for the first time as the special exhibition *Pio-engineers in Modern Japan: Rintarō, Fuji, and Giichi, Three Generations of Tanakas*.

### Genealogy of the Tanaka Family

The core of the Tanaka Collection is related to engineering as mentioned in the theme of the special exhibition. The reason is that the three generations—Rintarō, Fuji, and Giichi—are those who have engaged in important work symbolizing the development of the engineering field in modern Japan, as listed at the beginning of this paper. Their mark is felt more when we find that these three generations of the Tanaka family are connected by genealogy with Tanaka Hisashige (Giemon) the First (1799–1881) (**image 4**), who was a famous inventor of the Karakuri ningyō (puppet automata) and called “Karakuri Giemon.”

Hisashige the First was from Kurume (currently Fukuoka prefecture) and is known as an inventor and an engineer who was active from the Edo to the Meiji periods. In the production of the Karakuri ningyō and the Myriad year clock, he developed Japanese conventional technology and later learned Western and modern technologies, and attempted to manufacture the steam locomotive and steamship at the Nagasaki Naval Training Center and the Saga Domain Chemistry Laboratory. For this reason, Hisashige the First is surely remembered as one of the fathers of modern technology development in Japan. Many people have seen his work in the



image 1:  
Portrait of Tanaka Rintarō  
(from a group photograph) /  
Photographed by Okabe in  
Saga / April 25, 1921



image 2:  
Portrait of Tanaka Fuji /  
Photographed by Negishi  
Masaichi / June 29, 1909



image 3:  
Portrait of Tanaka Giichi  
(from a group photograph)  
/ Photographer unknown /  
January 1943

permanent exhibitions at the National Museum of Nature and Science, the Edo-Tokyo Museum, and the Toshiba Science Museum.

Tanaka Hisashige the Second (née Kaneko Daikichi) (1846–1905) (**image 5**), disciple of Tanaka Hisashige the First, was adopted by the Tanaka family. He moved to Tokyo with Hisashige the First after the abolition of the *han* (domain) system and the replacement by a system of prefectures. He became involved in the production of telegraph machinery in Tokyo and opened the Tanaka Seizō-sho in Shibaura after the death of Hisashige the First. The factory was later transferred to Mitsui, renamed Shibaura Seisaku-sho, and was later involved with Toshiba Corporation. Thus, Hisashige the Second became known among the genealogy of the Tanaka family in the field of industrial history



image 4:  
Portrait of Tanaka Hisashige the First / Photographer unknown /  
Written on the back – “November 1881”

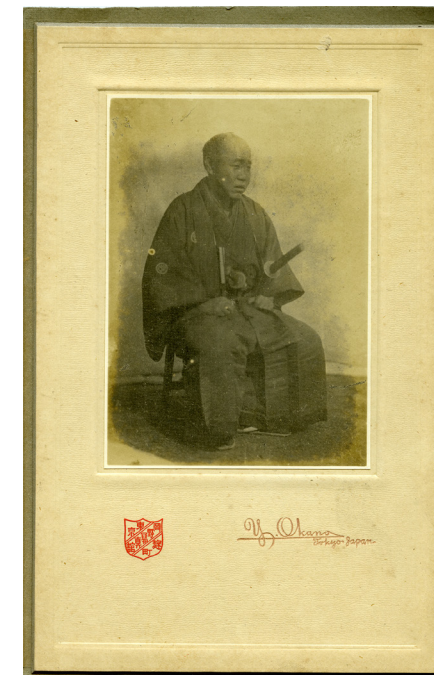


image 6:  
Portrait of Tanaka Giemon the Second / Photographed by  
Okano Photo Studio / Reprint in January 1917



image 5:  
Portrait of Tanaka Hisashige the Second / Photographed by  
Maruki Riyo / After 1889



image 7:  
Portrait of Tanaka Seisuke and his son Shigeo /  
Photographed by Tamamatsu / Meiji Era



in Japan.

On the other hand, it can be said that the genealogy of Rintarō, Fuji, and Giichi has not been so well known compared to the importance of the works they were involved in. One of the reasons may be the early death of Tanaka Giemon the Second (1816–1864) (**image 6**), who was the adoptive father of Rintarō.

Giemon the Second, whose original name was Hamasaki Gankichi, was active with Hisashige the First. He was a nephew of Hisashige the First and married his daughter, Mitsu. In the Saga domain, he is said to have been heavily relied upon by Daimyō Nabeshima Naomasa (1817–1871) and surpassed his father in work. However, he suddenly died at the age of 48 due to an unfortunate event in 1864 with his son Iwajirō. It is said that Daimyō Nabeshima greatly mourned the death of Giemon the Second.

In the following year, 1865, Rintarō, the second son of Nakamura Kisuke (1825–1876), who was a colleague of Hisashige the First in the Saga Domain Chemistry Laboratory, was adopted at the age of 9 years old into the family of Giemon the Second. Since Rintarō was still very young, Tanaka Seisuke (Umekawa Shigeyasu) (1836–1910) (**image 7**), who was an engineer at the Ministry of Engineering and later became famous as specialist on telegraph, acted as his guardian. Rintarō later married Hisashige the First's daughter Minechiyo.

Meanwhile, after the death of Giemon the Second, Kaneko Daikichi was adopted by Hisashige the First in 1865. Daikichi became a disciple of his adoptive father and later took the name Hisashige the Second. If Giemon the Second had lived a little longer, would it be too much to think that Rintarō's fate might have been different?

Fuji entered the Tanaka family as Rintarō's adopted son in 1894, and in 1901 married his daughter Yoshiko (**image 8**). Fuji was born as the second son of the Saga Prefectural *Shizoku* (a social class of former Samurai) Fujiyama Tanehiro (birth unknown–1886), who

was known as a technician who spread the foundation of modern glass manufacturing in Japan. His older brother Fujiyama Tsuneichi (1871–1936) (**image 9**) was also a Doctor of Engineering who pioneered the carbide industry.

Giichi was the eldest son of Fuji and Yoshiko. From the name character of *Gi* 儀 which is the same as Giemon, one could imagine that this birth of a boy was long-awaited by the Tanaka family.

In this way, the genealogy of Rintarō, Fuji, and Giichi, and the Tanaka family, have contributed to the development of engineering in modern Japan together with the surrounding engineers, rather than a simple single line after Hisashige the First, thus forming an interesting group.

### The works of Rintarō, Fuji, Giichi

In April 1875, Rintarō matriculated as an engineering specialist into Kōgakuryō (the School of Engineering) of Japan's Ministry of Public Works, and in April 1881, he graduated from the Mechanics Department of the Imperial College of Engineering among the third generation of graduates. Needless to say, the Imperial College of Engineering was Japan's first institution of higher education, where a small number of elites were trained.

Immediately after graduation, Rintarō was appointed as engineer to the Ministry of Public Works, and then he attended the Construction Bureau of the Imperial Palace in 1882. He participated in the construction of the Imperial Palace (completed in 1888 and known by the name Meiji Palace, which had been destroyed by war damage later), where he was responsible for the heating equipment (**see page 26–27 in Catalog raisonné**). As part of his construction work at the Imperial Palace, he also served as construction director of Nijūbashi (the iron bridge of the main gate, completed in 1888) (**see page 24–25 in Catalog raisonné**).

Under an architect, the Chief of the Design Bureau of the Ministry of the Imperial



image 8:  
Wedding portrait of Tanaka Fuji (center) and Yoshiko (left) with Minechiyo (right) / Photographed by Egi Matsushiro / November 11, 1901



image 9:  
Portrait of Fujiyama Tsuneichi (right, at the back) and his wife Kiyoko (left, in front), Tanaka Fuji (left, at the back) and Yoshiko (right, in front) / Photographed by Ogawa Kazumasa / February 10, 1904



image 10:  
Group photograph of the Tanaka family, Rintarō at 53 years old (second from the left, at the back), Fuji at 32 years old (second from the right, at the back), Giichi at 5 years and 10 months old (center, in front), Minechiyo at 46 years old and her granddaughter Taeko at 3 years and 10 months old (second from the right, in front), and Yoshiko at 29 years old and her son Hirotosugu at 1 year and 4 months old (first from the right, in front) / Photographed by Satō Fukumachi / May 10, 1908

\*All of the photographs are part of the Tanaka Collection.



Household Katayama Tōkuma (1854–1917), who had been among the first generation of graduates from the Architecture Department of the Imperial College of Engineering, Rintarō participated in the construction of the Tōgū Palace (Palace for the Crown Prince and the current State Guest House called Akasaka Rikyū, completed in 1909), again in charge of the heating equipment (see page 32–33 in *Catalog raisonné*). The portrait photograph on page 20 in *Catalog raisonné* was taken in the year 1901 when Rintarō was 46 years old and was appointed as a construction engineer at the Tōgū Palace.

Fuji graduated from the Department of Mechanical Engineering of the Faculty of Engineering at Tokyo Imperial University in 1901 after completing his studies at the Department of Engineering at the First Higher School, Japan. He was extremely excellent that he became recognized as the only special scholarship student in the Department of Mechanical Engineering at his third grade at the university.

After graduation, Fuji taught as a lecturer and later as an associate professor at the department, and in 1906, Part 1 and Part 2 of his textbook *Mechanical Design and Drawing*, the first such textbook in Japanese, which was co-authored with colleague Uchimaru Saiichirō (1877–1969), was published (see page 42 in *Catalog raisonné*). The portrait photograph on page 40 in *Catalog raisonné* was taken in 1907 when Fuji was 29 years old, one year after the publication of his first book.

For three years from 1908, Fuji was abroad studying mechanical engineering in the UK, Germany, and France at the behest of the Ministry of Education. In 1911, just after his return, he was appointed head of the Second Course of Mechanical Engineering and the Course of Applied Mechanics. His *Applied Mechanics*, Parts 1 and 2 were published in 1913 and 1915, respectively (see page 43 in *Catalog raisonné*), and Part 1 and Part 2 of *Machine Production Method* in 1918, and posthumously, in 1922 (see page 44 in *Catalog raisonné*). These Japanese textbooks contributed to expert

education one after the other in succession.

After completing studies at the Department of Science of the First Waseda University Senior High School, Giichi entered the Department of Architecture, Faculty of Science and Engineering at Waseda University, where he graduated in 1928. His father Fuji died in 1922 when Giichi was 20 years old. It is not difficult to imagine that Fuji's early death influenced Giichi's path to choose his job. Giichi studied painting from his junior high school age under a Western-style painter, Somiya Ichinen (1893–1994), who was active in the Nikakai (Society for Progressive Japanese Artists), and wanted to be a painter, but he did not choose it as his occupation.

Soon after graduating, Giichi became an official of the Bureau of Building and Repairs of the Ministry of Finance. In the following year, 1929, he joined Chiba Railroad 1st Regiment as executive candidate, but in 1930 he was hired again by the Bureau of Building and Repairs, under the Design Chief Yoshitake Tōri (1886–1945), to join the work on interior decoration of the Imperial Diet Building (current National Diet Building, completed in 1936). The portrait photograph on page 74 in *Catalog raisonné* is from the railroad regiment days when Giichi was around 26 years old. There is a design sketch during his railroad regiment days (see page 75 in *Catalog raisonné*). This sketch could be a proof that Giichi had already met Yoshitake at the Bureau of Building and Repairs before he joined the railroad regiment, and had been asked to join the work of the Diet Building

Among the interior decorations of the Diet Building, it is known that Giichi actually took charge of the design of the pattern of the upper marble relief at the Binden (a place for the Emperor to rest upon his visit) entrance (see page 76–77 in *Catalog raisonné*) and the patterns of the floor marble mosaic in the front hall of the Binden (see page 78–79 in *Catalog raisonné*), and two of the four mural paintings in the upper part of the atrium in the central hall (see page 82 in *Catalog raisonné*).

In this special exhibition on the

three pio-engineers, items which are related to their main works noted above were arranged in one gallery, centering on drawings, designs, sketches, photographs, related mementos, and others. After studying the highest standard of modern engineering at that time, Rintarō, Fuji and Giichi were involved in important national projects as professional engineers. We can see an axis emerging from the dawn of engineering in modern Japan to when the development stage emerges through the works of Rintarō, Fuji, and Giichi at one time. Along with that, by cross-referencing each work, you will see the diversity of areas handled by engineering—from civil engineering to construction, materials, machinery, architecture, art, and design.

### Architecture of “Pio-engineers”

The Japanese word for engineering, *kōgaku* 工学, denotes an academic discipline that Japan imported from Western countries when it modernized during the Meiji Era. It can also refer to the Western engineering technologies that sustained Japan's transition into a modern state. However, the word also describes a concept that predates Japan's westernization. In its *kunyomi* reading, the first of the two characters, *kō* 工, corresponds to the Japanese word *takumi*, which describes dexterous or masterful craftsmanship. Thus, *kō* also denotes the craftsmanship that underpins works from the smallest crafted works to the largest edifices. Considering this, when looking at the process in which engineering is rooted in Japan, it is said that the Tanaka Family, whose genealogy has continued from “Karakuri Giemon,” a father of modern engineering in Japan and has contributed to the development of engineering via Rintarō, Fuji, and Giichi, is very interesting.

Furthermore, as mentioned previously, from the works of three people, we can see the time axis of the evolution of engineering and the expanse of the area that it covers. What this exhibition focuses on is whether we can obtain clues to understand the

“cultural structures” of modernization in Japan for the academic field, and the technological history of “engineering.” This bird's-eye view comes from using the word “architecture” as a concept to bundle the principles of things and phenomena as a special exhibition of the Koishikawa Annex that shows its permanent exhibition under the theme of *Architectonica*.

In this special exhibition, we decided to call the spirit of collaboration as a collective, including the spirit of entering as a pioneer and the people surrounding it, which emerges from the works of Rintarō, Fuji, and Giichi as “pio-engineers.”

Their works would have been watching the future ahead for decades or centuries in the process of the establishment of a nation in modern Japan. For us, that is supposed to be the future they were looking at; the spirit of “pio-engineers” will never have a nationalistic meaning, but it will help us think about the present and future of Japan. A cultural tool that critically and constructively considers Japanese society and builds it anew. This is the architecture of “pio-engineers.”

(This article first appeared in *Ouroboros*, No.58, The University Museum, the University of Tokyo, February 2017, pp. 2–5, in Japanese, and partly revised, translated into English and reprinted in this catalog.)



**Catalog raisonné**







## Tanaka Rintarō

(1856–1924)

### Notes on the edition

- Key information is described in the following order: Title, Author / Date / Medium / Characters written on the object / Dimensions in mm.
- All the materials are collections of the University Museum, the University of Tokyo (UMUT).
- The notation of the date is based on the Japanese calendar, but it is written only in the Christian era which it was converted into.
- All Japanese names are given family name first, in Japanese style.

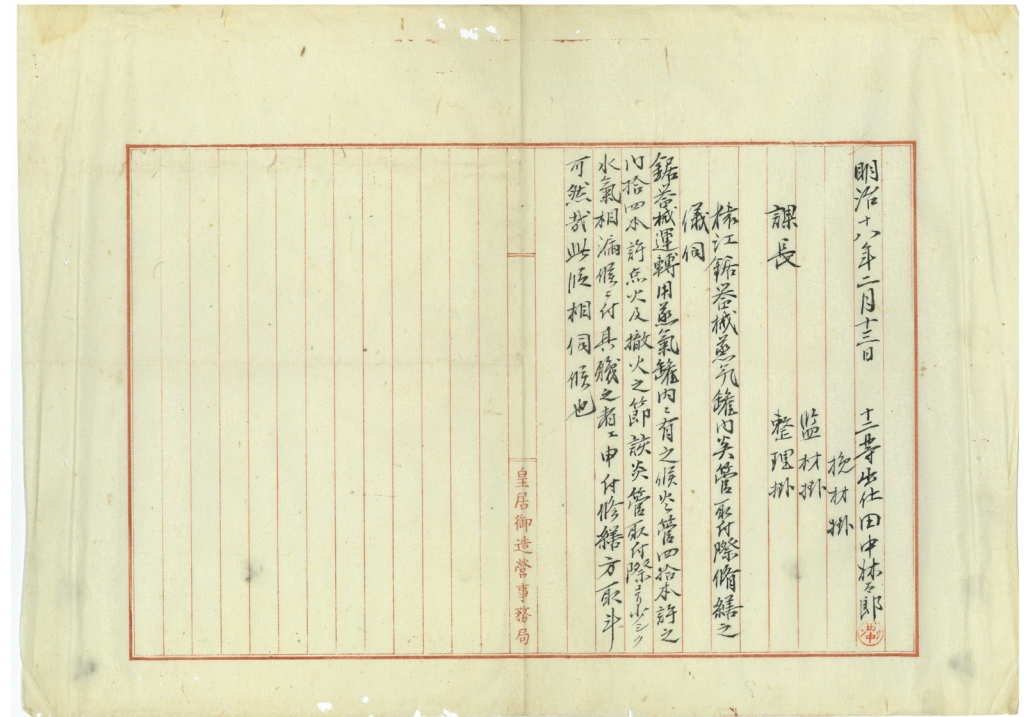
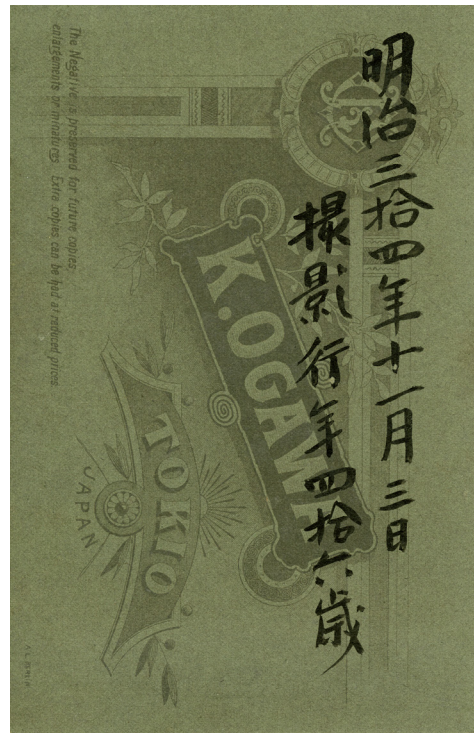
Born in Saga on January 28, 1856, he was the second son of Nakamura Kisuke (1825–1876) who was a colleague of Tanaka Hisashige the First and a member of the Saga Domain Chemistry Laboratory. In the year after the sudden death of Tanaka Giemon the Second, Rintarō was adopted by the Tanaka family in November 1865, and he married Minechiyo, the daughter of Giemon the Second, in April 1875. He matriculated as an engineering specialist into the Kogakuryō (School of Engineering) of Japan's Ministry of Public Works, and in April 1881, he graduated from the Mechanics Department of the Imperial College of Engineering among the third generation of graduates. In May of that year, he became an engineer of the Ministry of Public Works. In June 1882, in addition to being an engineer of the Ministry, he was attached to the Construction Bureau of the Imperial Palace and participated in the construction of the Imperial Palace (the Meiji Palace, which was completed in 1888 but no longer exists because of war damage) and was particularly in charge of the Palace's heating facility. He also served as construction director of the Nijūbashi (the iron bridge of the main gate, completed in the same year, but replaced in 1964). He was awarded a doctoral degree in Engineering from the Imperial University in September 1887. After serving in the Construction Bureau of the Imperial Palace, he worked at the Tanaka Seizō-sho, the Shibaura Seisaku-sho and the Japan Railway Company. In January 1901, Rintarō worked in the Ministry of the Imperial Household as an engineer at the Construction Bureau for the Togū Palace (Palace of the Crown Prince). Under the Chief of the Design Bureau of the Ministry of the Imperial Household Katayama Tōkuma (1853–1917), he participated in the construction of the Togū Palace (current State Guest House Akasaka Rikyū, completed in 1909), again in charge of work on the heating facility. After that, he continued serving at the Design Bureau of the Ministry of the Imperial Household, and in December 1916, he became an employee with the Sōnin rank (one of the higher ranks under the Meiji Constitution). He retired from the Ministry of the Imperial Household in December 1920. On April 28, 1924, he passed away at the age of 69. He was accorded with the Senior Sixth Rank, the Fifth Order of Merit.



### Portrait of Tanaka Rintarō

Photographed by Ogawa Kazumasa / November 3, 1901 / Gelatin silver print, mounted on cardboard / Written in ink on the back – “taken on November 3 in Meiji 34” / Photograph: H137, W95; Cardboard: H167, W107

This was taken in the year when Rintarō was 46 years old and was appointed as an engineer at the Construction Bureau for the Togū Palace (Palace of the Crown Prince). Photographer Ogawa Kazumasa (1860–1929) also produced a large format photo book at the time of the completion of the Togū Palace (p. 30) and was one of the most famous photographers during the last days of the Edo through the Meiji Era.

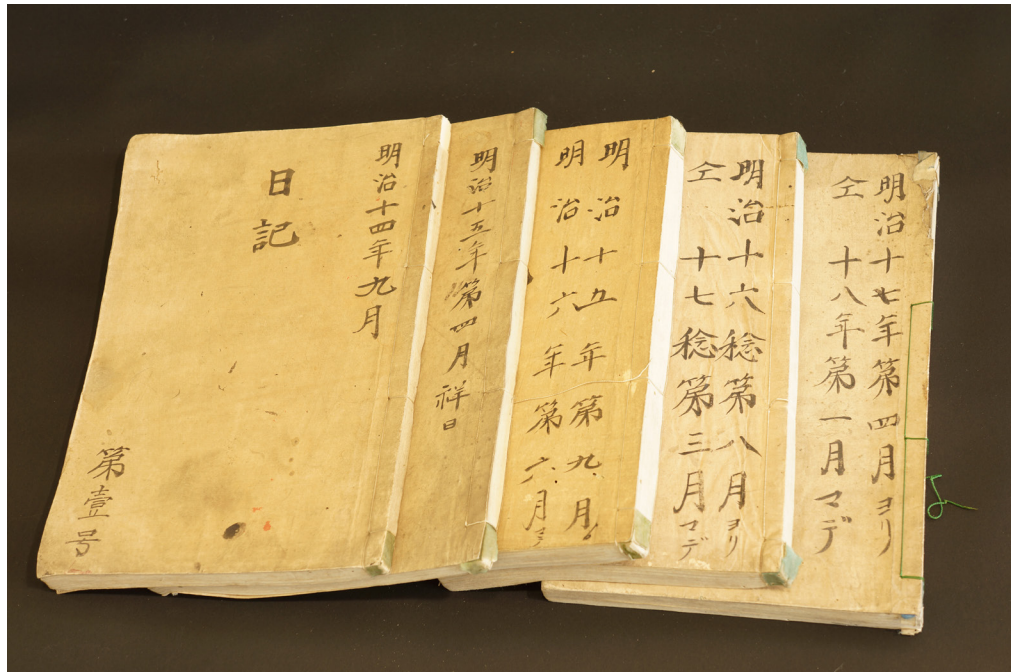


### Letter pertaining to the Sarue Timber Store steam saw inner chamber flame tubes repair and installation request

From Tanaka Rintarō to the Manager of the Design Bureau of the Ministry of the Imperial Household / February 13, 1885 / Written on the Construction Bureau of the Imperial Palace notepaper, with personal seal under the signature / H274, W385

Letter from Rintarō of the 12th grade official, addressed to the Manager of the Design Bureau of the Ministry of the Imperial Household, asking for the repair of 14 of the 40 flame pipes in the steam chamber (boiler) for the operation of the saw machine of the Sarue Timber Store. Because this letter was retained by Rintarō, it seems to be a copy or draft of the letter submitted. On February 16, 1885, Rintarō wrote in his diary that he met with the section manager Moriyama, as Rintaro appeared at the headquarters with a letter requesting repair and installation of the steam chamber flame tubes on the Sarue Timber Store steam saw. This episode tells us that the work of Rintarō who served as a mechanical engineer then is evident. The Imperial Palace (the Meiji Place) was a pure timber building, and it was necessary to supply timber according to plan within a short construction period. The Sarue Timber Store, which had been called as Ozaimoku-gura (the Wood Store), was owned by the Tokugawa Shogunate in the past and served as an important distribution center during the era.

