

# Botanical Art and Horticulture

—From the Collection at Chiba University Matsudo Library—



Chiba University's Matsudo Library houses old horticulture-related books in Japanese, Chinese and various European languages. Some of the books are available to view as part of the "horticulture book collection on Edo-Meiji era" on the Chiba University Academic Resource Collections website (<https://alc.chiba-u.jp/c-arc/engeisho.shtml>). Additionally, numerous botanical watercolors are kept in the storeroom for valuable books. Centering around botanical illustrations from these collections and open-shelf books, this pamphlet introduces the changes in Japan's horticulture from the Edo period to modern times and the education at Chiba University.

## Chapter 1 Tradition of Botanical Art in Japan —Design and Sketch—

Both the Kano School, which was supported by the Tokugawa shogunate, and the Rinpa School, which emerged among the merchant class, had their own distinctive design styles. Both schools often used plants as their motifs. Disciples generally copied their master's paintings, however, Kano, Tanyu and Sakai, Hoitsu as leaders of the respective schools created true-to-life accurate sketches of plants, regardless of their positions. And so did Katsushika, Hokusai and Utagawa, Hiroshige as ukiyo-e painters. The works on display allow you to appreciate the beauty of plants depicted by these great Edo period painters.

**Soumokuka Shasei** (Sketch of plants)  
Kano, Tanyu (1602–1674). Original in collection of Tokyo National Museum. By Nakamura, Tanio and Kitamura, Shiro. Published in 1977.  
For the Kano school, the basics of drawing were copying masters' rough sketches called "funpon". However, Kano, Tanyu who established the Edo Kano school created many sketches copied from life. *Soumokuka Shasei* is a collection of his plant sketches.



Aster iinumae (upper), etc.



Tomato (upper), which came to Japan for ornamental purposes during the Edo period, and Pomegranate (lower)



Camellia japonica horticultural varieties

**Tsukiyomomo to tsubame**  
(Peach tree and swallows on a moonlit night)

Utagawa, Hiroshige (1797–1858)  
Hiroshige, known for landscape ukiyo-e including *Tokaido Gojusantsugi*, left many paintings of flowers and birds. His realism-based dynamic depiction of birds is distinctive. This print in the *tanzaku* is inspired by a poem by the Chinese poet, Wang Wei.



**Shirayuri** (White lily)

Katsushika, Hokusai (1760–1849)

Generally, ukiyo-e are said to have few realistic elements. Meanwhile, Hokusai, who is known for innovative compositions such as those of *Fugaku Sanjurokkei* (Thirty-six View of Mount Fuji), had created numerous sketches from life since his teenage years. He left behind prints of flowers and birds. This painting seems to be depicting *Lilium japonicum*.



## Chapter 2 Botanical Art and Herbal Medicine outside Japan

Botany in Japan during the Edo period started with herbal medicine and agronomy, using textbooks written during the Ming dynasty, Compendium of Materia Medica and Treatises on Natural Beauties, neither of which contain many plant illustrations. In Europe, the compilation of herbals started as the Renaissance began. Both *Herbarum Vivae Eicones* written by Otto Brunfels in 1530 and *De Historia Stipium* authored by Leonhart Fuchs in 1542 included accurate woodprints of plants. In the late 16th century, metal plates were put into use to print herbals, and horticulture reached new heights of prosperity. In 1735 Carl Linnaeus wrote *Systema Naturae*, for which Georg Dionysius Ehret, a successful botanical artist at the time, drew the famous illustrations of the sexual system of plants. Josephine, the wife of Napoleon who became the Emperor of France after the French Revolution, supported modern rose breeding and commissioned Pierre-Joseph Redoute to draw the results, leading to the creation of *Les Roses* (1817–1824) that is renowned as a masterpiece among botanical art books.

### *Honzo Komoku* (Compendium of Materia Medica)

Li Shizhen (1518–1593). Published in 1596. 52 volumes in total.

This classic practical guide to herbal medicine written during the Ming dynasty in China was valued as the main medical text in Japan until the end of the Edo period. The descriptions are mainly text, with a small number of simple illustrations.



Table of contents of volume 17 in the part on herbs

Illustrations of *Ipomoea nil* (black seed), *I. nil* (white seed), *Calystegia japonica*, *Campsis grandiflora*, *Rosa multiflora*, *Rosa chinensis*, *Trichosanthes kirilowii*, and *Trichosanthes cucumeroides* (from upper right)

### *Les Roses*

Pierre-Joseph Redoute (1759–1840). Published in 1817–1824. 4 volumes in total.