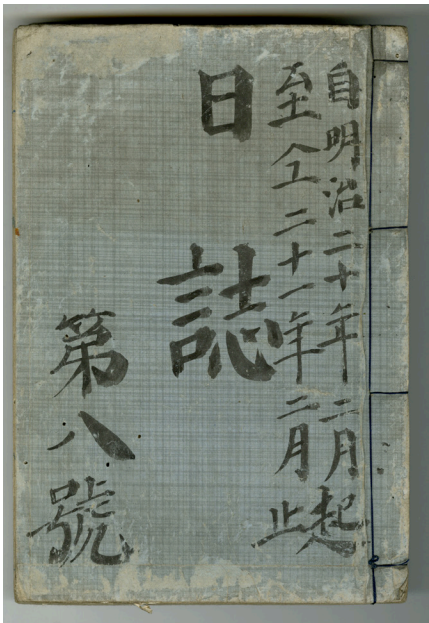
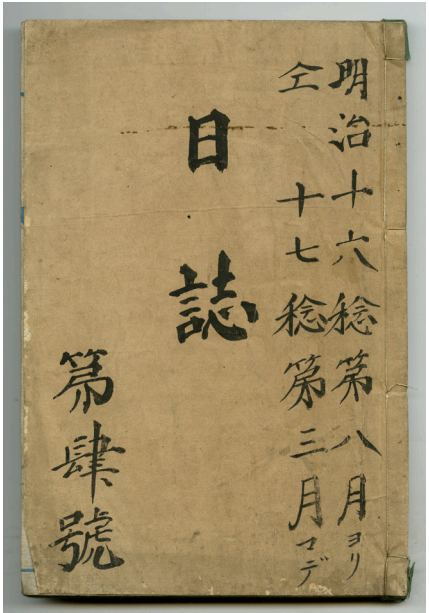
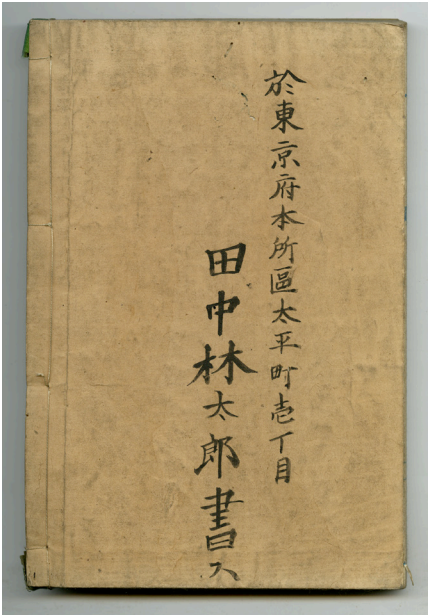




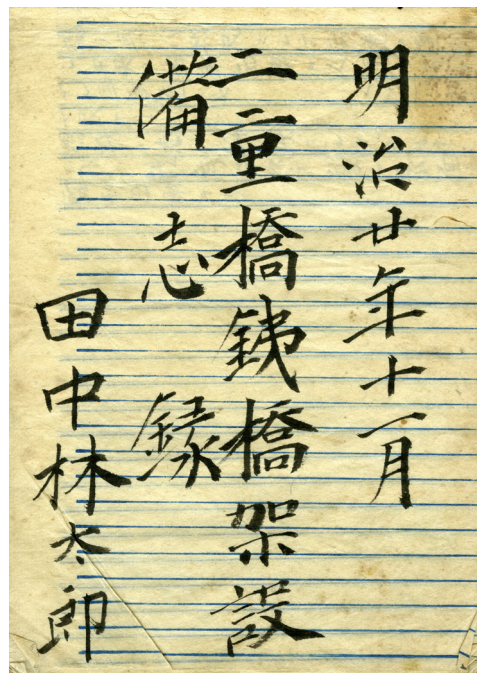
# Diaries

Tanaka Rintarō / From September 1, 1881 to September 12, 1895 / 17 volumes / Written in ink on paper, bound / H236, W155

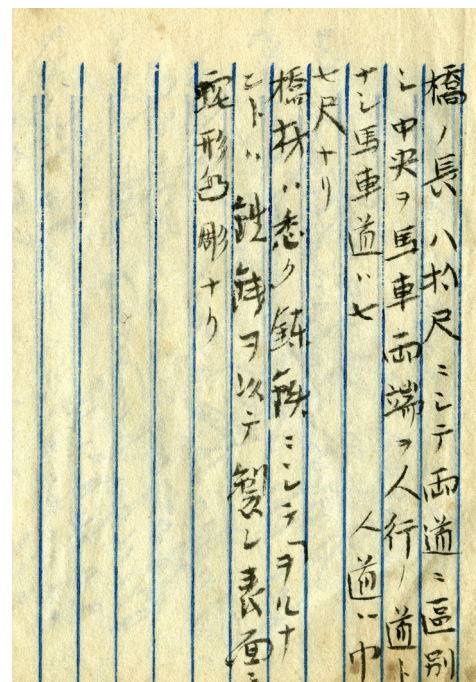
Rintarō wrote about everyday life in diaries. The 1st through the 17th volumes are held in the UMUT. It is unknown whether any subsequent volumes exist. It is a valuable documentary source that helps us understand Rintarō's work and his various relationships, including with his family.



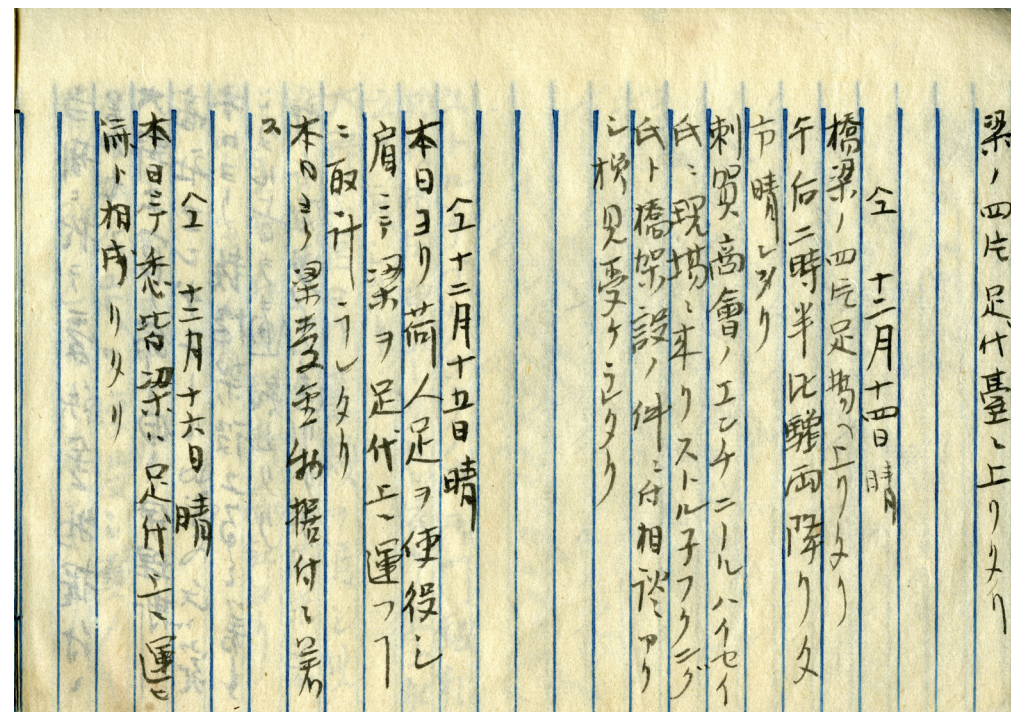




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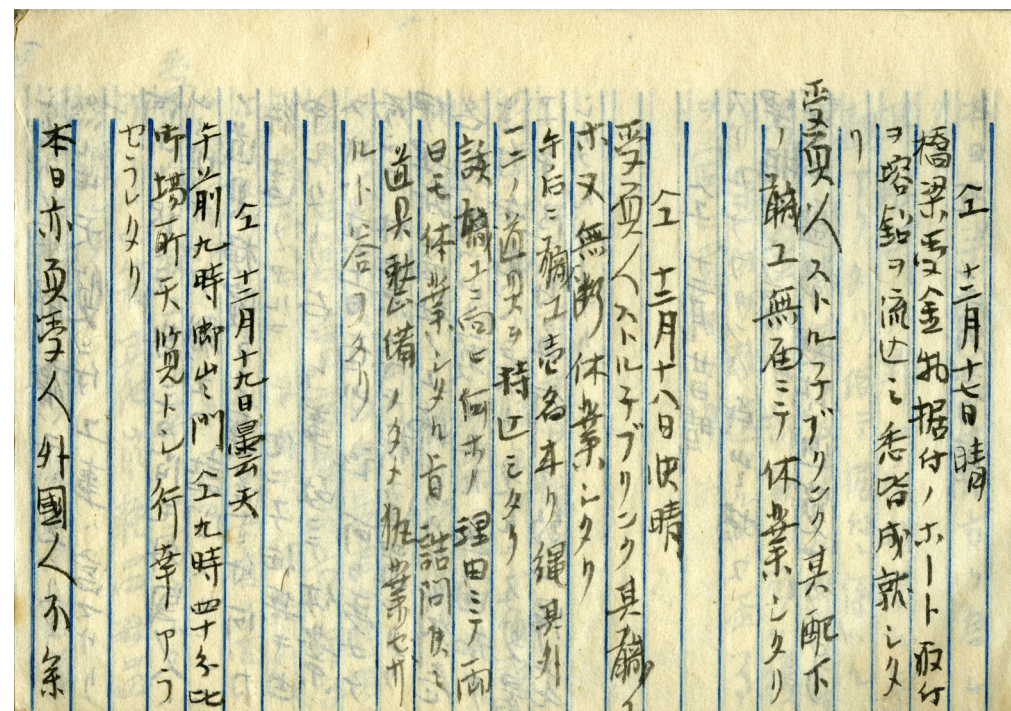


3

# Nijūbashi iron bridge construction memorandum

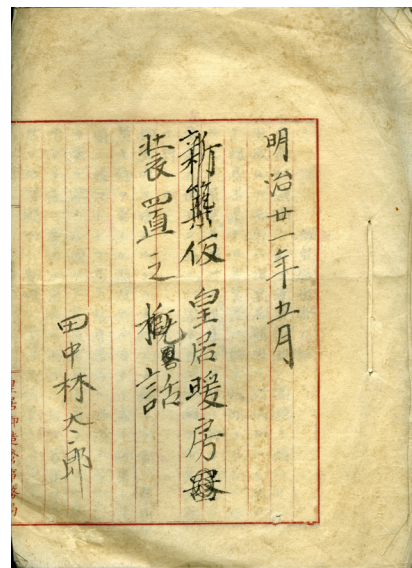
Tanaka Rintarō / November 1887 / Written in ink and pencil on paper / H195, W142

Nijūbashi is a generic name that refers to a double bridge comprising a stone bridge and an iron bridge at the main gate of the Tokyo Imperial Palace. Rintarō acted as construction director of the iron bridge building work (completed in 1888) designed by the German Wilhelm Heise (1846–1895). Summarized on the first page (plate 2), this memorandum shows that the length of the bridge is 80 *shaku* (about 24 meters), the center is a horse-drawn carriageway, and on both sides are sidewalks. After the next page, we read that work on the construction scaffolding started on December 10, 1887, and an almost daily record is kept until February 21 of the following year. As visible on plate 3, it is stated that on December 14, the “Sasuga Trading engineer Mr. Heise visited the construction site,” revealing that Wilhelm Heise monitored the construction work. On plate 4, it could be seen that on December 17 and 18, the staff of the subcontractor Stornebrink (Dutchman Ludovicus Stornebrink [1847–1917], known for running an ice maker in Yokohama) stopped work without permission, so it can be imagined how challenging it was for Rintarō to work as a director with foreigners at the construction site. The current iron bridge had been replaced in 1964 by the Temporary Construction Bureau of the Imperial Palace during the construction of the Tokyo Imperial Palace.



4





1

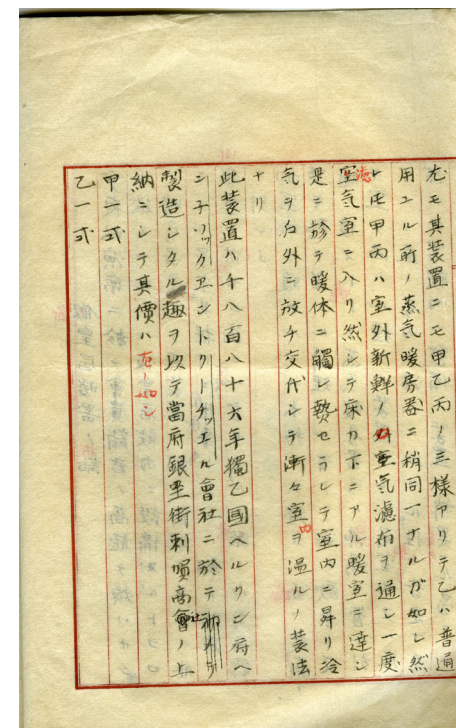


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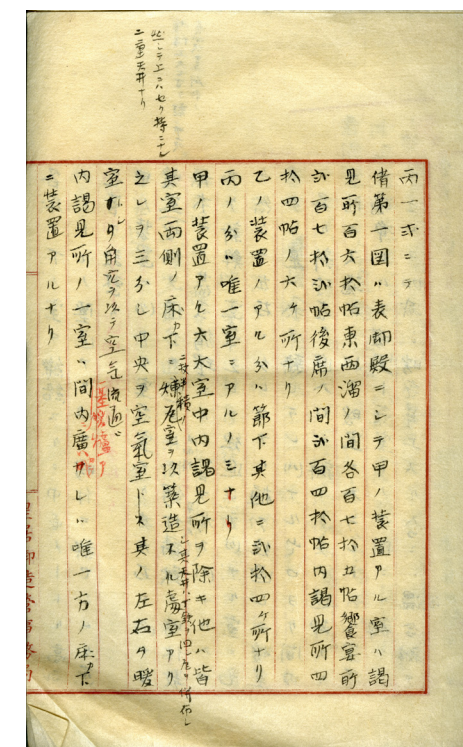
### New Imperial Palace Heating System abstract

Tanaka Rintarō / May 1888 / Written in ink on the Construction Bureau of the Imperial Palace notepaper / H275, W201

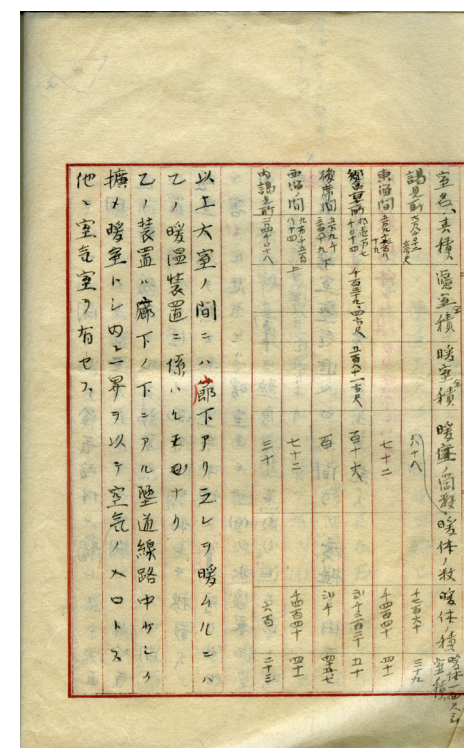
This seems to be a draft of a lecture by Rintarō on the heating system of the Imperial Palace (the Meiji Palace). On the cover page (plate 1), the words “Newly Built” are overwritten with “Temporary Imperial Palace Heating System abstract.” On the first page (plate 2), however, the word “temporary” is corrected to “new,” so that the script reads “New Imperial Palace Heating System abstract.” The temporary Imperial Palace was Akasaka Rikyū (formerly Kii Tokugawa family’s mansion in Edo, current Tokyo). In January 1889, the Emperor and Empress moved to the temporary Imperial Palace, where they resided for about 15 and a half years until a new Imperial Palace was completed. At the beginning of the manuscript, we can find that Rintarō wished to talk about the heating system maintained in the temporary Imperial Palace because such was not new, but relating to an installation of a new system at the new Imperial Palace. It may thus be surmised that Rintarō could have given a lecture on the state-of-the-art heating facility of the New Imperial Palace in front of an assembly of stakeholders involved in the machinery and equipment of the temporary Palace. Beginning on the right of plate 3 are descriptions of the three types of heating devices A, B, C in the Palace, with B as an ordinary steam heater, while A and C take fresh air from the outside, filter it, heat it in a basement heater, and use it to replace the cold air in the room. The system was manufactured in Berlin, Germany in 1886, and it is understood that it was supplied by Sasuga Trading. On plate 4, we see the installation of device A in six halls, Ekken-sho, Tōzaitamari-no-ma, Kyōen-sho, Kōseki-no-ma, and Nai-Ekken-sho; device B in the other 24 places including corridors; and device C in one location.



3



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#### Untitled (Togū Palace photo album)

Photographed by Ogawa Kazumasa / 1909 / Two boxes of 154 plates, collotype print, black leather cases, wooden outer box / Plate: long side 552, short side 463; Inner box: H482, W575, D63; Outer box: H518, W618, D89

The Togū Palace (Palace of the Crown Prince, the current State Guest House Akasaka Rikyū, national treasure) is a Neo-Baroque style European palace building which was built as the residence of the Crown Prince Yoshihito (Emperor Taishō). It is a steel-framed brick structure, with an exterior wall of stone. The design is by Katayama Tōkuma (1853–1917). First-class contemporary architects, artists and technicians were assembled for its construction, which took about 10 years to complete. These photographs, taken at the completion of the project, cover the entire building including the exterior, and the interior decoration of each room, bathroom, corridor, and underground facility (pp. 31–34). Tanaka Rintarō was given these photographs at the time because of his efforts in state-of-the-art heating facility work as a cover letter shows (p. 35). There is a photo album of gelatin silver print which is almost the same size as this photo album in the Imperial Household Archives; and it is presumed that there were two editions, one in high quality white leather case, and another in normal black leather case, and that the former edition was presented to the Imperial family. This collotype version was produced by photographer Ogawa Kazumasa (1860–1929) himself and distributed to stakeholders. In 1910, the year after the production of this photo album, Ogawa served as the first photographer appointed to the Imperial Household Artists.



Extra plate

#### **Grand Staircase (Togū Palace photo album, Case 1 No. 14)**

Photograph: H411, W335

A central staircase extending from the front entrance to the upper floor. White Italian Bianco Carrara marble is laid on the floor, and a red carpet is spread over it. At the completion, the walls of the stairs on the left and right were mirrored with green French Campan marble, but it was deemed impossible to restore due to the weathering, so that red marble Rouge De France was used in renovating the guest house. It is said that when looking up the central staircase from below, the view is markedly similar to that of the Royal Theater in Vienna.



***Asahi-no-ma Northwest Corner***  
**(Togū Palace photo album, Case 1 No. 27)**

Photograph: H335, W411

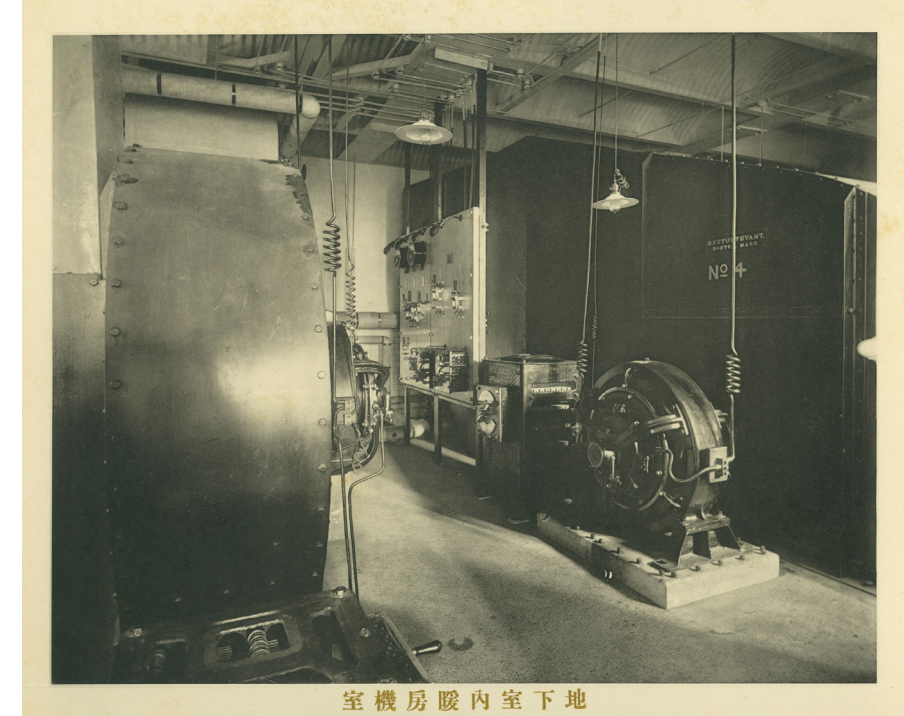


This hall is thought to be based on a view of a European palace in which the room is ahead of the main entrance and advancing through a large hall. It is called First Guest Room or First Tamari-no-ma. It has an area of 191 square meters. It is also called Asahi-no-ma because of the figure of the goddess driving a chariot across the ceiling with the sunrise behind. The appearance of the white horse pulling the chariot can be seen at the top of the picture. Furniture and interior are in the classical style of late 18th century France. Furniture and chandeliers were imported from France. Kinkazan weave of Kyoto Nishijin is laid on the wall. A fireplace can be seen at the rear. In the main halls such as Asahi-no-ma, the latest multi-zone indirect heating and ventilation method with an automatic temperature controller was applied, whereas in each corridor and the basement rooms, a direct steam heating method via radiators was used.

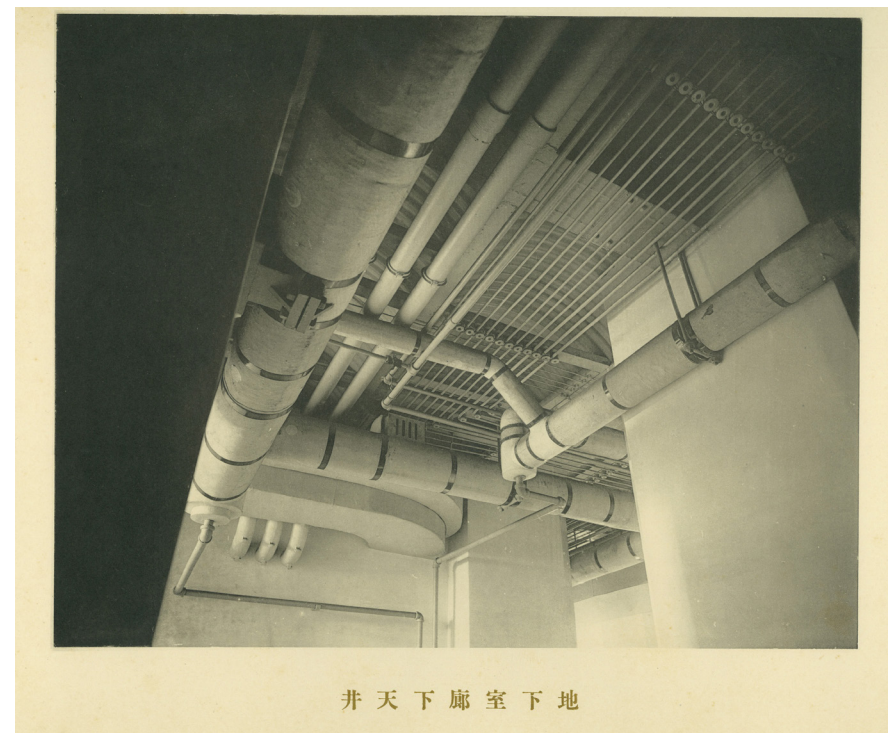
***Basement Heating Chamber and Basement Corridor Ceiling***  
**(Togū Palace photo album, Case 2 No. 52)**

Upper photograph: H226, W287; Lower photograph: H226, W287

At the request of Katayama Tōkuma (1854–1917) who was responsible for the design of the Togū Palace, the heating and ventilation facility was designed in New York, USA, and most of the equipment was also imported from the US and the UK. In 1899, Katayama accompanied engineer Ishii Keikichi (1866–1932) to purchase steel and heating machines in the US, and engineer Yamamoto Naosaburō (1869–death unknown) had also traveled to the US in 1901 to prepare for the procurement of heating equipment and do research on various constructions. At the Togū Palace, the main heating system required mechanized hot air heating, necessitating an extremely large number of steel plate ducts, but at that time in Japan, full-fledged duct construction was not available so far. In 1901, the hardware for heating equipment which seemed to be duct sample goods arrived from New York. However, because nothing was known about the production method and tools for this latest heating facility, the chief engineer of heating facility Tanaka Rintarō asked Katayama to make investigations on said technology when Katayama visited the US for the second time in 1902. At the Imperial College of Engineering where Katayama and Rintarō studied, Josiah Condor (1852–1920) who was in charge of the Department of Architecture since the college opened in 1878 was giving lectures on heating. In January 1901, Rintarō became an engineer at the Construction Bureau for the Togū Palace and was in charge of the heating facility. He was eventually commissioned to supervise heating and other equipment in January 1907.

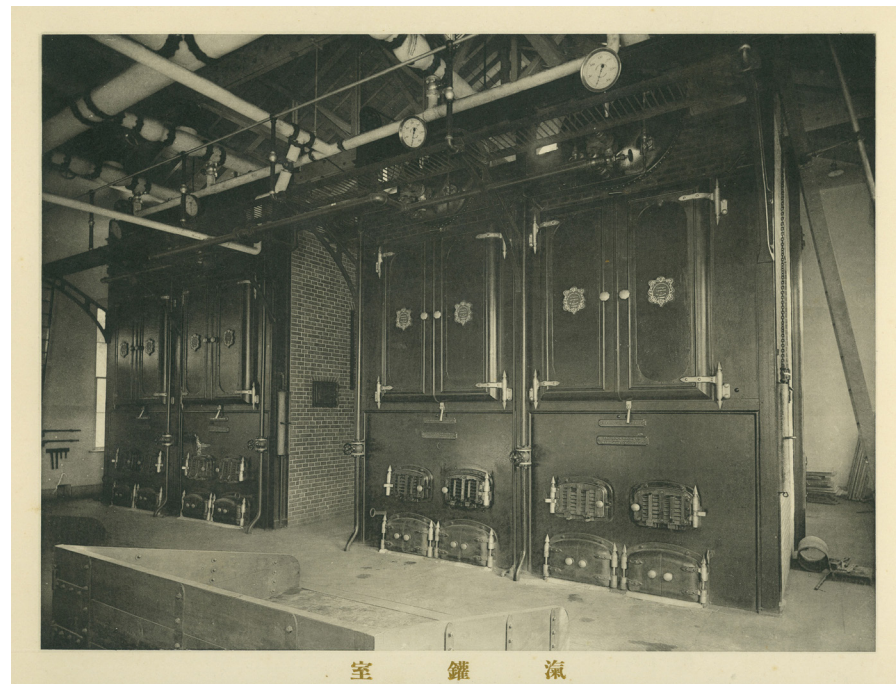


室機房暖内室下地



井天下廊室下地



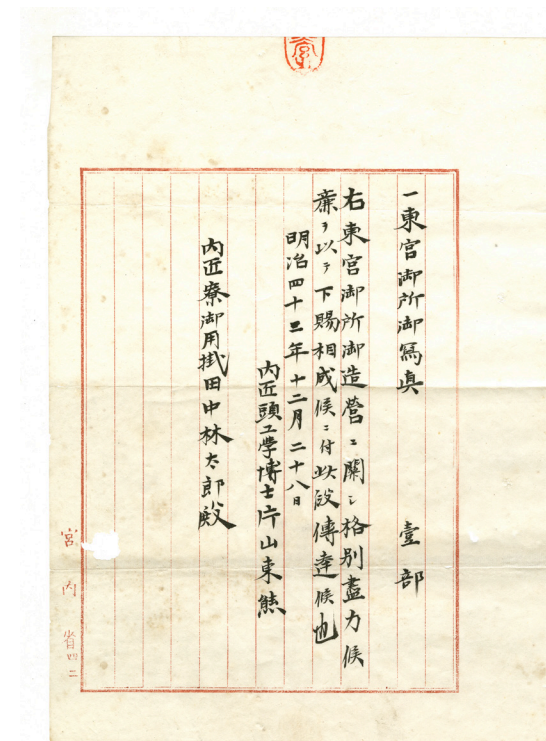


室 罐 氣

#### Boiler Room and Generator Room (Togū Palace photo album, Case 2 No. 54)

Upper photograph: H228, W287; Lower photograph: H228, W287

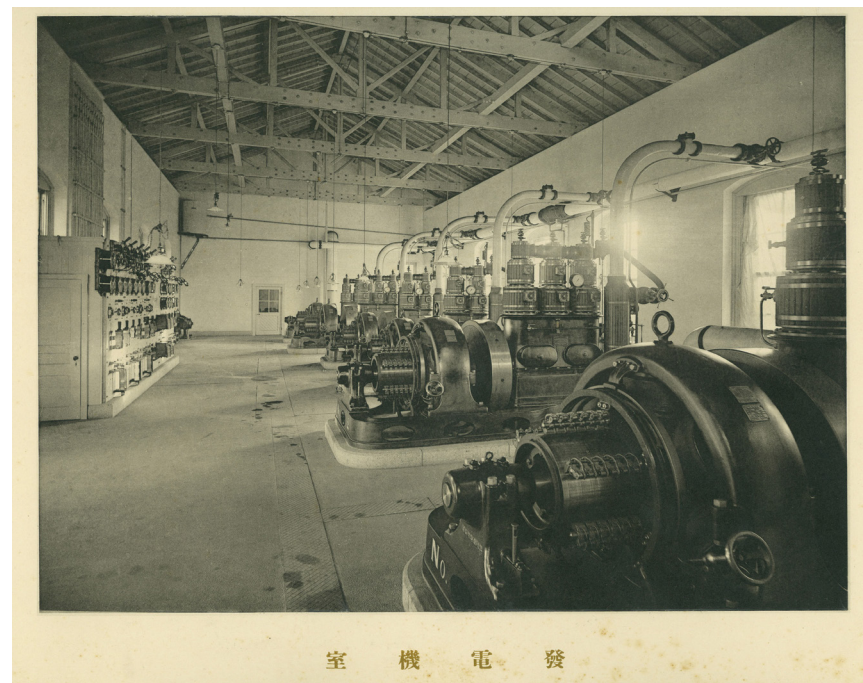
There was a special power station attached to Togū Palace inside a separate building at a distance of about 90 meters west of the main building. It had two boilers and five DC generators. Along with the lighting of each room in the main building and the outdoor lamps in the front garden, steam and power required for heating and ventilation were supplied from here.



#### Togū Palace photo album cover letter

From Katayama Tōkuma to Tanaka Rintarō / December 28, 1910 / Written in ink on the Imperial Household Ministry notepaper / H276, W203

It is noted that the Togū Palace photo album was presented by Katayama Tōkuma (1854–1917) to Tanaka Rintarō, in recognition of Rintarō's work in the construction of the Togū Palace. This letter provides evidence of the history of the photo album in the Tanaka Collection (p. 30). Katayama graduated from the Department of Architecture at the Imperial College of Engineering in 1879 among the first generation of graduates and was involved a great deal in the construction of imperial courts and imperial family palaces. From 1904 through 1915, Katayama served as the Chief of the Design Bureau of the Ministry of the Imperial Household.



室 機 電 發





036



037

#### Vase depicting snails on bamboo

Creator unknown / Meiji to Taishō Eras / Sterling silver / Engraved on the side is “presented to Tanaka Rintarō from all of the staff of the Mechanic Department at the Design Bureau of the Ministry of Imperial Household,” with “Sterling silver” stamped at the bottom / H101, bottom diameter 30, drum diameter 55

A souvenir given to Rintarō from his colleagues in the Mechanic Department at the Design Bureau of the Ministry of Imperial Household. It seems to have been custom-made for a special occasion such as a celebration. Rintarō served in said Mechanic Department from around the time of construction of the Imperial Palace (the Meiji Palace, completed in 1888) to around the time of construction of the Togū Palace (currently the State Guest House Akasaka Rikyū, completed in 1909), finally retiring in 1916.



## Tanaka Fuji

(1877–1922)

Born in Tokyo on August 20, 1877, the second son of the Saga Prefectural *Shizoku* (a social class of former Samurai) Fujiyama Tanehiro (birth unknown–1886), Fuji was known as an engineer who spread the foundation of modern glass manufacturing in Japan. His older brother, Tsuneichi (1871–1936), was also a Doctor of Engineering who pioneered the carbide industry. In October 1894, he was adopted by Rintarō into the Tanaka family. After passing the Department of Engineering at the First Higher School, he graduated from the Department of Mechanical Engineering, the Faculty of Engineering at the Tokyo Imperial University in April 1901. In July of the same year, he became a lecturer in the Department of Mechanical Engineering. He married Rintarō's daughter, Yoshiko, in November also of the same year. In April 1902, he became an associate professor, and in January 1904, he began to take charge of part of the classes in the First Course of Mechanical Engineering. In collaboration with his colleague, Uchimaru Saiichirō (1877–1969), he published *Mechanical Design and Drawing* Part 1 and Part 2, the first Japanese textbook on this subject, in April 1906. For three years from July 1908, he was abroad studying mechanical engineering in the UK, Germany, and France at the behest of the Ministry of Education. In May 1911, he was appointed head of the Second Course of Mechanical Engineering and in November of the same year, he became a professor and was also in charge of the Course of *Applied Mechanics*. He was awarded a doctoral degree in Engineering in January 1913. He published *Applied Mechanics* Part 1 and Part 2 in 1913 and 1915 respectively, and *Machine Production Method* Part 1 in 1919. On November 18, 1922, he passed away at the age of 45. He obtained the Senior Fourth Rank, Third Order of Merit. In January 1923, *Machine Production Method* Part 2 was published.

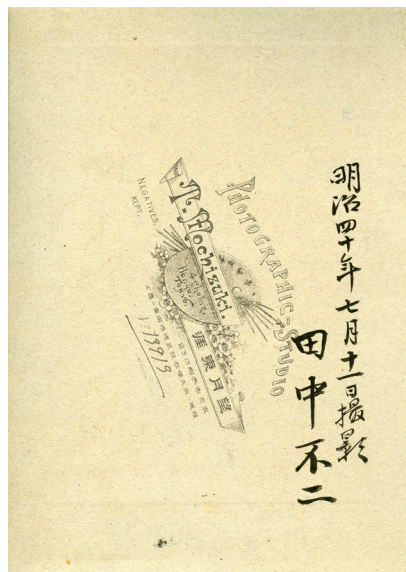




#### Portrait of Tanaka Fuji

Photographed by Mochizuki Tōgai / July 11, 1907 / Gelatin silver print, mounted on cardboard / Written in ink on the back — “taken on July 11 in Meiji 34, Tanaka Fuji” and No. “19919” / Photograph: H140, W99; Cardboard: H181, W128

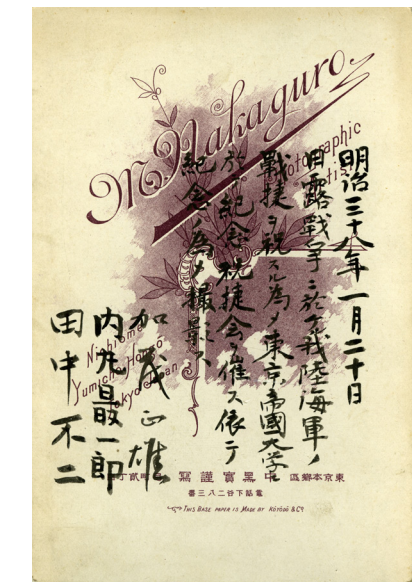
Taken the year after Japan’s first Japanese language textbooks on mechanical design, *Mechanical Design and Drawing* Part 1 and Part 2, were published, when Fuji was 29 years old. Photographer Mochizuki Tōgai established a photo studio at Hongō 4-chōme near Tokyo Imperial University and often photographed Fuji’s family there.



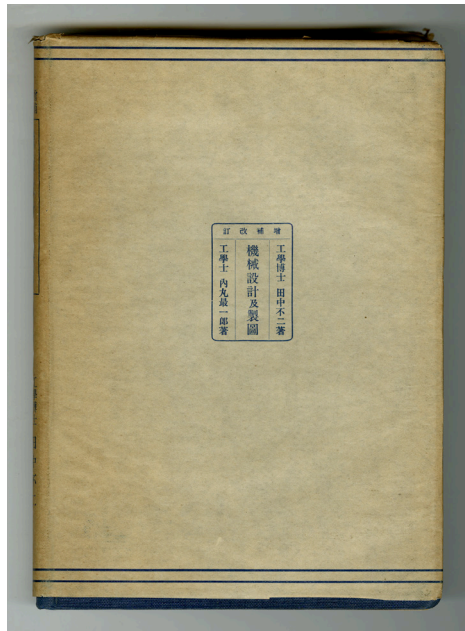
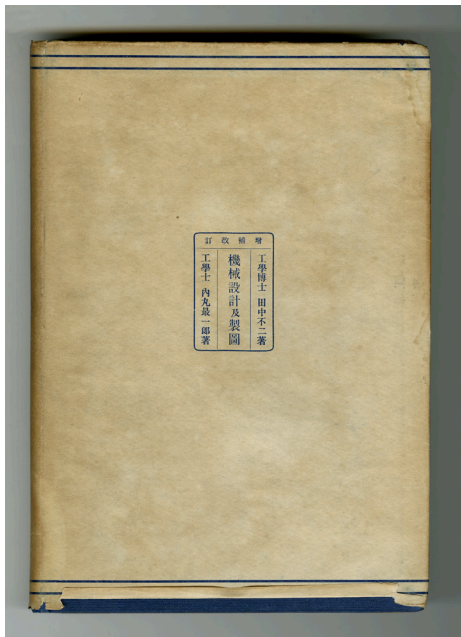
#### Portrait of Tanaka Fuji, Uchimarui Saiichirō and Kamo Masao

Photographed by Nakaguro Minoru / January 20, 1905 / Gelatin silver print, mounted on cardboard / Written in ink on the back – “January 20 Meiji 38: To celebrate the victory of the Army and the Navy in the Russo – Japanese War, a memorial celebration was held at Tokyo Imperial University. Photographed for commemoration are Tanaka Fuji, Uchimarui Saiichirō, and Kamo Masao.” / Photograph: H138, W95; Cardboard: H166, W110

Memorial photograph of three associate professors of the Department of Mechanical Engineering, Faculty of Engineering at Tokyo Imperial University. It was taken on the occasion of the memorial celebration, held at Tokyo Imperial University, of the victory of the Japanese Army and Navy in the Russo-Japanese War. In the picture, everyone is wearing daytime formal clothes, the frock coat. Fuji is on the right. In the middle is Uchimarui Saiichirō (1877–1969), a junior-year fellow of Fuji’s who graduated from the Department of Mechanical Engineering, Faculty of Engineering at Tokyo Imperial University in 1902, as well as co-author of Fuji’s first book, *Mechanical Design and Drawing*. On the left is Kamo Masao (1876–1960) who graduated from the same department in 1898, three years senior to Fuji. All three men studied mechanical engineering in Europe; Kamo for seven years from 1906, Fuji for three years from 1908, and Uchimarui for three years from 1911. They became professors in the department after returning to Japan. Fuji wrote the notes on the back of the photograph, and the names of Kamo and Uchimarui are presumed to be their own signatures. The young mechanical engineers, at the time of the photograph, were in the latter half of their twenties, and must have envisioned brilliant futures and talked with spirited aspirations as Japan entered the victory spirit. In Fuji’s diary on the day of the photograph, he mentioned the state of the celebration, and also wrote that the photograph of the three was taken for commemoration. Photographer Nakaguro Minoru studied under Maruki Riyō (1854–1923) and established a photo studio at Hongō Yumichō 2-chōme near Tokyo Imperial University.



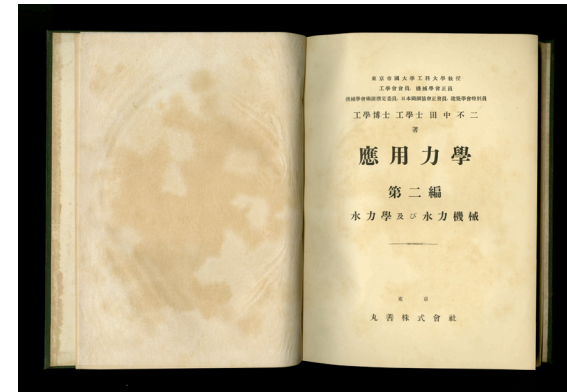
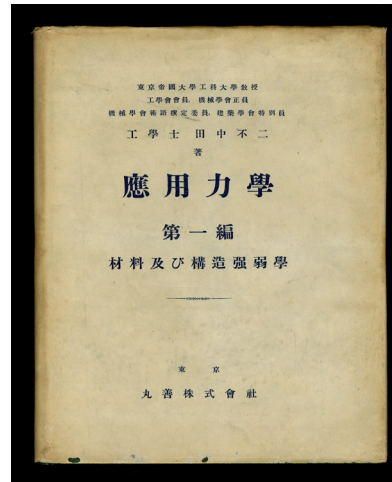




#### Tanaka Fuji, Uchimaru Saiichirō, *Mechanical Design and Drawing Part 1 and Part 2*

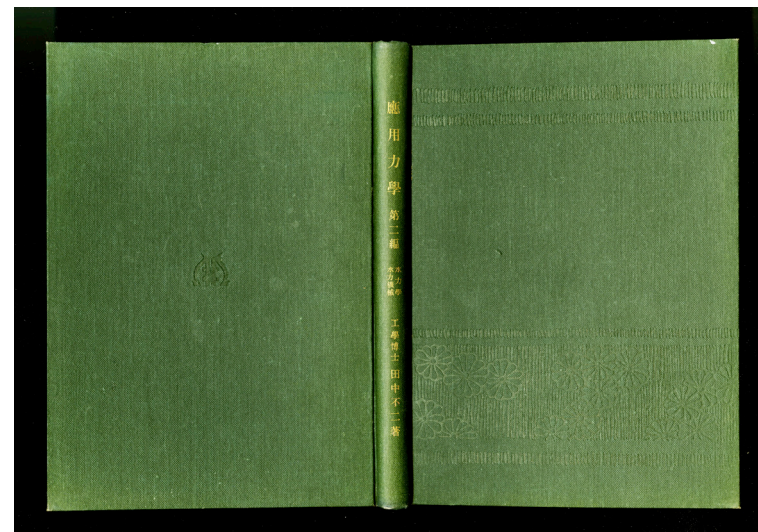
First edition published on April 20, 1906 / Maruzen Co., Ltd. / H222, W160

The first textbook on mechanical design and drafting to be written in Japanese. The two volumes, Part 1 and Part 2, were published at the same time. The introduction mentions solution methods presented with various examples so that freshman scholars can understand the matters of everyday needs for those engaged in the mechanical industry. Much of the material in the book is drawn from D. A. Low and A. W. Bevis' book, *A Manual of Machine Drawing and Design* (1893). The parts written by Fuji include Chapter 1 on "Drafting," Chapter 2 on "Geometric method," Chapter 3 on "Strength and dynamics of materials," and Chapter 6 on "Steam vessel design method." This book was repeatedly edited as an essential textbook for mechanical engineering, and it became an augmented revised version from the 10th edition in 1916. Fuji added new chapters on "Material properties and test results" and "Design method of reciprocating motion cylinders." Part 1, 13th edition published May 8, 1918, 19th edition published July 8, 1922, 20th edition published May 28, 1924 and 25th edition published March 13, 1929; Part 2, 10th edition published August 10, 1916, and 25th edition published October 25, 1942 are kept in UMUT. Fuji was in charge of the Second Course of Mechanical Engineering, which dealt with the cutting process study and processing machinery, from November 1911 to December 1921 at the Faculty of Engineering at Tokyo Imperial University. In addition to co-authoring this book, Uchimaru Saiichirō (1877–1969) also wrote many engineering texts including *Steam Vessels* (1908), *Hydraulic Turbine* (1917), and *Internal Combustion Engine* (1931).



#### Tanaka Fuji, *Applied Mechanics Part 1*

First edition published on June 5, 1913 / Maruzen Co., Ltd. / H255, W190

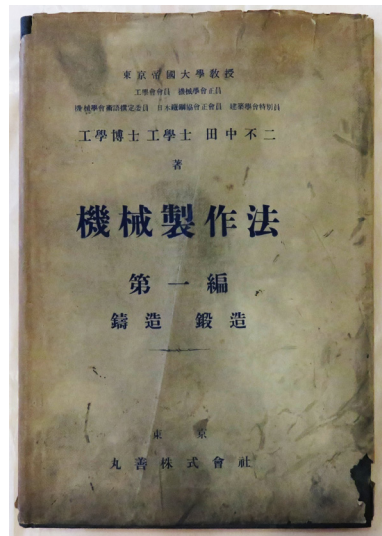


#### Tanaka Fuji, *Applied Mechanics Part 2*

First edition published on December 15, 1915 / Maruzen Co., Ltd. / No cover / H255, W190

The first edition of the second book on mechanical engineering written in Japanese by Fuji. Fuji was in charge of the course Applied Mechanics, which focused on material mechanics, from November 1911 to August 1922 at the Faculty of Engineering of Tokyo Imperial University. Part 2 has a jacket similar to that of Part 1; although it is missing in this book, the embossed decoration of the chrysanthemum pattern that Fuji designed on the cover can be seen.

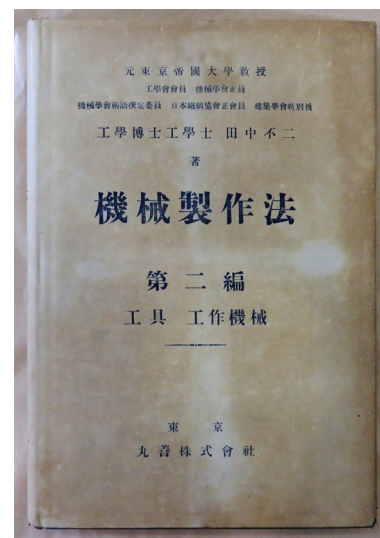
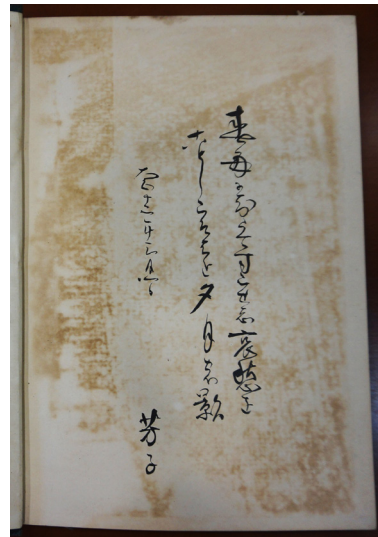




Extra plate

**Tanaka Fuji, *Machine Production Method Part 1***

First edition published on August 25, 1919 / Maruzen Co., Ltd. / H224, W156

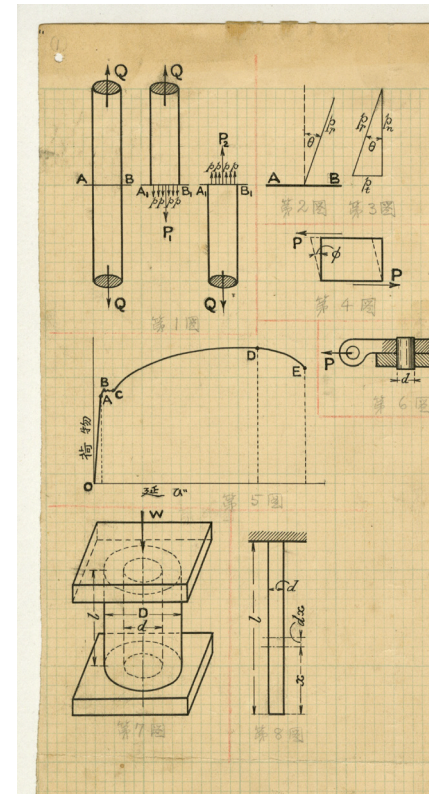


Extra plate

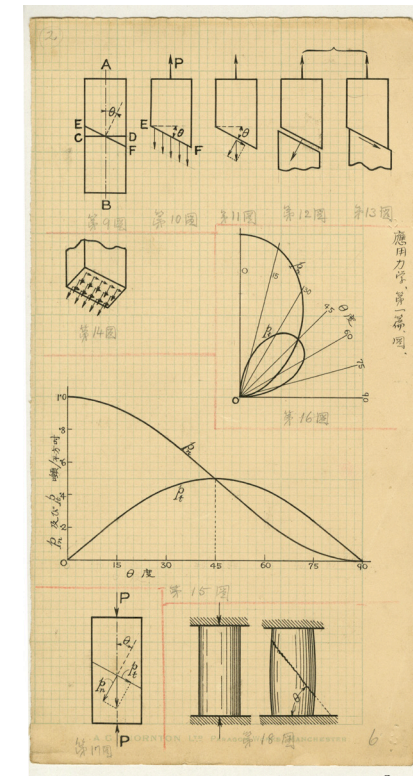
**Tanaka Fuji, *Machine Production Method Part 2***

First edition published on January 28, 1923 / Maruzen Co., Ltd. / H224, W156

Fuji's third work on mechanical engineering written in Japanese. His wife Yoshiko's handwritten poem is found in Part 1, 4th edition published on September 13, 1922, which is kept in UMUT. Fuji passed away on November 18 in the same year of the publication of Part 1. It seems that Yoshiko wrote it in memory of Fuji. Part 2 was published after his death.



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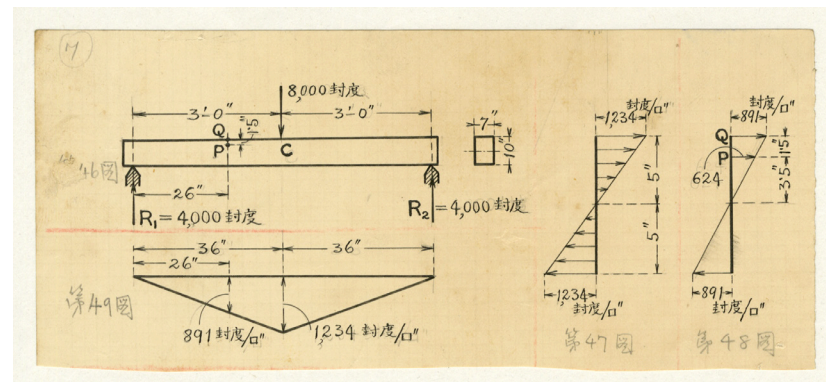
2

### Original hand-drawn illustrations of *Applied Mechanics Part 1*

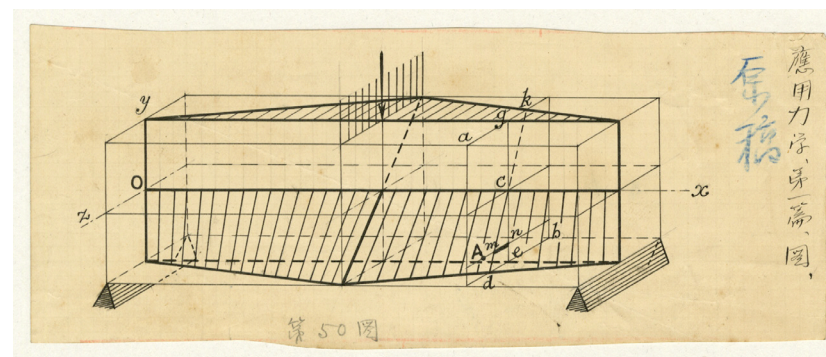
Tanaka Fuji / Before June 1913 / Pencil on paper, ink / All 16 sheets / Maximum: long side 226, short side 145; Minimum: long side 146, short side 62

The original hand-drawn illustrations of Part 1 of the second book written by Fuji, published by Maruzen Co., Ltd. on June 5, 1913 (p. 43). The subheading of “Material and Structure Strength Study” was added. It is thought that this original illustration was sketched with a pencil and then drawn a clean copy over with ink by Fuji. In the preface, Fuji stated that his intention in writing this book was to lay the foundation for the industry by explaining the science of basic engineering in Japanese. He was aware that Japanese textbooks on engineering were still few at the time, whereas modern industrial development was required to strengthen “the foundation of the country towards prosperity.” The technical terms used were based on the mechanical engineering terminology that was edited by the Society of Mechanical Engineers. This society was established in 1897 and Fuji joined in the selection of the mechanical engineering terminology as a member of the society. Fuji assessed that it was very good to use these Japanese technical terms instead of the difficult-to-understand Sino-Japanese syntax. The *maguru moment* 曲ぐるモーメント (bending moment) in illustration 58 and 60 of plate 6 (p. 47) can be seen as a good example of the terms that Fuji described as “it is easy to read aloud by mouth, easy to hear and understand by ear.”

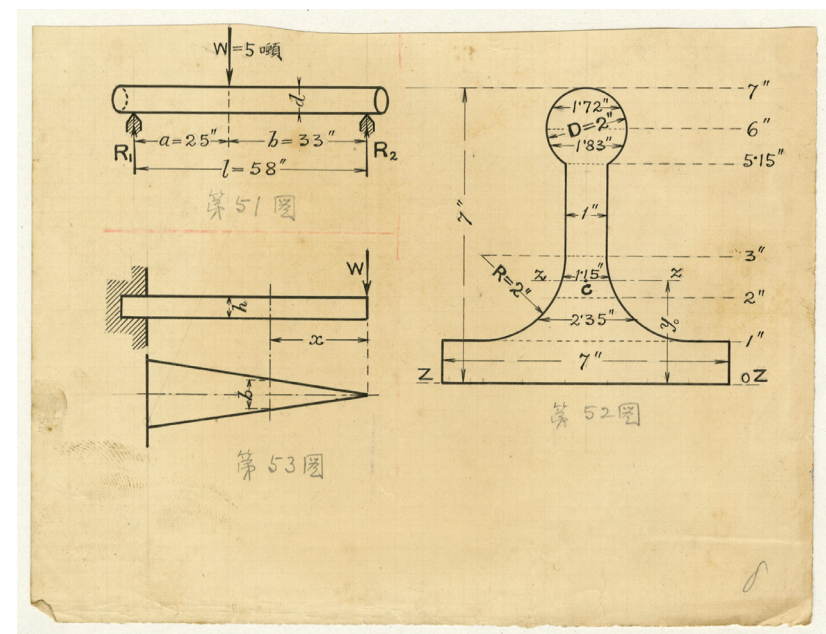




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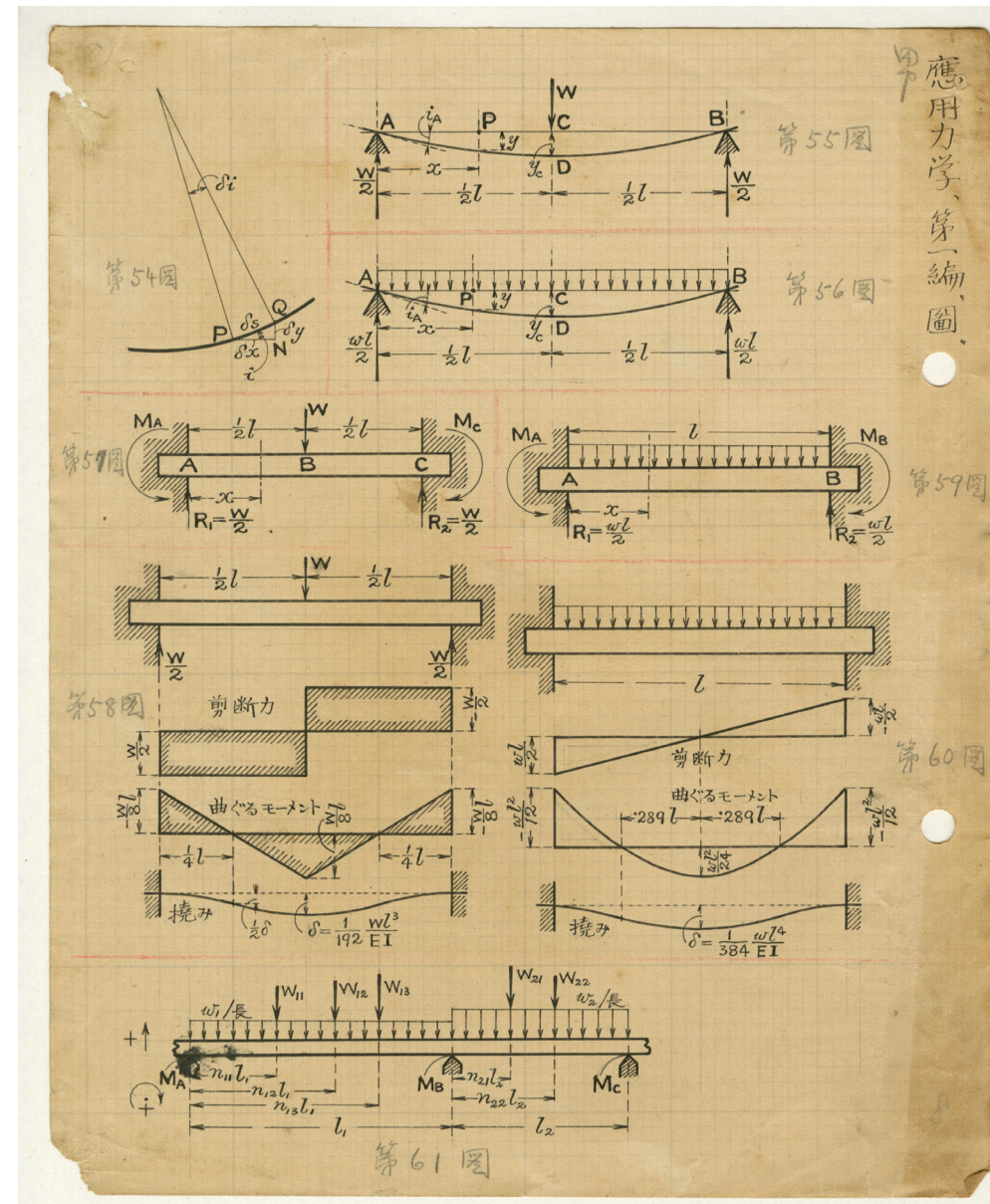
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Original hand-drawn illustrations of Applied Mechanics Part 1

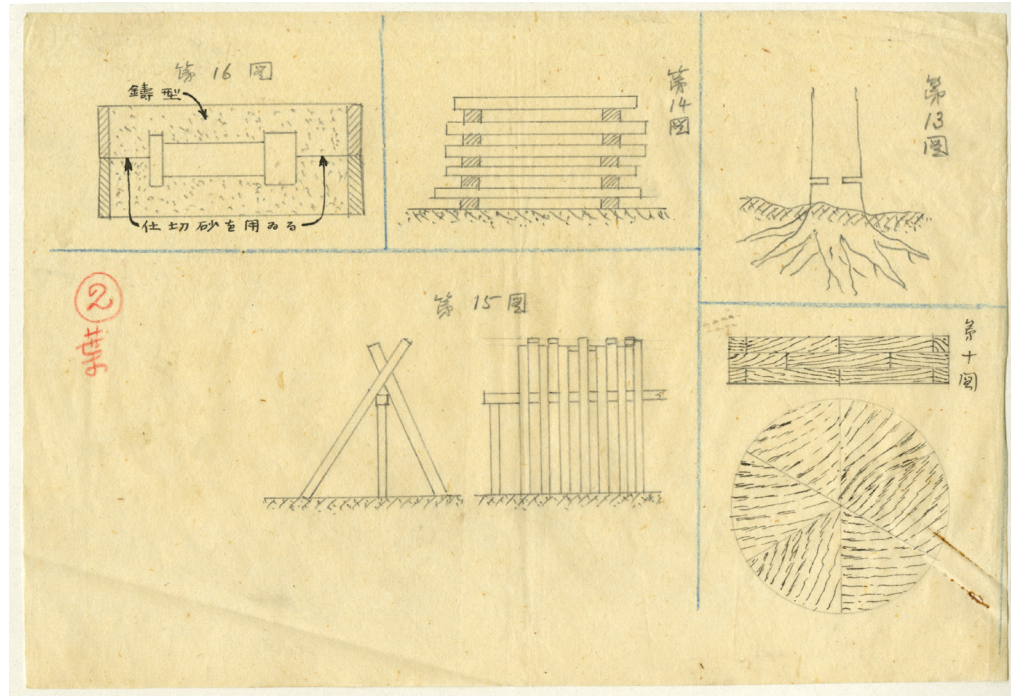
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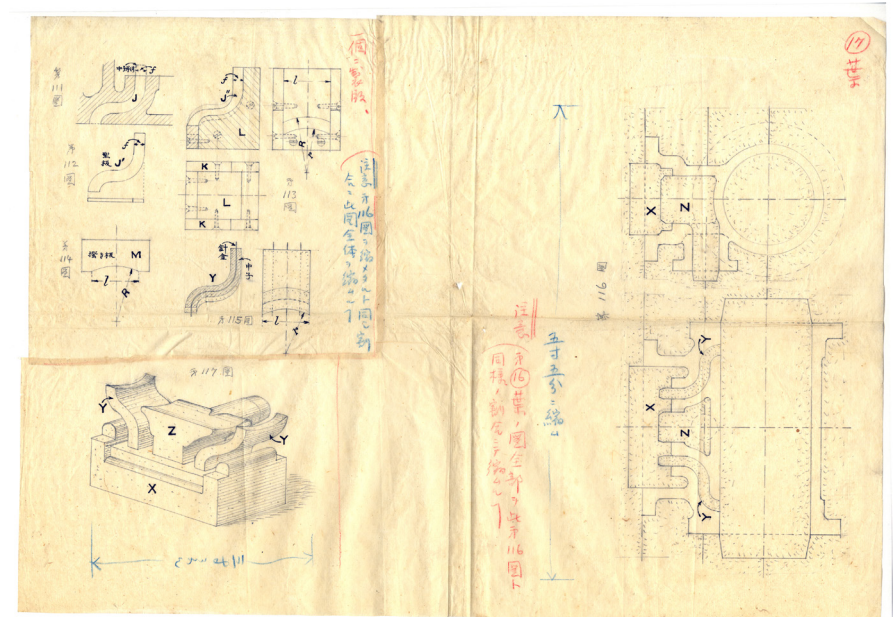


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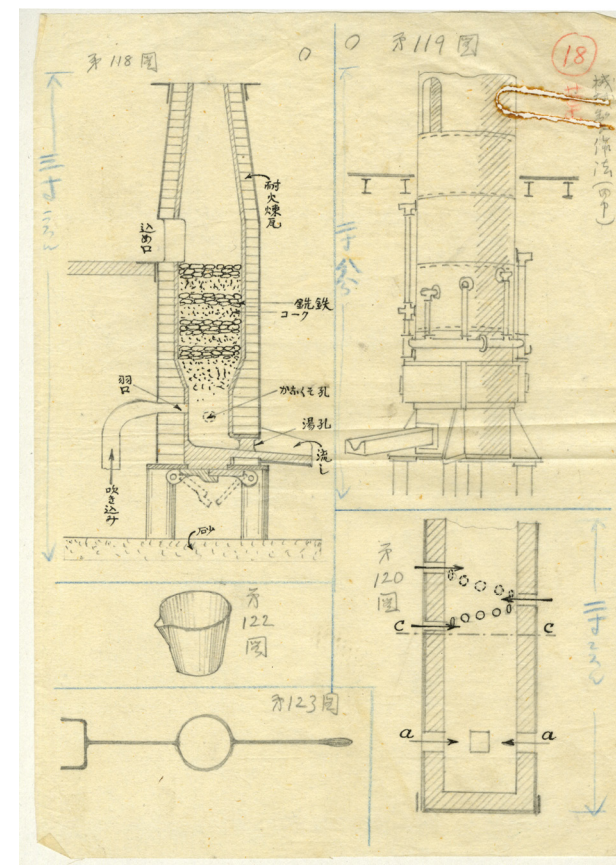
### Original hand-drawn illustrations of *Machine Production Method Part 1 and Part 2*

Tanaka Fuji / Before August 1919 / Pencil on paper, ink / All 46 sheets / Maximum: long side 398, short side 279; Minimum: long side 195, short side 147

Fuji's original hand-drawn illustrations of the third book, Part 1, subtitled as "Foundry and Forging," was published on August 25, 1919 (p. 44), and the third book, Part 2, subtitled as "Machine Tools," was published on January 28, 1923. Both parts were published by Maruzen Co., Ltd. Compared to *Applied Mechanics* which was a theoretical book, this practical book shows fine hand-drawings like artworks illustrating tools and work procedures to follow. Instructions to the publisher are written in red and blue pencil. Fuji's intention in writing the book as an author is indicated in the preface; as in the previous work, he wrote with the hope of developing the machine industry as there were still a few books on machine production methods in Japanese. Fuji took charge of the Course of Experimental Engineering (dealing with experimental mechanical engineering and mechanical design), which was added to the Department of Mechanical Engineering at Tokyo Imperial University, from December 1921 to November the following year (the month of his death) as recorded in *Centennial History of the University of Tokyo* (1987). With Fuji as single author, a decorative character designed by him is used at the beginning in the preface, and in the first part of this book, Part 1, the character *kō* 工 is arranged with chrysanthemum flowers in the background (plate 5 [p. 50]). The chrysanthemum was a motif that Fuji used to design his own name. The preface to Part 2, which was published after Fuji's death, was written by his son Giichi; decorative characters are not seen, but at the end of the last page of the text, the design stamp of *Tanaka Fuji* 田中不二 is seen with a chrysanthemum.

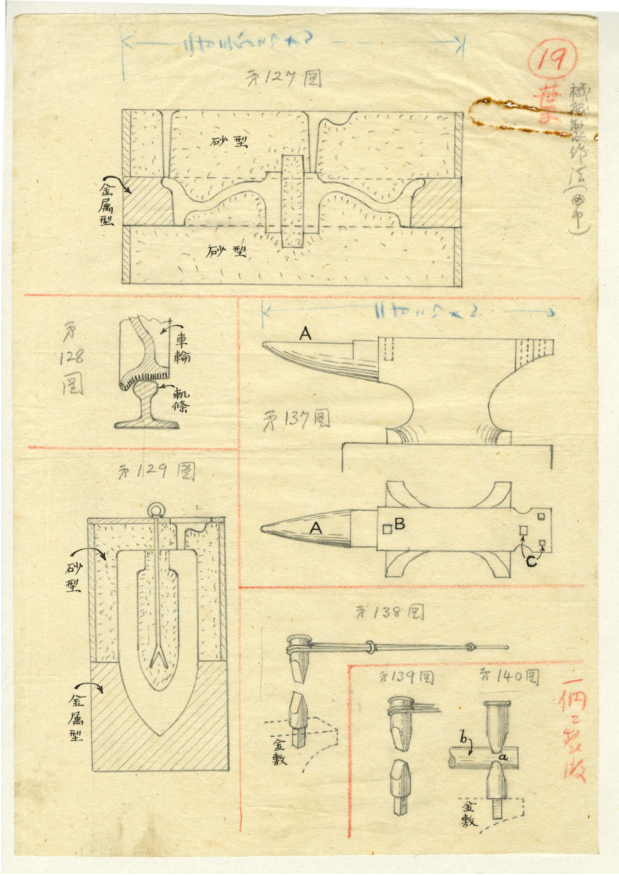


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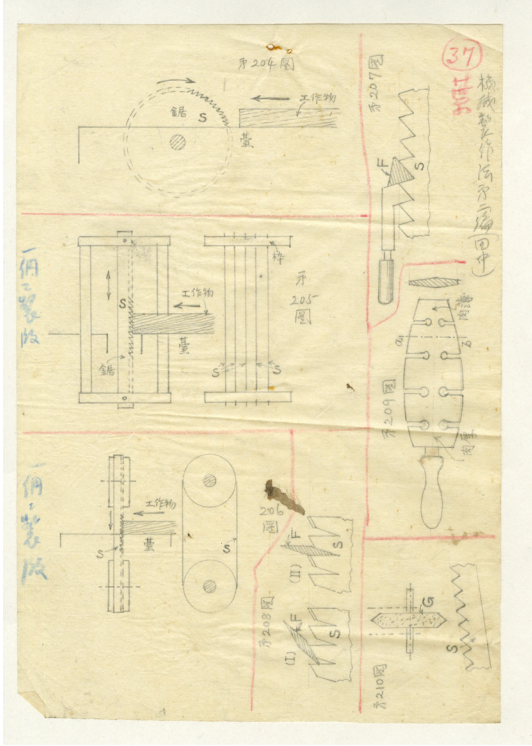


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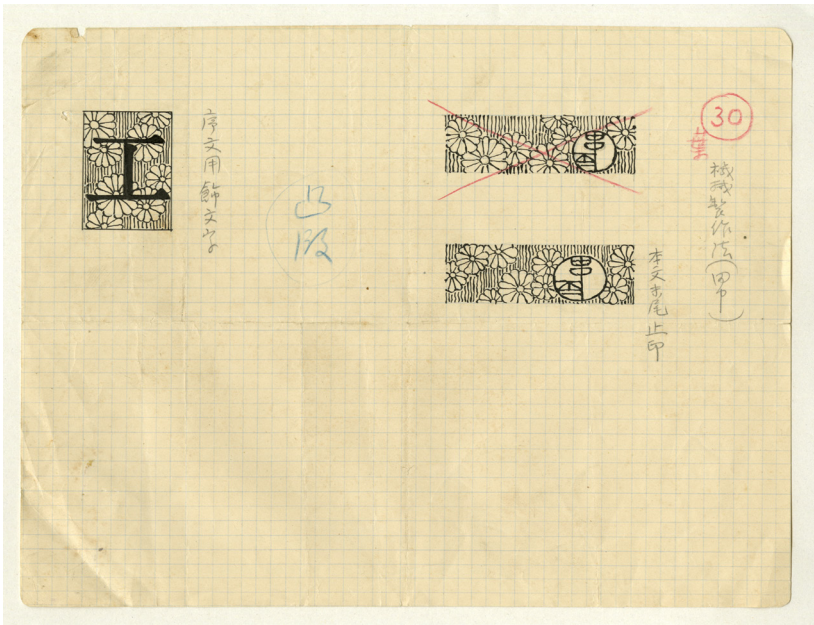




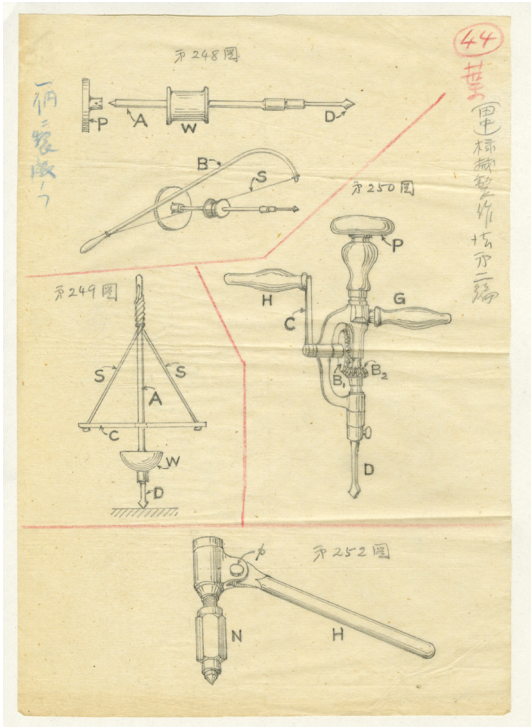
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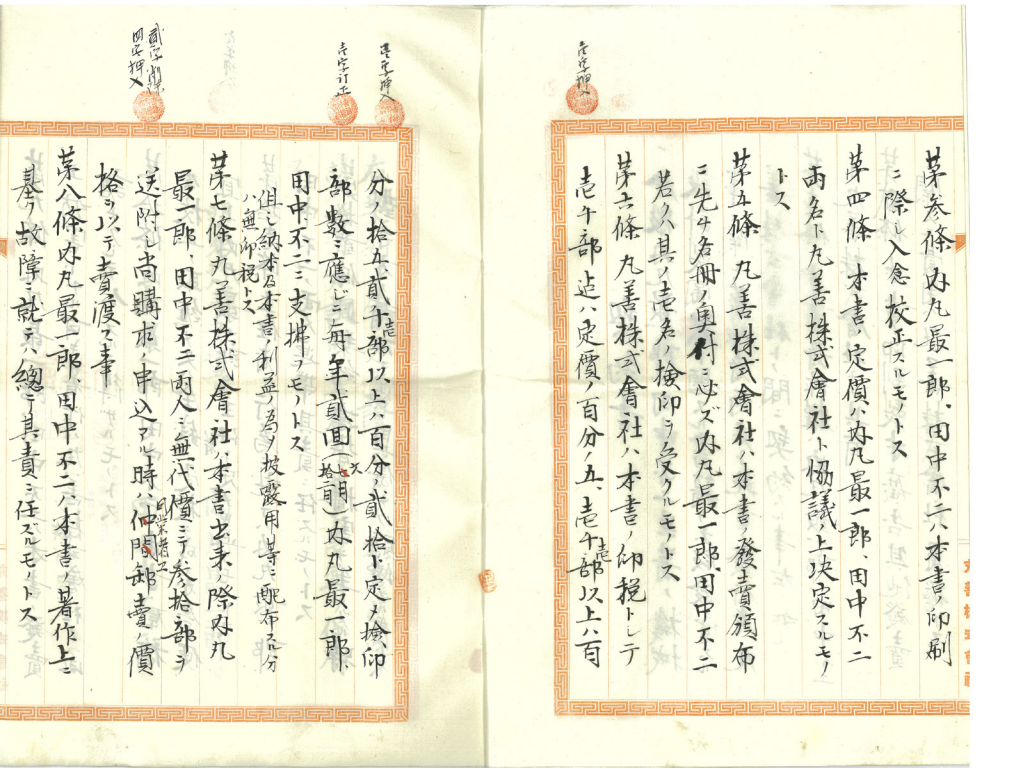
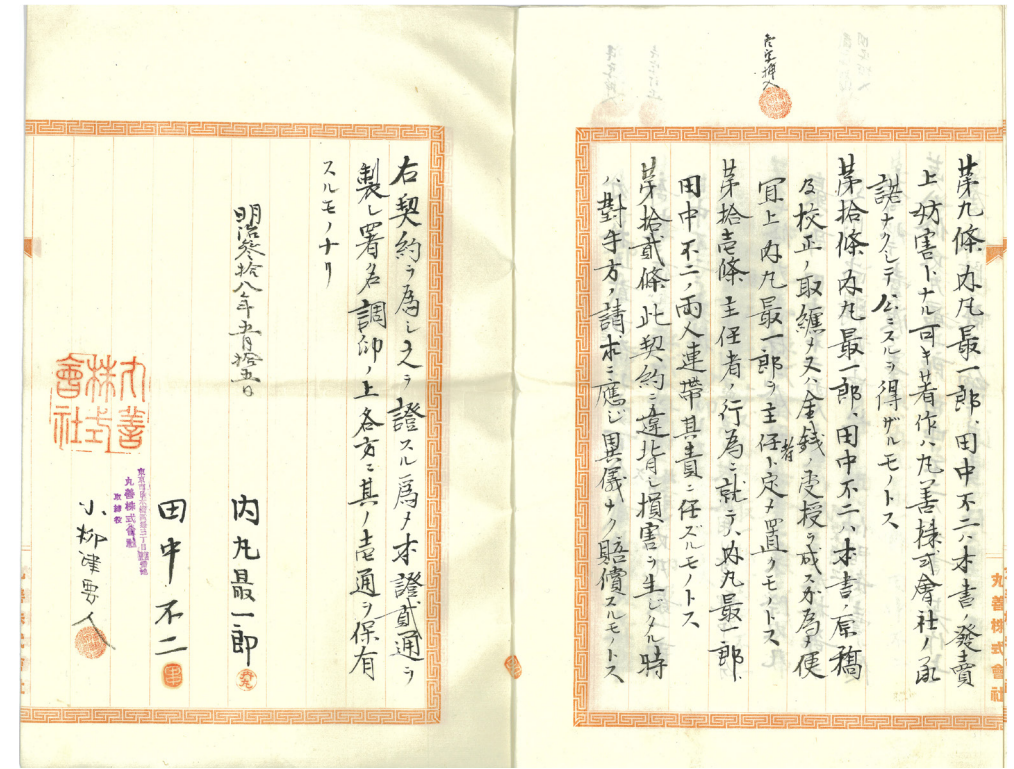
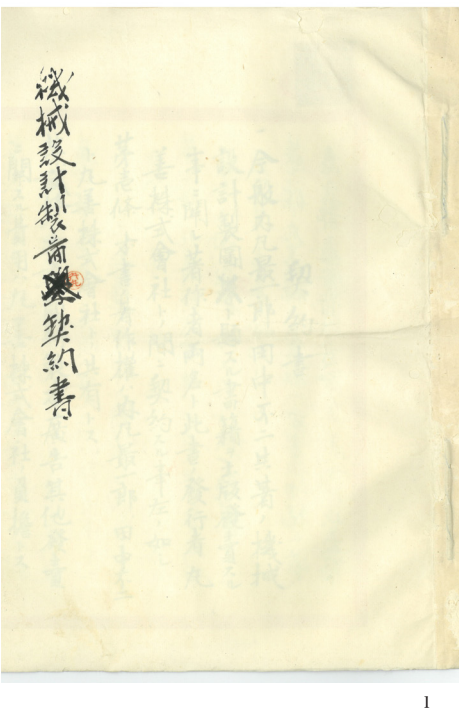
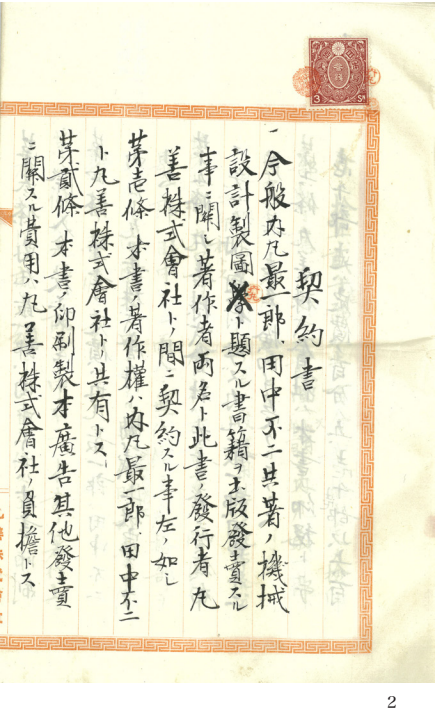
Original hand-drawn illustrations of *Machine Production Method* Part 1 and Part 2



Publication contract for *Mechanical Design and Drawing*

Uchimaru Saiichirō, Tanaka Fuji, Oyaizu Kaname / May 15, 1905 / Written in ink, signature and seal on Maruzen Co., Ltd. notepaper / H290, W200

The contract for the publication of *Mechanical Design and Drawing*, co-authored by Fuji and Uchimaru Saiichirō (1877–1969). It was exchanged between the two authors and Maruzen Co., Ltd., the publisher. “Mechanical Design and Drawing Study” is seen in two places of the cover and the contract text, with “Study” struck out, and the seal of Uchimaru affixed, indicating a change of title (plate 1–2). The contract has 12 articles, which stipulate copyright, expense burden, regular price, royalties, and so on. Article 10 on the right page of plate 4 states that Uchimaru is designated as Chief of Statement for the convenience of being able to compile manuscripts and to give and receive money, and Fuji is named as first author at the time of publication, but within this agreement all names of Uchimaru are placed first. Uchimaru, who was one year junior to Fuji, probably assumed the communication with the publishing company.

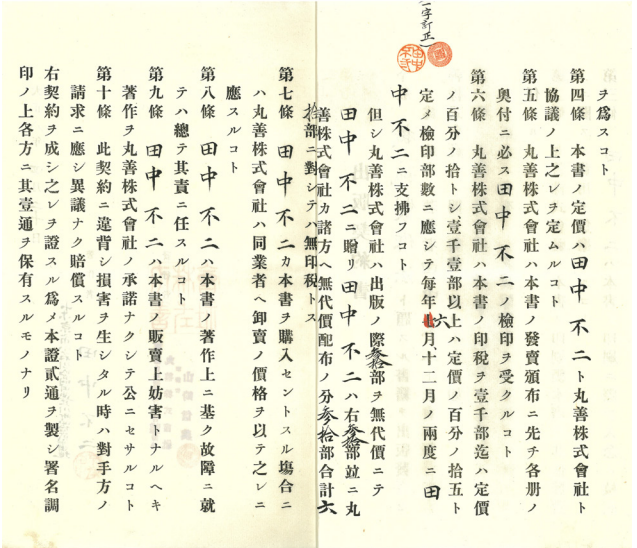
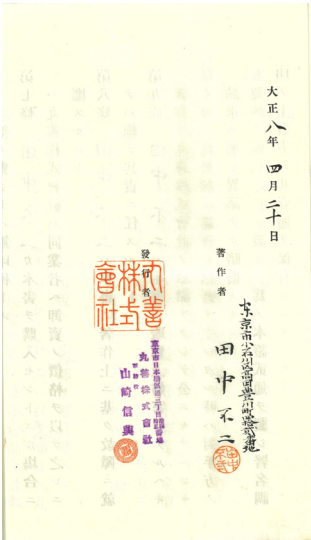
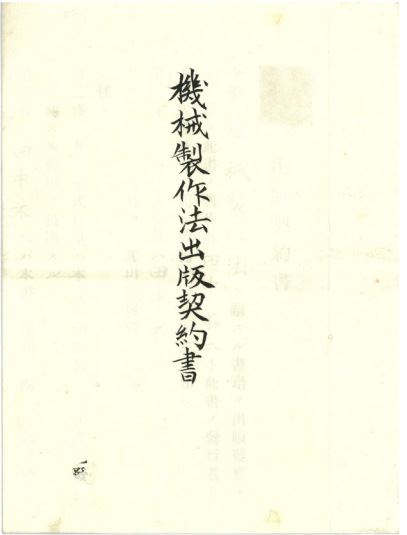
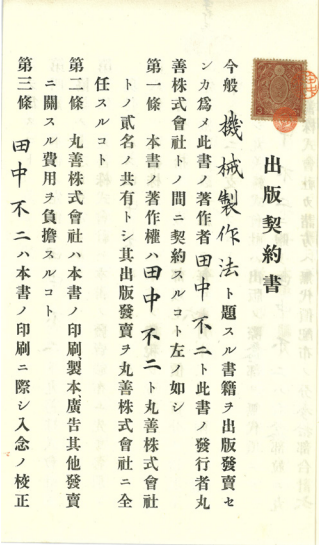
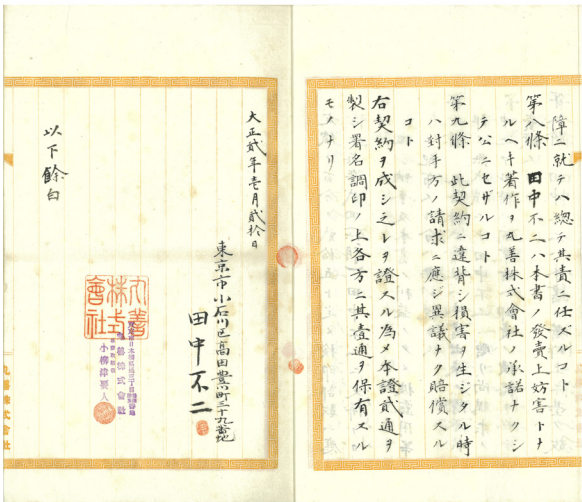
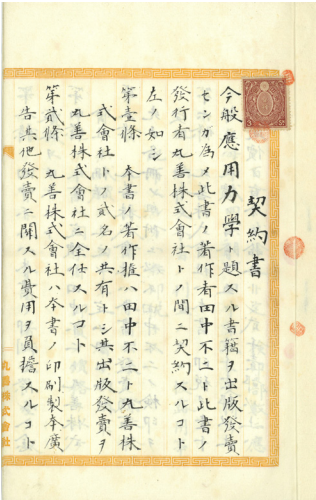
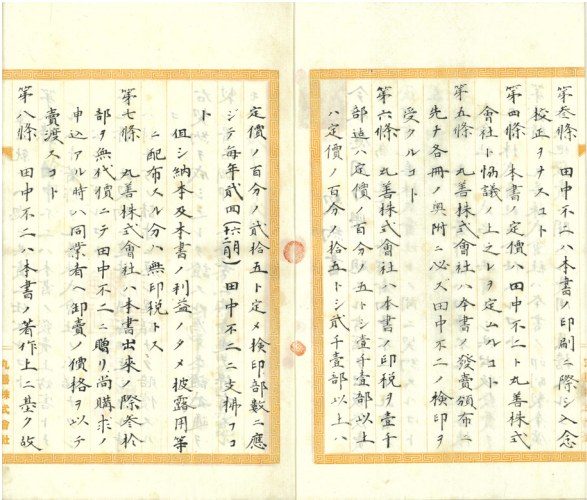
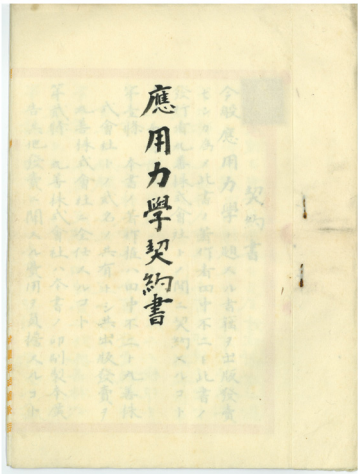




Publication contract for *Applied Mechanics*

Tanaka Fuji, Oyaizu Kaname / January 20, 1913 / Written in ink, signature and seal on Maruzen Co., Ltd. notepaper / H280, W205

Fuji's publication contract for *Applied Mechanics*, nine articles in total. As with the previous *Mechanical Design and Drawing* contract, it is all written in ink. Maruzen's Senior Managing Director Oyaizu's name changes from handwritten signature to name stamp.

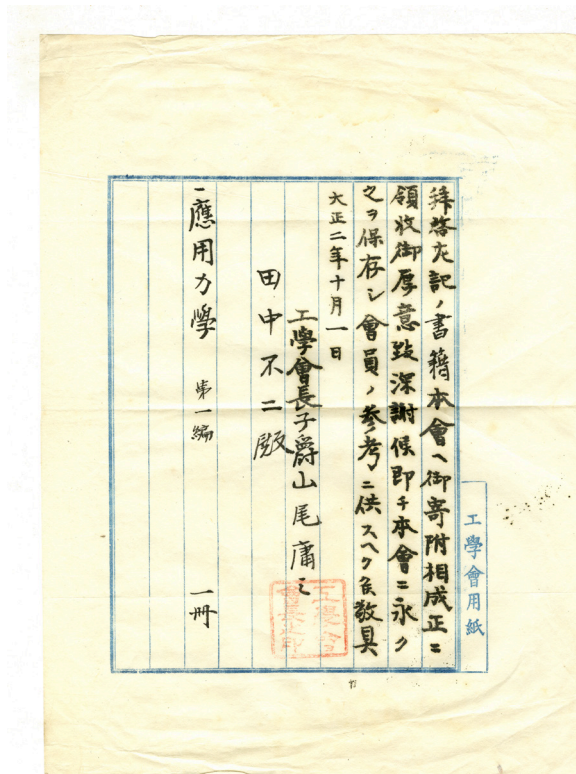


Publication contract for *Machine Production Method*

Tanaka Fuji, Yamazaki Nobuyo / April 20, 1919 / Printed on paper, written in ink, signature and seal / H270, W195

Fuji's publication contract for *Machine Production Method*, 10 articles in total. The sections of book title, author name, number of copies to the author and publisher gratis distribution, and date of contract are blank; all other formats are printed.

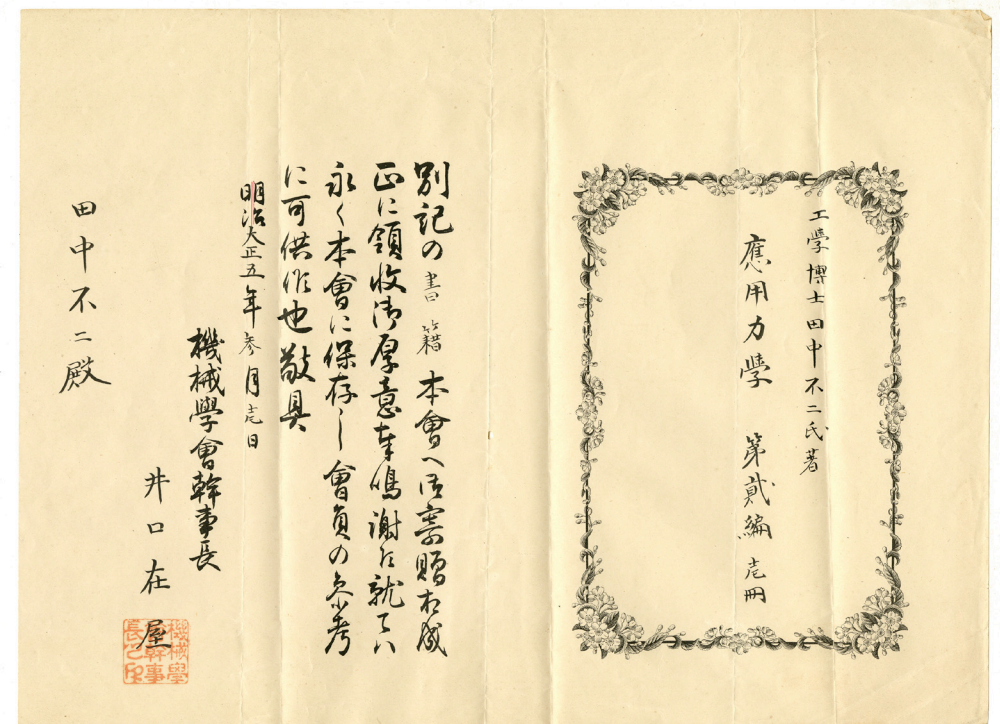




#### Thank you note for donation of *Applied Mechanics* Part 1

Yamao Yōzō addressed to Tanaka Fuji / October 1, 1913 / Written in ink on Engineering Society notepaper / Stamp of Engineering Society Chairman / H263, W191

Fuji donated his book to the Engineering Society, receiving a thank you note sent from the Chairman Yamao Yōzō (1837–1917). Yamao, a native of the Chōshū domain, went to the UK incognito along with Itō Hirobumi (1841–1909) and three other people in 1863 and studied engineering. After returning at the start of the Meiji Era in 1868, he advocated the importance of industries and the necessity of industrial education to the New Meiji Government, and engaged in the establishment of the Ministry of Public Works in 1870. The following year he founded Japan's first engineering educational institute, Kōgaku-ryō (later Imperial College of Engineering); thus he can be called the father of Japanese engineering. The Engineering Society was founded in 1879. The Principal of the Imperial College of Engineering, Scottish engineer Henry Dyer (1848–1918), emphasized that graduates should continue learning throughout their lives and recommended the establishment of an engineers' association in Japan. Thus, 23 of the first graduates of the College created this society, the first engineering academic group in Japan. Fuji was permitted to join the Engineering Society at the age of 18 in 1896, and the person making the referral is confirmed as Inokuchi Ariya (1856–1923). The field of engineering in Japan had gradually further specialized after the establishment of this society. In 1922 thus, the Engineering Society was replaced with an institutional membership system because independent associations which specialized in technologies such as mining, construction, electricity and machinery had been established.

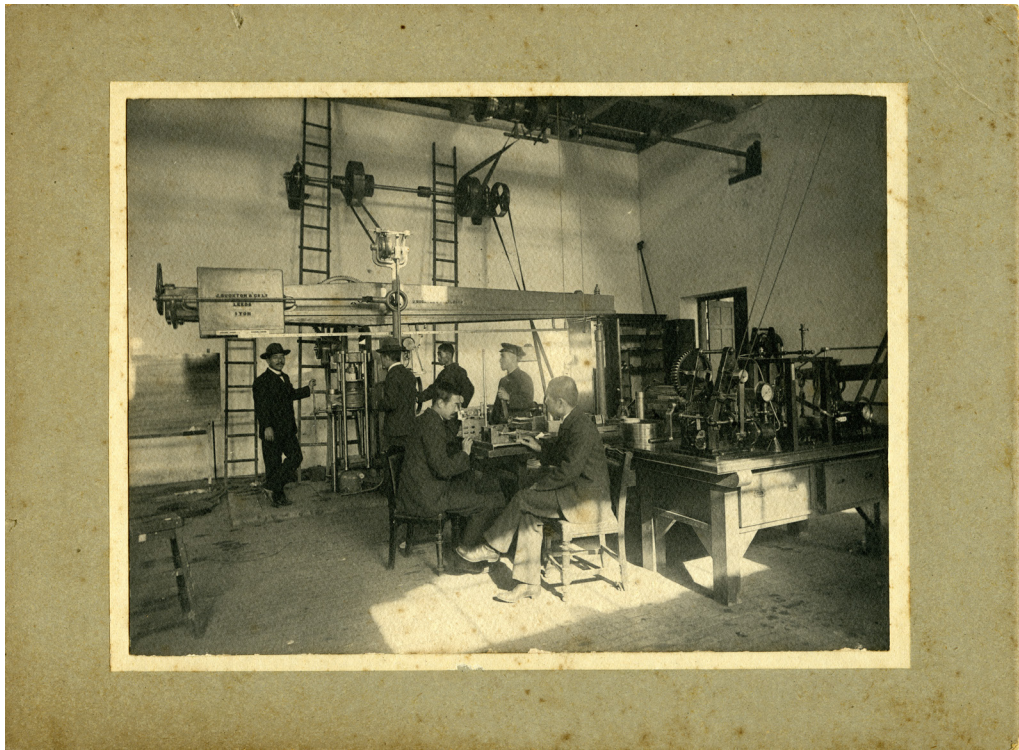


#### Thank you note for donation of *Applied Mechanics* Part 2

Inokuchi Ariya addressed to Tanaka Fuji / March 1, 1916 / Ink on paper, decorative printing / Stamp of "Society of Mechanical Engineers Chairman" / H235, W325

Inokuchi Ariya (1856–1923) graduated from the Department of Mechanical Engineering of the Imperial College of Engineering in 1882. He became an associate professor of the Department of Mechanical Engineering at Imperial University, which was just inaugurated in 1886, and after studying in London for three years, he became a professor in 1896. He was in charge of lectures in the Course of Applied Mechanics and the Third Course of Mechanical Engineering which dealt with fluid dynamics and fluid machinery. In particular, his lecture in the Course of Applied Mechanics was so popular for students. Fuji studied at the Department under Inokuchi. Inokuchi established the Society of Mechanical Engineers, separate from the Engineering Society, in 1897, together with the first secretary-general (now president) Mano Bunji (1861–1946), and served as the secretary-general eight times in total. Inokuchi also concurrently chaired the mechanical engineering terminology selection committee within the Society. Fuji was also a member of the committee, and his diary reveals that he was often spending time on the activities of the society.

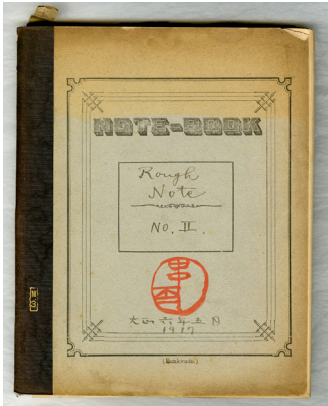




**Photograph of Tanaka Fuji in the Engineering Laboratory**

Photographer unknown / c. 1901–1922 / Bromoil print, mounted on cardboard / Photograph: H121, W164; Cardboard: H154, W210

The person sitting in front on the left is Fuji. Sitting on his right could be Inokuchi Ariya (1856–1923). The two have what appears to be an experimental machine. There is a large machine at the back, and machines with a meter placed on the table on the right. The same machines are seen in the photograph taken by Ogawa Kazumasa (1860–1929) in his *Tokyo Imperial University* album of 1904 entitled “Workplace in the Engineering Laboratory,” which was taken in said laboratory during Fuji’s term in office. In 1888, when the new school building of the Faculty of Engineering was completed in Hongō, and the brick two-story engineering laboratory was completed, facilities related to heat engines and machinery manufacturing methods were installed. The laboratory, as well as the school building, were lost in the Great Kantō Earthquake, and no longer exists.



日	8—9	9—10	10—11	11—12	1—2	2—3	3—4
機	電氣機械 試験法 十九号 西田教授	電氣工学 十九号 船中教授	電氣構造 十九号 船中教授		造船學 十八号 (船中教授) 末田教授		
火	船用機関 五号 (船中教授) 船中教授	水力機 五号 (船中教授) 船中教授	熱力学及熱機関 五号 加茂教授		電氣工学実験		
水	製造 十二号 依田	冶金學 十二号 依田	建築構造 十九号 (船中教授) 船中教授	電氣工学 十九号 (船中教授) 船中教授	船機 五号 (船中教授) 船中教授		
木	船用機関 五号 (船中教授) 船中教授	機械力学 十九号 田中教授	製造中軸 五号 (船中教授) 船中教授		工作機械(選修) 一、二 船中教授		
金	熱力学及熱機関 五号 加茂教授	電氣工学 一、二 田中教授	電氣構造 十九号 (船中教授) 船中教授		機械工学実験		
土	上巻経済學 一、二 桑田 謙一		機械設計法 五号 船中教授	船機 五号 船中教授	船機 五号 船中教授	船機 五号 船中教授	船機 五号 船中教授

**Machine and marine engineering, second-year classes timetable (second semester)**

From November 1918 to March 1919 / Blueprint on paper, written in red and blue pencil, pasted on page 26 of the notebook / Timetable: H184, W284; Notebook: H210, W166

This is pasted on the notebook of Fuji. “Rough Note No. II. May Taishō 6” is written on the cover page, as well as the name of Fuji with stamp style handwriting. In the timetable, the vertical and oblique lines are distinguished by red and blue pencil and marked with compulsory and elective subjects. The Department of Mechanical Engineering at Tokyo Imperial University has long been related to marine engineering. In 1897, the Course of Marine Engineering was opened and trained students, and in 1908 the Department of Marine Engineering was established as an independent course (although eventually abolished in 1925). Written in red pencil, *ki* 機 stands for the Department of Mechanical Engineering; in blue pencil, *haku* 舶 (ship) represents the Department of Marine Engineering. This timetable corresponds to Tokyo Imperial University’s last term of independent faculties system, immediately before the Faculty reformed its regulations to the Faculty of Engineering in 1919. At the time, the length of study at the University was three years. Fuji’s classes were “Power Mechanics” for Thursday period 2, and “Experimental Engineering” for Friday period 3. The other professors and associate professors of the Department of Mechanical Engineering who had classes were Professor Shiba Chūzaburō (1872–1934), Niwa Shigemitsu (1881–1966), Kamo Masao (1876–1960), Shima Yasujirō (1870–1946), Yokoyama Katsutō (1881–1966), and Uchimaru Saiichirō (1877–1969), all of whom graduated from the Department of Mechanical Engineering at Tokyo Imperial University.





### Sketchbooks

Tanaka Fuji / February 1897 to around March 1922 / Pencil and watercolor on paper, photograph, braid / Each volume number written in vermillion ink on spine / Maximum: H115, W188; Minimum: H112, W155

Eleven volumes from the first to the thirteenth of Fuji's sketchbooks are kept in UMUT. The second and third volumes are missing. Fuji had a deep interest in art and design and was often sketching in everyday life and at travel destinations.

### Sketchbook, *The fourth volume*

Tanaka Fuji / April 1901 to around December 1904 / Pencil and watercolor on paper, photograph, braid / Written in vermillion ink on spine – "Fourth"; written in ink on inner cover – "Fourth notebook of Tanaka Fuji, April of Meiji 34" / H112, W184

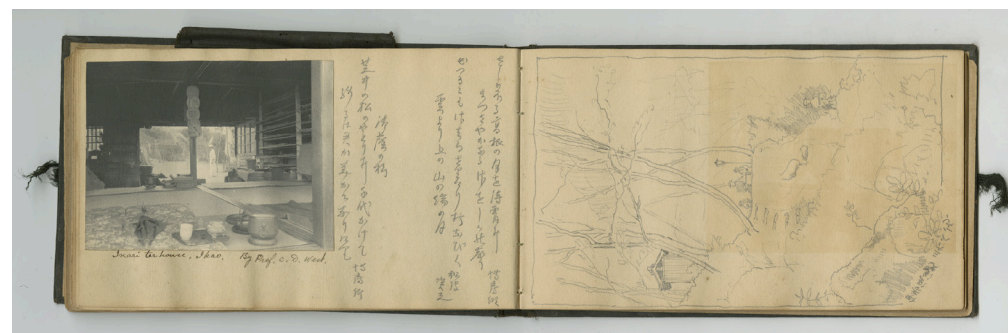
In this sketchbook, there are pages with six bromoil photographs taken by Charles Dickinson West (1847–1908) together with the scenery of Ikaho drawn by Fuji, to which the date of August 1903 was added. Five of the photographs are panoramic landscapes. Fuji graduated from the Department of Mechanical Engineering at Tokyo Imperial University in April of the same year and became a lecturer of the department in July. Immediately after finding employment as a lecturer, Fuji visited Ikaho for several weeks in August with his former professor and now his colleague West. On the left page of plate 2 is a photograph taken by West from the veranda on the upper floor of the Kindayū Hotel at Ikaho, at 5 o'clock on August 26 of the same year. On the right page of plate 2 is a tiger lily that Fuji painted on August 18. It is valuable information that can be read not only as Fuji's sketch record but also reflecting exchanges between Fuji and West and West's interest in photography.



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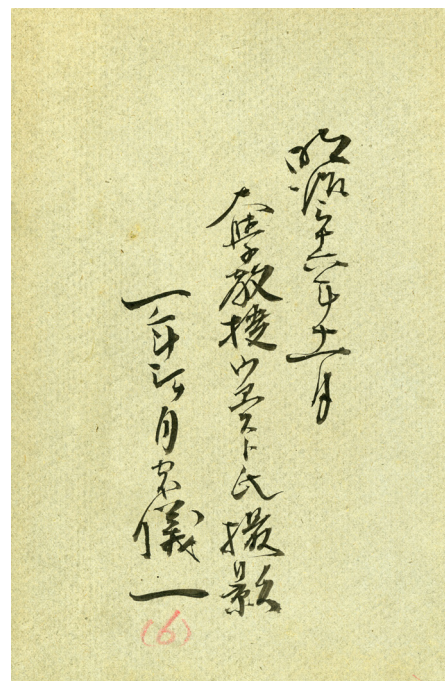


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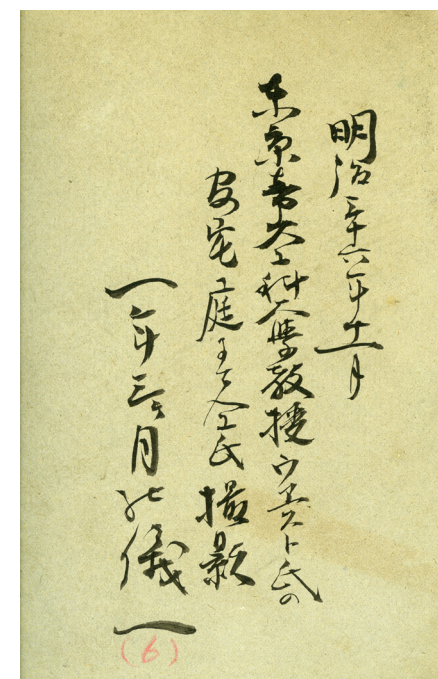




#### Portrait of Tanaka Fuji and Giichi

Photographed by Charles Dickinson West / November 21, 1903 / Gelatin silver print, mounted on cardboard / Written on the front – “Nov. 21. 03 by C. D. West, Prof of I. U. T.”; written in ink on the back – “November of Meiji 36 taken by University professor West, Giichi at 1 year and 3 months” / Photograph: H146, W104; Cardboard: H170, W110

Charles Dickinson West (1847–1908) was an Irish professor who taught at the Imperial College of Engineering and Tokyo Imperial University. As a successor to the Imperial College of Engineering Principal Henry Dyer (1848–1918), he came to Japan in 1882 and taught mechanical engineering and shipbuilding studies. West was a professor of Fuji during the latter’s university days and a colleague during his time as lecturer and associate professor. Unlike portrait photographs taken at a photo studio, this photograph by West catches a close eye on a natural subject. Also, Fuji’s wife Yoshiko holding Giichi was photographed (p. 63). “Photographed by Professor West at the home garden” is written in ink on the back. Therefore, it can be confirmed that Fuji visited West’s home with Yoshiko and Giichi at 1 year and 3 months. It is an interesting material for showing the relationship between Fuji and West in private life.

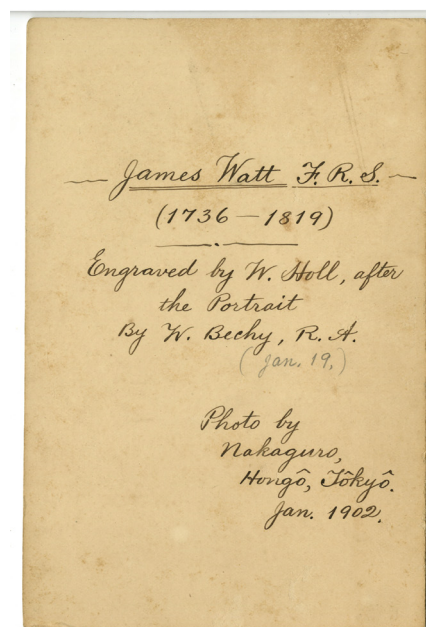
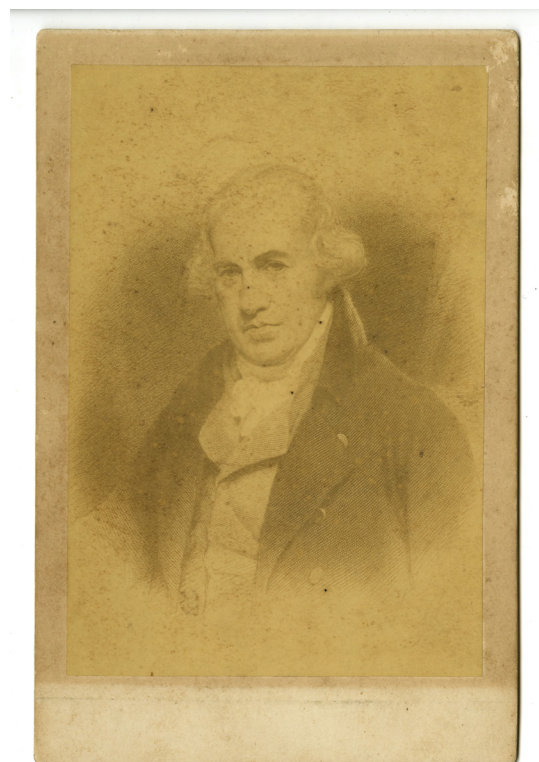


Extra plate

#### Portrait of Tanaka Yoshiko and Giichi

Photographed by Charles Dickinson West / November 21, 1903 / Gelatin silver print, mounted on cardboard / Written in ink on the back – “November of Meiji 36, at the home garden of the Faculty of Engineering, the Tokyo Imperial University Professor West, photographed by West, Giichi at 1 year and 3 months” / Photograph: H144, W102; Cardboard: H169, W110

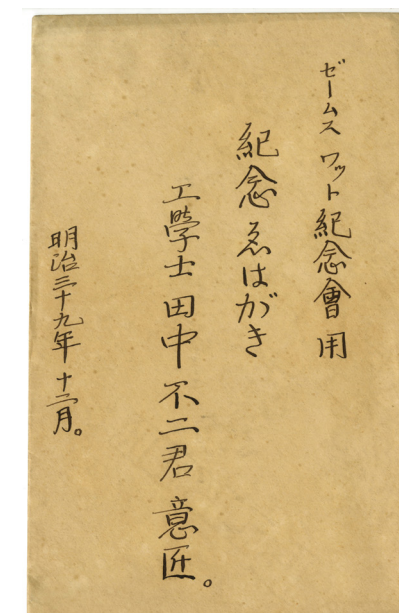
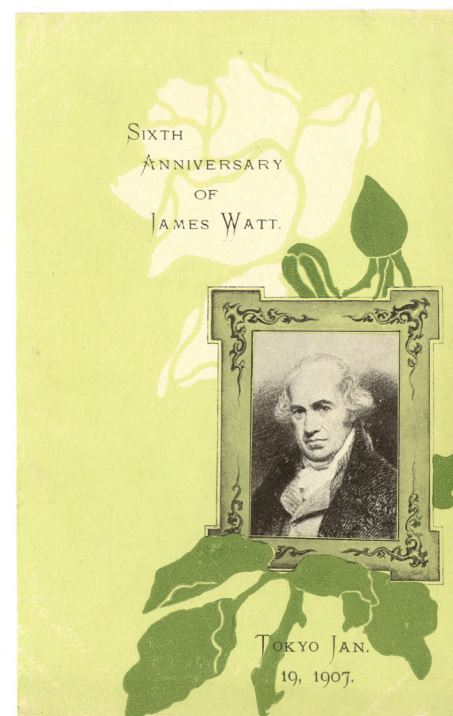




#### Portrait of James Watt (copy of stipple steel engraving)

Photographed by Nakaguro Minoru / January 1902 / Albumen print, mounted on cardboard / Written in ink on the back – “James Watt F. R. S. (1736–1819) Engraved by W. Holl, after the Portrait By W. Bechy, R. A. Photo by Nakaguro, Hongō, Tōkyō. Jan. 1902” / Formerly owned by Tanaka Fuji / H161, W108

It is believed that Fuji used this printed portrait of James Watt (1736–1819) as a design motif (p. 65). The original oil painting was painted by British portrait painter William Beechey (1753–1839) in 1802. According to the description on the back, it was made by printmaker “W. Holl” into a steel engraving, and Nakaguro Minoru, who had a photo studio in Hongō, took the photograph. From the technique of stipple engraving, the printmaker is presumed to be William Holl (1771–1838). This portrait of Watt is a famous image from which many printmakers are making copies.

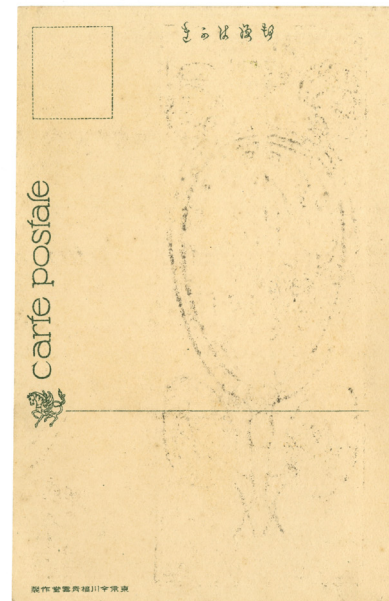


#### Commemorative picture postcard for the 9th James Watt Anniversary

Designed by Tanaka Fuji / December 1906 / Gravure printing on paper, in envelope / Plate making and printing by the Department of Industrial Design at Tokyo Higher Technical School / Written in ink on the envelope – “James Watt Anniversary Commemorative Picture Postcard. Designed by Engineering Doctor Tanaka Fuji. December Meiji 39.” / Postcard: H140, W90; Envelope: H149, W95

James Watt (1736–1819) was a British inventor, mechanical engineer, and scientist born in Scotland. Through the improvement of the steam engine, he contributed not only to the UK but also to the progress of the industrial revolution of the world. The power unit “watt” was named after him. Fuji designed a portrait of Watt with a rose for the memorial party held annually on Watt’s birthday, January 19. It seems that the party was organized by the Society of Mechanical Engineers. A memorial banquet was held, and Fuji also designed the menu. The plate making and printing of this postcard was done by the Department of Industrial Design at Tokyo Higher Technical School (whose predecessor is the Tokyo Vocational School, the origin of Tokyo Institute of Technology), which is said to have contributed greatly to the development of industrial design in Japan despite a short period of operation of only 17 years from 1897 to 1914.

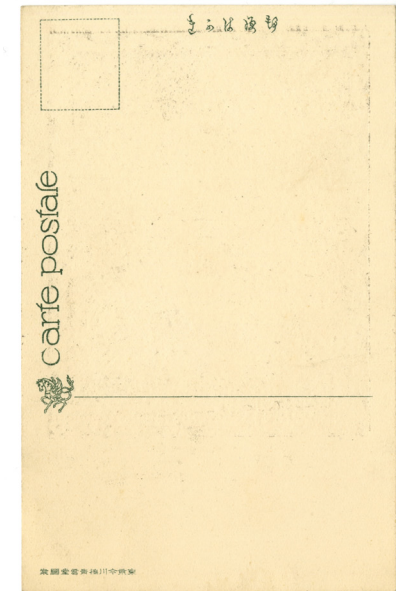




#### Picture postcard of the Society of Mechanical Engineers

Designed by Tanaka Fuji / Between April 1907 and March 1918 / Multicolor lithographic printing on paper, varnished / Manufactured by Tokyo Imagawa-bashi Seiundō / H140, W90

“FT,” Fuji’s initials, are seen on the lower left. At the center there is a machine motif that Fuji repeatedly used at the Society of Mechanical Engineers, the letter “W” is presumed to be the initial of well-known British inventor and mechanical engineer James Watt (1736–1819). The influence of Art Nouveau is felt in a curved design treated with cherry blossoms like a stained glass. It is known to have been made for the Society of Mechanical Engineers, but the actual production year is unknown. However, since the lower third of the address face is used as the communication field, the approximate date of manufacturing can be inferred.

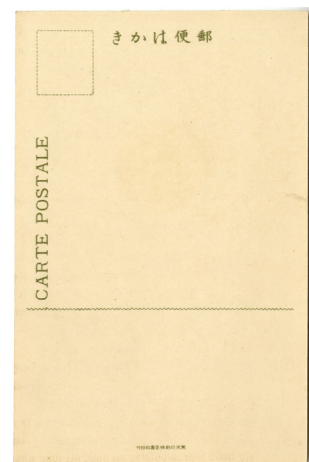
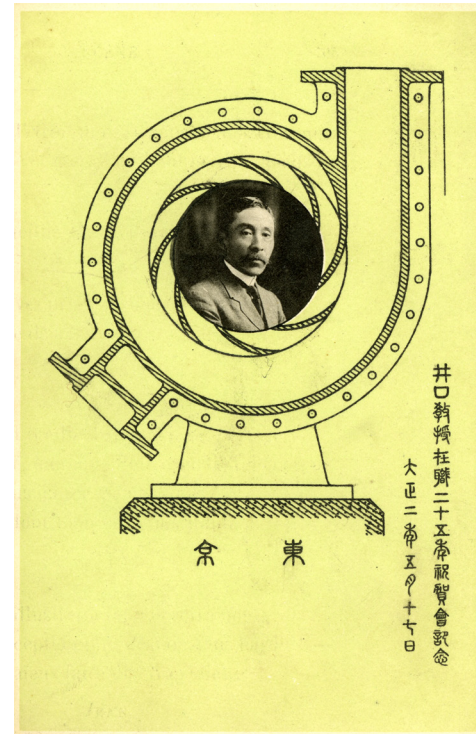
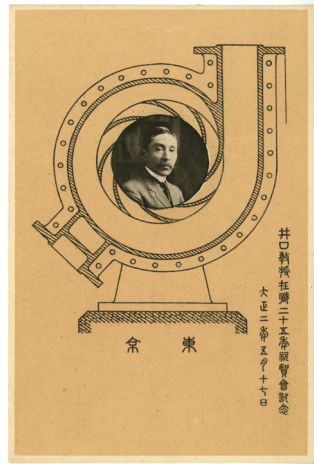


#### Picture postcard of Society of Mechanical Engineers’ Tokyo Extraordinary Convention

Designed by Tanaka Fuji / April 1914 / Lithographic printing on paper / Manufactured by Tokyo Imagawa-bashi Seiundō / H141, W91

Inside the frame pattern with chrysanthemum, a bird that looks like a phoenix is seen sitting on a tree. The most noticeable feature is the machine motif on the lower left, and white highlights are effectively used only for that part of the overall monochrome design. Fuji’s initials “FT” are seen along the lower left border of the frame pattern. Fuji often designed like this picture postcard when planning events at the Society of Mechanical Engineers. The first president of the society, which was founded in 1897, was Mano Bunji (1861–1947), professor at the Faculty of Engineering at Tokyo Imperial University. He was a classmate of Tanaka Rintarō who graduated from the Mechanics Department at the Imperial College of Engineering in 1881. Mano went to Glasgow University in the UK in 1886, and when he achieved excellent results, he was nominated as a member of the British Society of Mechanical Engineers. The Society of Mechanical Engineers in Japan is patterned after this British association.

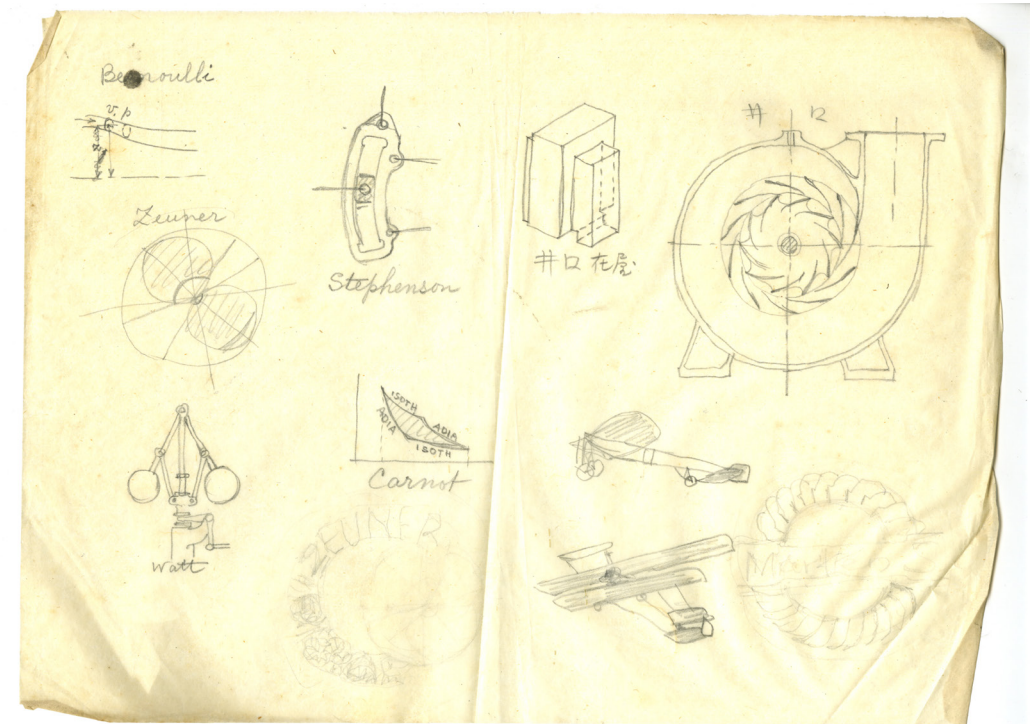




# Commemorative picture postcard for the celebration of Professor Inokuchi Ariya's 25 years of work at the Tokyo Imperial University

Designed by Tanaka Fuji / May 17, 1913 / Offset and lithographic printing on paper / Impressed by Tokyo Printing Co., Ltd. / H141, W91

This postcard was created to celebrate 25 years of work of Inokuchi Ariya (1856–1923) at the Department of Mechanical Engineering of the Tokyo Imperial University. Inokuchi served as the head of the department since 1901 and had a great influence on both its research and education. Fuji is said to have inherited Inokuchi's studies along with Uchimaru Saiichirō (1877–1969); in particular, Fuji had collaborative research with Inokuchi and also co-authored a paper on a shearing test for wood. In the picture postcard, a portrait of Inokuchi is embedded in the middle of the motif of a spiral pump, which is recognized as one of Inokuchi's best research achievements. This research was published in 1905 and is said to have received acclaim in the British journal *The Engineer*. Fuji's name and initials cannot be seen in the picture postcard, but a similar design sketch remains (p. 69). There are two versions of the postcard: one with a light brown background and the other with a light green background.



## Design sketches

Tanaka Fuji / Date unknown / Pencil on paper / H201, W286

The motif "Inokuchi" on the upper right would be for a postcard design plan for the commemoration of Fuji's professor Inokuchi's 25 years of work at the Tokyo Imperial University (p. 68). On the lower left is a machine motif labeled as "Watt," with parts similar to steam engine drawings by James Watt. Here as well, the same motif can be confirmed in postcards of the Society of Mechanical Engineers designed by Fuji (p. 66).





European glasses and ceramics collection

Early in the 20th century / Formerly owned by Tanaka Fuji / 1: H109, maximum width 75; 2: H70, maximum width 64; 3: H89, maximum width 80; 4: H69, maximum width 78; 5: H100, maximum width 96; 6: H47, maximum width 65; 7: H23, maximum width 73; 8: H71, maximum width 41; 9: H13, maximum width 73; 10: H26, maximum width 40; 11: H43, maximum width 57; 12: H21, maximum width 35

For three years from July 1908, Fuji collected these glasses and ceramics while studying mechanical engineering in the UK, Germany, and France. It seems that he bought small objects that fit in the palm of his hand, and brought these home to Japan. Fuji stayed in London for the longest time, and aside from the three countries, he also visited Belgium, Italy, Switzerland, and Denmark. In addition to the traditional European ceramics, there are also contemporary decorative styles of Art Nouveau glasses that had been influencing the world at that time. Fuji's interests in art and design can be seen from this collection. At the same time, Fuji, who had the experience of participating as an assistant judge in the 5th National Industrial Exposition in 1903 and was present at the Japan-British Exhibition in London in 1910, may have seen this collection from the point of view of industrial promotion.

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5	6	7	8
	9	10	11
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**Tanaka Giichi**  
(1902–1985)

First son of Tanaka Fuji and Yoshiko, born in Tokyo on August 2, 1902. He graduated from Seikei Junior High School in March 1920 and the Department of Science of the First Waseda University Senior High School in March 1925. In March 1928, he graduated from the Faculty of Science and Engineering at Waseda University. Since junior high school, Giichi studied painting under a Western-style painter, Somiya Ichinen (1893–1994) and respected him as a lifelong master. In April of the same year, Giichi became an official of the Bureau of Building and Repairs of the Ministry of Finance. In February 1929, he joined Chiba Railroad 1st Regiment as executive candidate but was discharged in November of the same year. In January 1930, he was hired again by the Bureau of Building and Repairs, under Design Chief Yoshitake Tōri (1886–1945), to join the work on the interior decoration of the Imperial Diet Building (currently the National Diet Building, completed in 1936). In August 1939, he resigned from the Bureau of Building and Repairs, became a naval engineer, and was attached to the Bureau of Architecture of the Ministry of Navy. He was assigned to the Shanghai Navy Facility Department and Yokosuka Navy Facility Department. After the end of the war, he worked as Head of the Yaizu Regional Facility Office and at the headquarters of the Yokosuka Facility Department. After he was dismissed in October 1945, he started work at the US Navy Public Works Office in November of the same year. In June 1946, he resigned from the institution and worked for the construction company Mabuchi-gumi (later Mabuchi Co., Ltd.). He served as Tokyo branch manager at the company later. In April 1960, he resigned from the Mabuchi Co., Ltd., worked at home for a while, and then worked at Kyōwa Eizo Co., Ltd. In March 1979, he retired from the company. On March 31, 1985, he passed away at the age of 82.



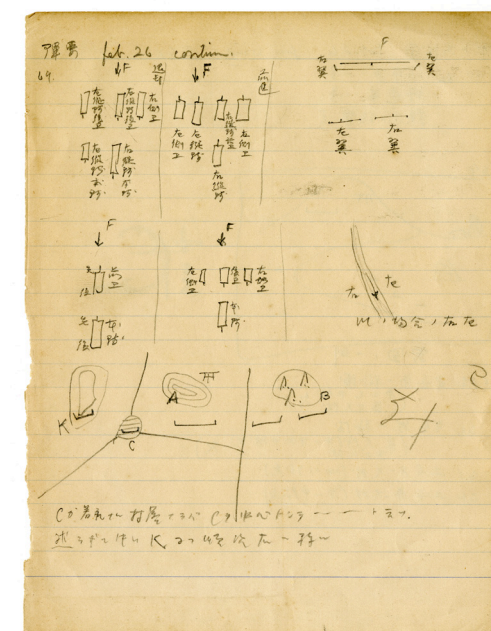
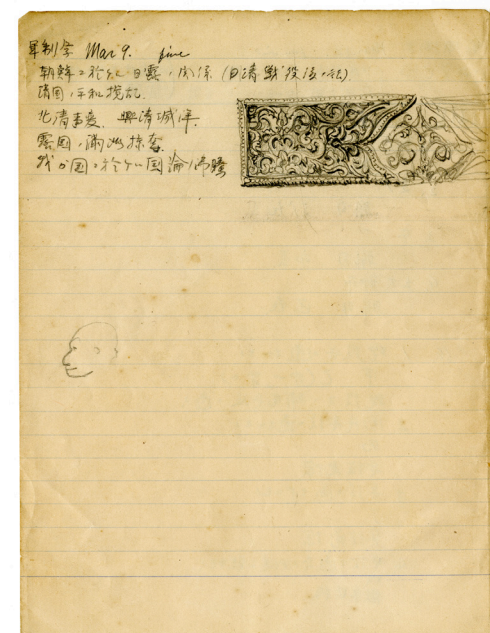


### Portrait of Tanaka Giichi

Photographed by Shibata Tsunekichi / c. 1929 / Manufactured by Mitsukoshi Photographic Division / Gelatin silver print, mounted on two-fold cardboard / Written in pencil beside the photograph – “Master Sergeant Tanaka Giichi, the Railroad 1st Regiment, 2nd Squad” / Photograph: H85, W55; Cover: H168, W112

Taken when Giichi was about 26 years old and in command as Master Sergeant at the 2nd Squad of Chiba Railroad 1st Regiment for about one year. He worked at the Bureau of Building and Repairs of the Ministry of Finance before and after this command. There is a design sketch that indicates his desire to work on the interior decoration of the Imperial Diet Building during his regiment days (p. 75). Shibata Tsunekichi (1850–1929) was a photographer of the Mitsukoshi Photographic Division and is known as the cameraman of the oldest existing Japanese movie, *Momijigari*, produced in 1899.

074



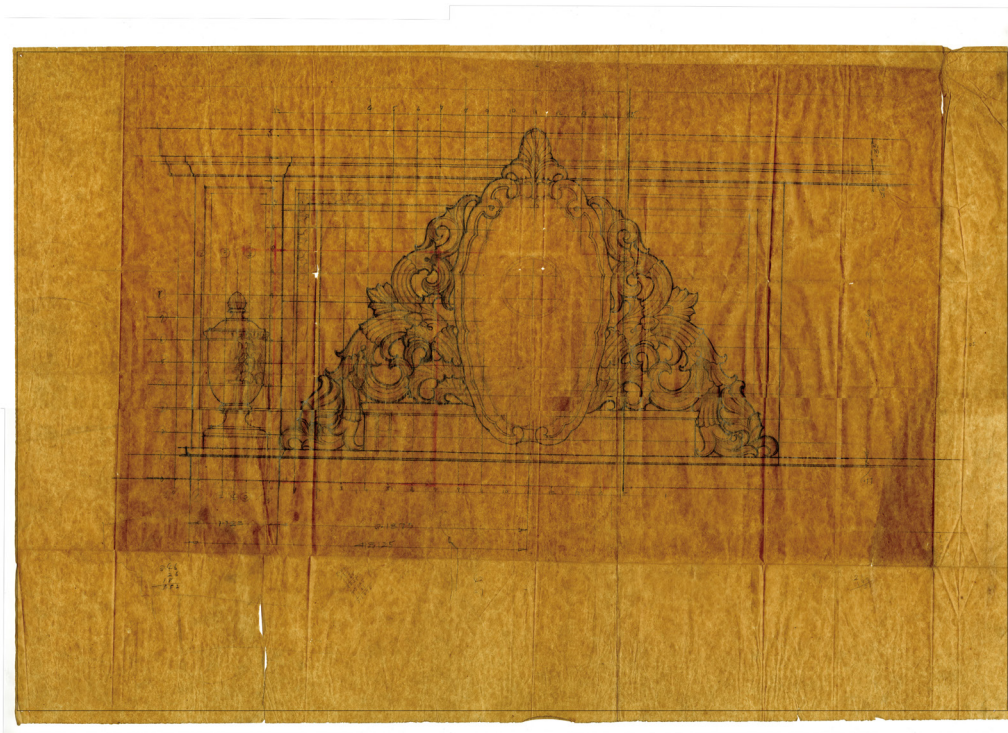
### Extra plate Leaves of notebook

Tanaka Giichi / c. 1929 / Pencil on paper, two leaves / H209, W160

A part of Giichi's notebook during his days in Chiba Railroad 1st Regiment. His sketch which seems to be a sculpture design of arabesque patterns is found on one of the leaves.

075





**Pattern of the upper marble relief at the Binden entrance of the Imperial Diet Building**

Tanaka Giichi / c. 1928 or 1930 / Pencil on paper / H745, W525

The arabesque and vase are designed around a shield. Compared to the pattern of the floor marble mosaic in the front hall of the Binden which seems to be a draft (pp. 78–79), the grid lines and sizes are written in this pattern. It can be evident that the process of completing the drawing pattern is more advanced. Giichi was responsible for decorating the front hall of the Binden which is one of the most important parts located in the center of the Diet Building, under the supervision of the Design Chief, Yoshitake Tōri (1886–1945). In addition to the marble relief, Sakura and Tachibana gypsum bas-relief are sculptured on the left and right of the wall of the entrance at the Binden (p. 84). A ceiling of cylindrical shape has a skylight with stained glass (p. 85). What used to be called the Binden (the emperor's temporary place of sojourn) is now called the Go-kyūsho. The plan for the construction of the Diet Building goes back to the Meiji Era; it was a major national project that took about 19 years until completion, from the start of construction in 1918.



**Actual-size drawing pattern of the upper marble relief at the Binden entrance of the Imperial Diet Building**

Tanaka Giichi / c. 1928 or 1930 / Pencil on paper, three pairs of paper sheets / 1: long side 1065, short side 750; 2: long side 1063, short side 755; 3: long side 1060, short side 750

This marble relief, along with the left and right pillars on the wall at the entrance of the Binden, was made from a single piece of Hototogisu marble. Its actual-size drawing illustrates the uniqueness and luxuriousness of the relief. Records of the construction work lasting from January to December 1930 of the marble interior that constituted the main parts of the center of the building, such as the central hall, the front hall of the Binden and the imperial staircase (central staircase) are kept in the *Construction Report of the Imperial Diet Building* (1938). The stipulation of the marble flag work states that the sculpture and relief should be produced according to specific instructions; for example, molds should be fabricated as specified by actual-size drawings and models. This actual-size drawing seems to have been made as an instruction to the contractor who actually worked on the construction.





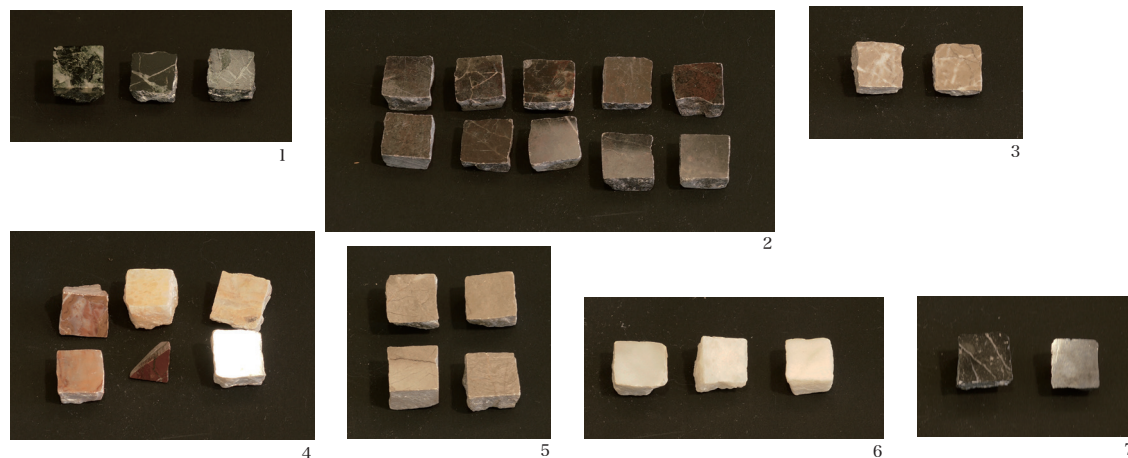
**Patterns of the floor marble mosaic in the front hall of the Binden of the Imperial Diet Building**

Tanaka Giichi / c. 1928 or 1930–31 / Pencil on paper / Large: long side 745, short side 535; Small: long side 270, short side 192

The front hall of the Binden is situated at the end of the central staircase from the central hall of the Diet Building. It is a rectangular space about 7.3 meters wide and about 21.8 meters long. The same marble mosaic decoration is used in the central hall. About 600,000 flagstones were used. As these two patterns show, the floor marble mosaic in the front hall of the Binden consists of a large rhombus and a small one. These patterns seem to be a draft of the design proposal, as it does not show grid lines, size notation, and mosaic fitting plan. However, since the contour line almost coincides with the completed mosaic, it can be inferred that it is the completed form of the original design. According to *Construction Report of the Imperial Diet Building* (1938), the marble mosaic works were conducted from March to November 1931. The finishing of the marble decoration work in the front hall of the Binden was completed from April to May 1936, together with repair and polish work on the central hall mosaic. It was said that a carpet of a single weave was laid on this mosaic after completion. Materials including design drawings and material samples of the Imperial Diet Building were mostly lost due to fire and war damage, so these patterns and sample stones (pp. 80–81) that remained with Giichi, who was in charge of decorating the front hall of the Binden, are valuable source materials.





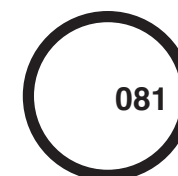
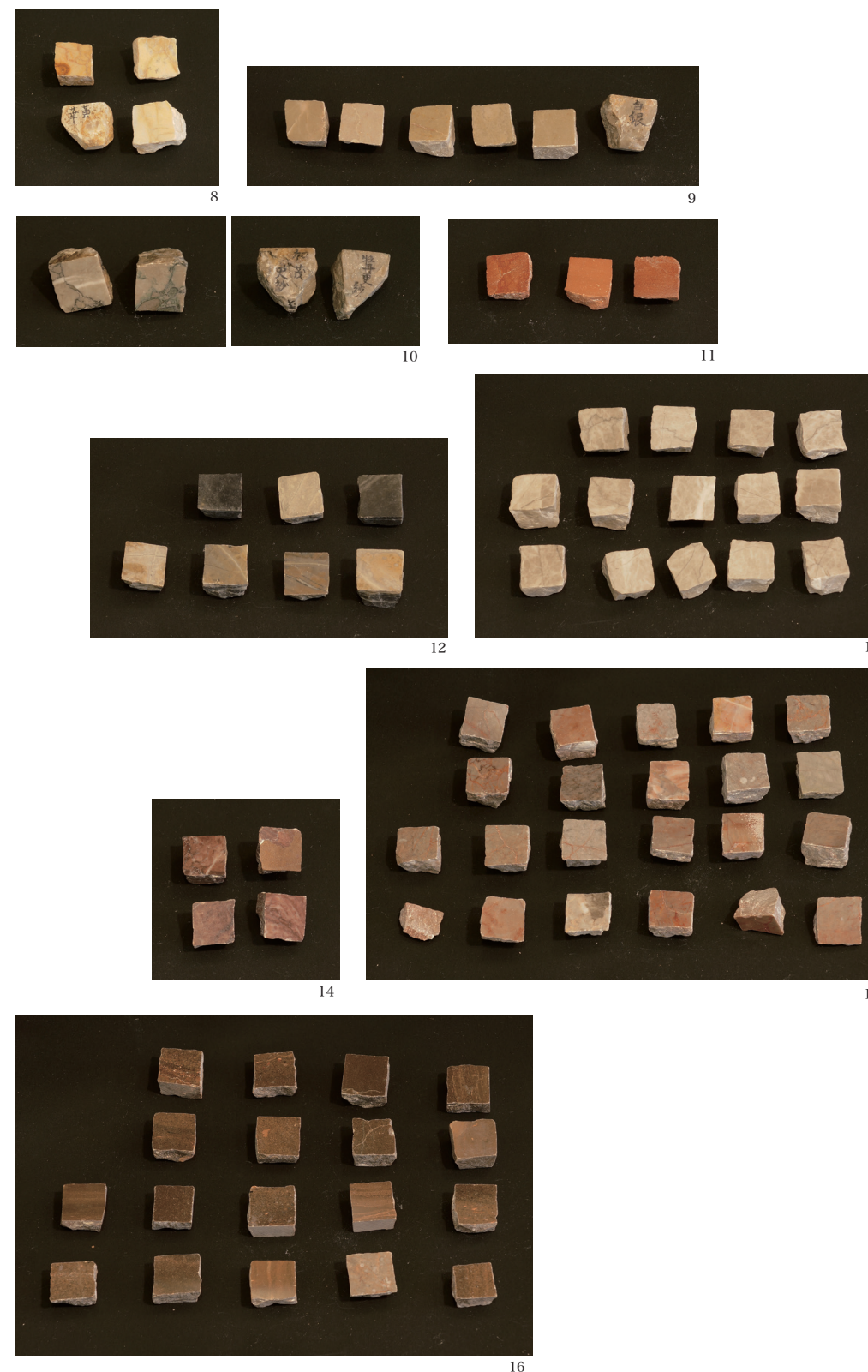
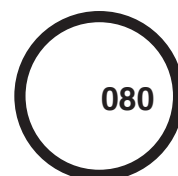


### Sample stones of the floor marble mosaic in the front hall of the Binden of the Imperial Diet Building

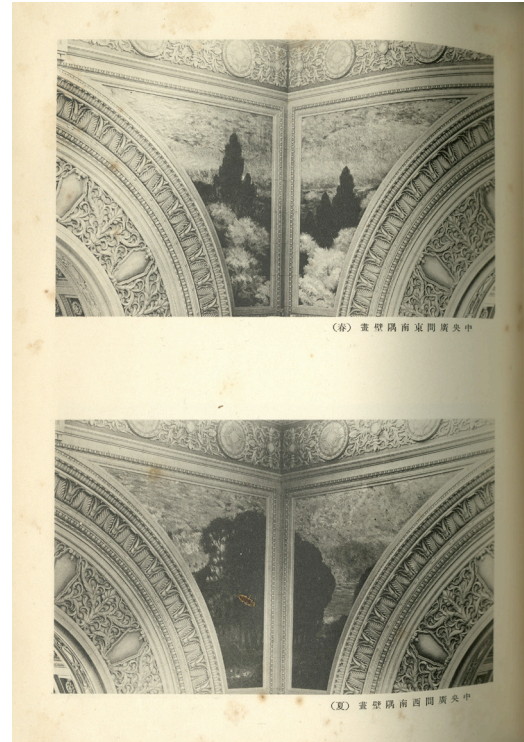
In the early Shōwa Era / 16 types of marble, serpentine and olivine tholeiite / Formerly owned by Tanaka Giichi / Maximum: L28, W23, H22; Minimum: L17, W18, H12

According to *Construction Report of the Imperial Diet Building* (1938), “there are thirteen species: Kinka, Ibaraki-shiro, Hakutaka, Ko-zakura, Usugumo, Benigumo, Hōsoku, Tōmegane, Mino-aka, Jamon, Tosa-zakura and Shin-awayuki” (actually only 12 species are enumerated here) of the types of marble (strictly speaking, including serpentine and olivine tholeiite) used in the floor marble mosaic in the front hall of the Binden, the design of which Giichi was in charge of. The basic policy for the construction of the Imperial Diet Building (currently the National Diet Building) was to use only Japanese domestic materials. Until then, most marbles were imported from foreign countries, and it was rare to use domestic marbles in Japan. The Bureau of Building and Repairs enthusiastically gathered samples of domestic marbles before starting the construction, which led to the discoveries of new high-quality marbles in Japan and the development of a marble industry. When new materials came up, the specimens were studied, and the color scheme was redesigned. In addition, although it is recorded that all the marbles on the floor mosaic are also all domestic, the tens of thousands of one type of yellow-orange marble from Italy was used as an accent of the color pattern, according to the Giichi’s recollection.

1. Jamon [serpentine] : 3
2. Kōun: 10
3. Awayuki: 2
4. Benigumo: 6
5. Kasumi: 4
6. Shiro-usugumo: 3
7. Tōmegane: 2
8. Ōka, Kinka [a stone inlaid with characters “Ōka”]: 4
9. Hakugin [a stone inlaid with the same characters]: 6
10. Kamo-sarasa, Botan-sarasa [a stone inlaid with characters “Kamo-sarasa” and “Botan-sarasa” each]: 2
11. Mino-aka: 3
12. Chikuyō [olivine tholeiite] : 7
13. Hakutaka : 14
14. Beni-hamon : 4
15. Beni-jima : 22
16. Hōsoku : 18







**“Southeast Corner Mural Painting of the Central Hall (Spring)” and “Southeast Corner Mural Painting of the Central Hall (Summer)”**

Bureau of Building and Repairs, Ministry of Finance (ed.), *Construction Report of the Imperial Diet Building*  
Published by the Bureau of Building and Repairs, Ministry of Finance / 1938 / Boxed / Formerly owned by Tanaka Giichi /  
Upper illustration: H87, W141; Lower illustration: H86, W141; Book: H257, W200

Oil mural paintings representing the four seasons are placed on all corners of the central hall. The themes of the paintings are said to be “Cherry blossoms in Yoshino,” “Lake Towada in fresh green,” “Red leaves in Nikkō” and “Japan Alps” in the order of spring, summer, autumn, and winter. There is no record of the painters of these mural paintings in *Construction Report of the Imperial Diet Building*, but Giichi left his note mentioning the names of four people including him who participated in the creation of the paintings. They were all Technicians of the Bureau of Building and Repair and in charge of the architectural design of the Imperial Diet Building at the Bureau of Building and Repairs. According to Giichi’s record, Yasuda Kiyoshi and Giichi drew the outline of “Spring” and Yasuda finished the work, while Giichi alone worked on both outline and finishing of “Summer.” Takahashi Kenjiro worked on the outline and the finishing of “Autumn,” while Kumagaya Toshio drew the outline of “Winter” and its finishing was done by both Takahashi and Kumagaya. In the original plan at the time, it was intended that the marble mosaic would be set with these themes. However, it is said that the plan was changed to adopt paintings in oil on canvas due to budgetary constraints.



Extra plate  
**“Central Hall”**

Bureau of Building and Repairs, Ministry of Finance (ed.), *Construction Report of the Imperial Diet Building*  
Illustration: H186, W141

This is located right under the high central tower. The floor is on the second level with an atrium that has a space of four floors above. The ceiling height is 32 meters and 62 centimeters. The ceiling cornice is made by electroform. The upper wall made of plaster is finished with painting. Electric lamps are arranged behind the stained glass to serve as artificial skylight. In the center of this illustration, “Autumn” can be seen among the mural paintings in oil on canvas at the four corners where the four seasons are represented. “Summer,” of which Giichi worked on composition and finishing, is located on the left of “Autumn,” and it is slightly seen on the right edge of the painting in this illustration.





Extra plate

**“The Front View of the Entrance of the Binden and its Front Hall”**

Bureau of Building and Repairs, Ministry of Finance (ed.), *Construction Report of the Imperial Diet Building*  
Illustration: H141, W190

The front hall of the Binden where Giichi was in charge of the design. The upper marble relief at the Binden entrance and the floor marble mosaic in the front hall of the Binden, the patterns of which are kept in UMUT (pp. 76–79), are seen in this illustration.



**Picture postcard of the *Front hall of the Binden of the Imperial Diet Building***

From Tanaka Giichi to Tanaka Masako and Reiko / November 7, 1936 / Gelatin silver print / Manufactured by G. T. Sun (Graphic Times Sun) / Pasted with a commemorative stamp of the Imperial Diet Building completion on the address face, with a commemorative special stamp of November 7, 1936, and impressed with a commemorative stamp of November 1936 on the communication field / H139, W85

Giichi sent this postcard to his family on the day of the Imperial Diet Building completion ceremony. In the photograph, the front hall of the Binden where Giichi was in charge of the design is seen (pp. 76–79). It shows us the state of the upper marble relief at the Binden entrance and the marble mosaic in the front hall of the Binden, patterns of which are left in the UMUT collection, at the time of just after completion of the building. On the address face of the postcard, there is a commemorative stamp of the Imperial Diet Building completion with a commemorative stamp of the Tokyo Central Post Office. With the commemorative stamp of the Imperial Diet Building completion at the bottom of the same side, the following is written: “to commemorate the completion of the Imperial Diet Building, [Shōwa] 11, 11, 7, Tanaka Giichi.” Two kinds of designs were made for the commemorative stamp. The visitors were able to stamp freely at the temporary stamping stand of the Diet Building.





Extra plate

**Portrait of Tanaka Giichi, Masako and Reiko**

Photographed by Morikawa Photo Studio / Late 1930s / Gelatin silver print, mounted on cardboard / Photograph: H103, W136; Cardboard: H178, W223

Giichi's daughter Reiko in her very young age is seen in the photograph. It was taken around the completion of the Imperial Diet Building.

086



**Picture postcard of the *Imperial Diet Building***

From Tanaka Giichi to Tanaka Masako / November 11, 1936 / Gelatin silver print / Manufactured by G. T. Sun (Graphic Times Sun) / Pasted with a commemorative stamp of the Imperial Diet Building completion on the address face, impressed with a commemorative stamp of November 1936 on the communication field / H85, W139

This is a picture postcard of the exterior of the Imperial Diet Building that Giichi sent to his wife Masako four days after the completion of the building. On the address face of the postcard, a commemorative stamp which is different from another postcard sent to his family on the day of the completion ceremony (p. 85) is impressed. "GTSUN" printed on the upper left (the lower left where the address is vertical) shows that this postcard was manufactured by a photo company, Graphic Times Sun, which was run by photographer Yamahata Shōgyoku (1887–1963).

087





#### Box of commemorative goods for the Imperial Diet Building completion

Fujii Kōyū / November 1936 / Bronze / Manufactured by Matsuzakaya Co., Ltd. / Inscribed with “Kōyū” on the lid and “Commemorating the completion of the Imperial Diet Building, starting from June Taishō 7, finished in November Shōwa 11” on the bottom / Formerly owned by Tanaka Giichi / Bottom: H105, W180; Depth with lid: 52

A souvenir showing the front view of the exterior of the Diet Building on the surface of the lid. It was described in *Construction Report of the Imperial Diet Building* (1938) as one of the commemorative goods and was presented to invitees to the completion ceremony. Fujii Kōyū (1882–1958) was a sculptor who graduated from the Department of Sculpture at the Tokyo Fine Arts School in 1907. He was active in the Bunten exhibitions sponsored by the Ministry of Education and the Inten exhibitions organized by a group of artists, Nihon Bijutsuin. At the time he worked on this project, Fujii was a member of the Imperial Fine Arts Academy. Fujii received a request from the Bureau of Building and Repairs to produce the prototype, and under his command and supervision it was produced by Matsuzakaya Co., Ltd. The special product offered to the people related to the Imperial household has the same design, but the inside of the box is made of silver plate inlay finish. There is an opened pack of Seven Star Long Size cigarettes in the box which was owned by Giichi. It seems that he used it as a cigarette case.

088



#### Wooden sake cup of commemorative goods for the Imperial Diet Building completion

November 1936 / Vermilion lacquer and gold lacquer, guide, paulownia box / Manufactured by Kiya Lacquer Warehouse Shop / Written in gold lacquer on the bottom – “Commemoration of the Imperial Diet Building completion”; on the back of the cup – “November Shōwa 11” / Formerly owned by Tanaka Giichi / Cup: diameter 109, H35, diameter of the bottom 44; Box: H127, W127, D59

An official souvenir distributed to the people involved in the construction. It was described in *Construction Report of the Imperial Diet Building* (1938). There is a gold-lacquer decoration of a round flower with eight petals which has arabesque patterns around it. Kiya (Hayashi Kyūbee) is one of three famous Tokyo lacquerware shops on Nihonbashi Street. According to the guide included in the box, the shop was founded in 1573, and the introduction in English states that the shop is selling gold-lacquer artworks. It was evident that the shop had developed lacquerware sales channels both in Japan and abroad. The shop exported lacquerware overseas (to the United States) from 1895. It was prosperous enough to produce souvenirs for the completion of a major national project like the Diet Building, but the shop was closed about 10 years after the war.

089





#### Badge worn by an attendant of the completion ceremony of the Imperial Diet Building

November 1936 / Artificial flower, with ribbon / *Setsu* 説 character on the ribbon / Formerly owned by Tanaka Giichi / Total: L162; Flower: L100

Badges of the completion ceremony were made for attendees and for staff. They were differentiated by color-codes. In the photographs of *Construction Report of the Imperial Diet Building* (1938), although these colors cannot be determined, it was understood that all in attendance, ceremony participants and staff, were wearing a chrysanthemum badge like buttonhole. The staff badge which Giichi owned consists of a pink chrysanthemum and a white ribbon with greenish yellow rims. It indicates that the badge was for guides. The Japanese character, *setsu* 説 (explanation) written on the ribbon indicates that staff member Giichi served as a guide to explain the facilities on the day of the ceremony. The description “Commissioned technician Tanaka” is found under the section on guide staff of *Completion Ceremony Record of the Imperial Diet Building* (1937).



#### Commemorative train return ticket for the Imperial Diet Building completion

Published by Tokyo City Electrical Bureau / November 1936 / Printed on paper / Printed letters “Commemoration of the Imperial Diet Building completion ceremony” on the top / Formerly owned by Tanaka Giichi / H51, W58

It was described in *Completion Ceremony Record of the Imperial Diet Building* (1938) as a commemorative train ticket for the Imperial Diet Building completion issued by Tokyo City. The figure of the front entrance and the central tower of the newly-formed Diet Building is printed on the center. It had tear-off tickets for both the inward and outward journeys on the left and right. However, since it has already been used, both tear-off parts which are the end of the tails of two birds designed on both sides of the Diet Building on the center are cut off.

090



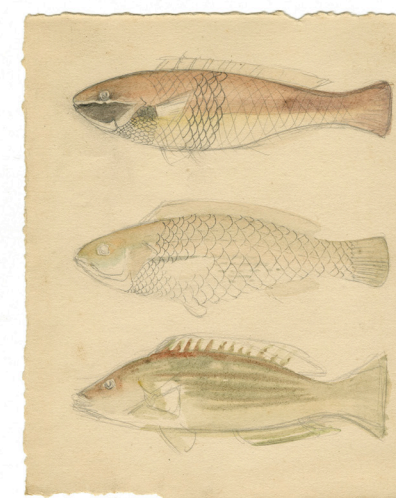
#### Relief showing the exterior of the Imperial Diet Building

Creator unknown / Early Shōwa Era / Plaster / Formerly owned by Tanaka Giichi / Long diameter 285, short diameter 147

A record as a commemorative souvenir or other productions is not found. The tower looks like a steel skeleton and a crane is seen on both sides of the tower. It is evident that the Diet Building depicted on the relief is in an incomplete state. The creator is unknown, and it may have been available only to a few stakeholders. The coloring may have been done by Giichi.

091





## Sketches

Tanaka Giichi / c. 1928 or 1931 / Pencil and watercolors on paper, wooden box / Signed in some sketches — “1928 G. Tanaka,” “1931 G. Tanaka” / Large sheet: long side 187, short side 149; Medium sheet: long side 160, short side 120; Small sheet: long side 52, short side 45; Box: H330, W220, D58

Giichi loved drawing from a young age. He studied painting under Somiya Ichinen (1893–1994) from his junior high school days, with an ambition to be a painter. In fact, although he worked on architecture and design, he continued to draw many sketches and paint watercolors throughout his life for a hobby as well as for a profession at survey locations. It is probably due to his genius that the outline of the patterns of the Imperial Diet Building’s interior design looks vivid (pp. 76–79). These sketches consisted of about 150 items and were contained in a wooden box. Since Giichi’s signature containing the year is found in some items, it seems that these sketches were drawn around the period when he was involved in the work on the Imperial Diet Building. Giichi drew precisely not only landscapes and domestic animals like cattle and pigs but also insects, birds, shells, and fishes. Scientific names are added on some of them. Giichi’s interest in natural history can be appreciated through these sketches.





Sketches





## Views of the exhibition











# Tanaka Collection

UMUT

The Tanaka Collection includes materials from Giichi (1902–1985), Fuji (1877–1922) and Rintarō (1856–1924), consisting of documents, photographs, commodities and books related to the Tanakas. The collection covers various fields, not only of engineering but also of history and arts. The number of the collection is approximately a thousand items. It is particularly precious when discussing the history of engineering and cultural history in modern Japan. The Tanaka family goes back to Tanaka Hisashige (Giemon) the First (1799–1881) who was an inventor active between the later years of the Edo Period and into the Meiji Era. With neighboring engineering groups, it contributed to the development of modern engineering in Japan.





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[Student Volunteers at Koishikawa Annex in 2016]

Kakinaka Kenji, Ota Moeko, Sakaguchi Mai, Sugimoto Nagisa, Takahashi Ayaka, Tonegawa Kaori, Yonemura Miki, Yonemura Yuki and Yoshida Atsunori







● Appendix



## Past exhibitions of the Tanaka Collection

### Permanent Exhibition *Made in UMUT: The University of Tokyo Collection* “The Stylishness of Imperial Crafts: From the Tanaka Collection”

[Date] August 5, 2013 –

[Venue] Intermediatheque 2F [COLONNADE3]



### Experimental Performance *Play IMT (3): On the Possibilities of Theatrical Creation Within the Intermediatheque*

#### Unit of Drawers “Family Photographs with Love”

\*Family photographs related to Tanaka Fuji were exhibited on the occasion of the theatrical performance in the gallery.

[Date] August 18, 2015

[Venue] Intermediatheque 2F [COLONNADE2]



Intermediatheque Natural History Series <1>

Special Exhibition *The Golden Age of Botanical Art: Flowers from the Collections of the Royal Botanic Gardens, Kew*

\*A postcard album and guide books of Royal Botanic Gardens, Kew which were collected by Tanaka Fuji were exhibited as related objects of the exhibition.

[Dates] September 16 – December 3, 2017

[Venue] Intermediatheque 2F [BIS]



## Events related to the Tanaka Collection

### Gallery Talk 10

[Date and Time] 12:30–13:00, Saturday, February 25, 2017

[Venue] Koishikawa Annex

[Guide] Kakinaka Kenji (Student volunteer)

### Gallery Talk 11 “Pio-engineers in Modern Japan: Rintarō, Fuji and Giichi, Three Generations of Tanakas”

[Date and Time] 12:30–13:00, Saturday, June 3, 2017

[Venue] Koishikawa Annex

[Guide] Terada Ayumi (Affiliate Associate Professor, UMUT)

### Talk Event *Sense of Wonder* “The Tanaka Family and Pio-engineers: The Work of Rintarō and Fuji”

[Date and Time] 12:20–13:20, Thursday, October 12, 2017

[Venue] Libraries for Engineering and Information Science & Technology (Engineering Bldg. 2 Library)

[Lecturer] Terada Ayumi (Affiliate Associate Professor, UMUT)

[Organizer] School of Engineering and Graduate School of Information Science and Technology, University of Tokyo

### Symposium *Pio-engineers in Modern Japan*

[Date and Time] 14:00–17:00, Saturday, November 17, 2018

[Venue] Intermediatheque 2F [ACADEMIA]

[Admission] Free (no reservation required)

[Organizer] The University Museum, the University of Tokyo (UMUT)

[Grant Support] Toshiba International Foundation

[Program]

Lectures (Part 1)

Terada Ayumi (University Museum, University of Tokyo / Museology and Cultural Policy Studies)

*Introduction: The work of three generations of the Tanaka family, Rintarō, Fuji, and Giichi.*

Miles Oglethorpe (Historic Environment Scotland / Industrial Heritage)

*Scotland's links with the emergence of Modern Japan: The case of Watanabe Kaichi.*

Ariga Nobumichi (National Museum of Nature and Science / History of Physical and Mathematical Sciences)

*W. E. Ayrton and Natural Philosophy at the Imperial College of Engineering in Tokyo.*

Yulia Frumer (Johns Hopkins University / History of Science and Technology)

*Yamaguchi Kisaburō's studies at Johns Hopkins.*

Matsumoto Fumio (University Museum, University of Tokyo / Architecture)

*Josiah Conder and the first Japanese architects.*

Discussion and Q&A (Part 2)



## Introduction of Koishikawa Annex

### Overview

The Koishikawa Annex of the University Museum, the University of Tokyo is a museum facility that makes use of the architecture of the main building of the former Tokyo Medical School, which is designated as an Important Cultural Property. Since its opening in 2001, the museum has used the academic specimens that had accumulated in the university to hold various events including permanent exhibitions and special exhibitions. In December 2013, it was reborn as an architectural museum. The museum building is the oldest extant school building at the University of Tokyo, and the structure itself is a valuable example of pseudo Western-style architecture from the early Meiji Era.

The *Architectonica* permanent exhibition is now available to the public within this extraordinary architectural space. The intention of the exhibition is to expand the concept of architecture through the use of academic resources. From the world of miniaturized models to that of life-sized spaces around the body, and from the world of modeled architectural materials to that of collected ethnological materials, the Koishikawa Annex embraces the varied worlds that exist within the concept of architecture. Our aim is to organize the principles that structure objects and integrate various phenomena under the umbrella term of “architecture,” and to use this higher-order perspective to tie together the natural and artificial, as well as science and



art, within the walls of our institution. The actual exhibits are divided into six themes: architectural models, the historical buildings of the University of Tokyo, the diversity of natural forms, spatial specimens, world architecture, and body space. We hope that for those who seek architecture of all the universe, this museum will evoke the creation of new ideas and forms.

### Exhibits

#### The main building of the former Tokyo Medical School (Designated Important Cultural Property)

The Koishikawa Annex is the oldest extant school building at the University of Tokyo and is a valuable historical example of the pseudo Western-style architecture of the early Meiji Era. The main building of the former Tokyo Medical School, which later became the Koishikawa Annex, was built on the Hongō Campus by the Bureau of Building and Repairs of the Ministry of Public Works in 1876. In 1877, the Tokyo Kaisei School and the Tokyo Medical School merged to create the University of Tokyo. Accordingly, the main building became a core facility for the department of medicine. As part of the reorganization of the university hospital, the front half of the building was transported to a location adjacent to the Akamon Gate, and the building was occupied by the Historiographical Institute.

The plans for the transfer and reassembly were drawn up by Yamaguchi Kōkichi, an engineer at Tokyo Imperial University. In addition to reducing the scale of the building, his redesign, which included a tower, window frames, handrails, and other elements, gave the building its current appearance. It was dismantled in Hongō in 1965, and in 1969, it was reassembled at its present location in the botanical garden operated by the Graduate School of Science, University of Tokyo, in Koishikawa. The building was designated as an Important Cultural Property in 1970, and has been open to the public as the Koishikawa Annex of the University Museum since November 2001. Although the building was transported and renovated several times, parts of the original design can still be seen in its mix of Western, Chinese, and Japanese styles. This blend of tradition and modernity is especially noticeable in aspects of the building such as its classical proportions, central tower and portico, Wagoya structure, restored entablature, Giboshi balustrade, air-conditioned core, and the modern detailing on the handrails on the staircase.

### Architectural models

The steel display cases, which originally belonged to the specimen room of the Faculty of Medicine and date back to the early Showa Era, house miniature models of world-famous architectural structures. The architectural models were originally created for the special exhibition *UMUT Openlab: A Museum City of Architectural Models* in 2008/2009, and the collection has since been expanded. The first group consists of models of modern museum buildings. The collection of 1:300 scale models includes buildings constructed in the prototypical museum style, which is based on the classical aesthetic, those designed using the versatile style made

famous by White Cube, and more individualistic contemporary museums. The second group consists of a range of non-museum structures spanning the ancient to modern eras. These include contemporary structures famous both nationally and internationally that range in type from residential buildings to public facilities. The models are built to various scales including 1:50, 1:100, and 1:300, according to the size of the modeled building, with each display case including models of only a single scale for ease of comparison.



### Historic buildings of the University of Tokyo

The display includes historic school buildings constructed on the Hongō Campus in the Meiji and Taishō Eras. These include the Legal Medicine Department Building of the Faculty of Medicine at Tokyo Imperial University, the Autopsy Room of the Department of Legal Medicine of the Faculty of Medicine, the Naval Architecture, Weaponry, and Civil Engineering Department Building of the Faculty of Engineering at Tokyo Imperial University, the Zoology, Geology, and Mineralogy Department Building of the Faculty of Science at Tokyo Imperial University, the Main Building of the former Tokyo Medical School, and the Lecture Hall of the Faculty of Law at Tokyo Imperial University. Of these, all of the buildings except for the Main Building of the former Tokyo

Medical School (currently the Koishikawa Annex) collapsed during the Great Kantō Earthquake of 1923, and no longer exist. These elaborate 1:100 scale wooden models were produced by the late Giovanni Sacchi, renowned as the best woodworker in Italy, and his workshop. They are based on architectural drawings kept in the Headquarters Facilities Department. These works form part of the legacy of Mr. Sacchi, who was regarded as the foremost inheritor of Italy's long tradition, dating back to the Renaissance Period, of wooden model building.



#### Body space (Ger)

The body space exhibit rooms containing ethnographic specimens focus on actual components used in movable ethnic architecture. These life-sized spaces that surround the body serve to help visitors become more aware of the relationship between our bodies and the architectural space we inhabit. Gers (collapsible shelters) from Inner Mongolia are designed to meet the needs of a nomadic lifestyle, and can be easily dismantled and reassembled once you learn the technique. The constant movement of the nomadic life would seem, at first glance, to contradict the ideas of well-grounded architectural structures, yet if we accept that the mobility of structures and the minimal use of materials are important challenges in modern architecture, there may be many things that the

nomadic view of architecture can teach us.



#### Diverse natural forms

This exhibit draws from the diverse academic fields of zoology, botany, mineralogy, and mathematics to display real and model objects that make up a kind of “natural architecture.” For this exhibit, the selection includes crystal models manufactured by the Krantz Company in Germany, molluscs including specimens of the Pacific sundial (*Architectonica trochlearis* [Hinds, 1844]), and assorted mathematical models including of polyhedra, spirals, knots, and tori. These specimens show the beauty of various forms and provide plenty of hints for good architectural design.



#### Spatial specimens

This exhibit features architectural models that are especially large or have distinctive

interior spaces. These include the Basilica of Sant'Andrea (Leon Battista Alberti), known for its elaborate facades and imposing interior spaces, the Pureland Hall of Jyōdoji Temple (Shunjōbō Chōgen), a leading example of Daibutsuyō architecture, the Fallingwater House (Frank Lloyd Wright), which was built on a mountain stream, the Villa Almerico-Capra (Andrea Palladio), which sought to achieve perfect symmetry, the Notre Dame du Raincy (Auguste Perret), which successfully created a Gothic space out of concrete, the Hedmark Museum (Sverre Fehn), in which a new structure was superimposed on historical ruins, and the Hagia Sophia of Istanbul, which represents the pinnacle of the great Byzantine domes. In addition, steel window frames from the former Tokyo Central Post Office were used to construct the legs of the display case.



#### Body space (Canoe)

The body space exhibit rooms containing ethnographic specimens focus on actual components used in movable ethnic architecture. These life-sized spaces that surround the body serve to help visitors become more aware of the relationship between our bodies and the architectural space we inhabit. A canoe used by the Yami people of Taiwan, shown here together with three sets of oars, can be thought of as an example of water-borne architecture. The

exhibition case contains various objects that come in contact with the body, including those from the periphery to the exterior of architectural structures.



#### Photographs of the University of Tokyo campus

The photographs arranged in various places in the hall are a subset of one of the main collections at the Koishikawa Annex. These were selected from among 3,282 glass photographic plates housed in the former warehouse of Tokyo Imperial University, and depict the construction of the University of Tokyo. The photographs were taken under the direction of architect Uchida Yoshikazu (1885–1972) who, as professor in the Faculty of Engineering, oversaw the rebuilding of the university after the Great Kantō Earthquake, and later became president of the University of Tokyo.



Koishikawa Annex Special Exhibition Catalog

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