Napoleon's wife, Empress Josephine, collected nearly 300 rose varieties, from in and outside France, at Malmaison and supported breeding of many varieties. *Les Roses* is the culmination of the work and a botanical art book masterpiece.



*Rosa indica vulgaris*: Known as Parson's Pink China. Brought to Britain from China in the late 18th century and contributed to the perpetual flower trait.



*Rosa gallica officinalis*: Known as the French Rose or Rose of Provins



*Rosa Xcentifolia*: Known as the Cabbage Rose

## Chapter 3 Botanical Art, Horticulture and Herbal Medicine Books in Edo –Beginning–

During the Edo period, Tokugawa shoguns had a great love of flowers, particularly camellia. In 1630, Anrakuan, Sakuden compiled *Hyakuchinshu*, which literally describes one-hundred camellia cultivars he had raised. *Chinkazufu*, a pictorial book of camellia flowers written by an unknown author presumably in 1673 or later, in the collection of the Imperial Household Agency contains colorful and meticulous illustrations of 618 cultivars. In 1681, the first horticulture book in Japan entitled *Kadankoumoku* was published to describe the properties and cultivation method of 184 species and cultivars of flowers and ornamental plants. Ito, Ihee III, a gardener from Somei in the suburbs of Edo, authored *Kinshumakura*, describing 334 cultivars of azalea and satsuki, in 1692 and *Kadanjikinsho*, covering 394 varieties of flowers and ornamental plants, in 1695. In 1692, Kaibara, Ekken, a doctor serving the Kuroda clan, published *Kafu*, explaining 197 varieties of flowers and ornamental plants based on quotes and his own experience. From that point on, a series of horticulture books were published. Horticulture books from those days do not have beautiful pictures but simple illustrations.

### *Chinkazufu* (Art Book of Camellia)

Author and year of publication unknown. Original in collection of Imperial House Library, Imperial Household Agency.

This illustrated book by an unknown author was supposedly created during the Genroku era of the Edo period. Its existence has historically been rumored but was not confirmed until the Showa period. This book lists 618 camellia cultivars with vividly drawn flower illustrations and no explanatory text.



The upper is entitled "Kokumoku." The lower "Myorenji" is in fact different from the cultivar that is called *Myorenji* today.



The upper variety is called "Nankin," characterized by a large double flower. The lower is "Sazanka-tsubaki."



The upper is "Amagashita" with distinctive spotted petals. The lower is "Honinbou" with a beautiful contrast between red and white.

### *Kadankoumoku* (Concept and Details of Flower-Garden)

Mizuno, Motokatsu (details unknown).

This book is Japan's first horticultural technique book for flowers and ornamental plants, providing a comprehensive explanation of planting techniques in the early Edo period. It provides simple descriptions of the properties and cultivation method for flowers and ornamental plants of more than 180 species with some illustrations.



Cover of the book

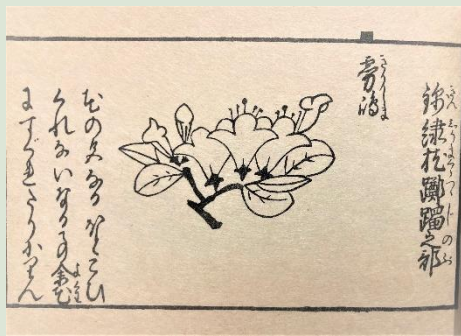


Illustration of a fragrant Japanese apricot in spring breeze

## Kinshumakura (Brocade Pillow)

Ito, Ihee **III** (year of birth unknown–1719). Published in 1692. 5 volumes in total.

Authored by the well-versed gardener in the cultivation of azalea, providing illustrations of 334 cultivars of azalea and satsuki, together with detailed explanations of the form of the flower and the cultivation method.



“Kirishima” azalea characterized by red petals



“Hanaguruma” azalea characterized by elongated petals



“Seigaiha” azalea with linear leaves and petals

## Chapter 4 Botanical Art and Horticulture Books in Edo

—Integrating Illustrations and Text—

In 1699, Ito, Ihee **IV** published *Kusabanae zenshu*, containing accurate drawings of 119 species of plants and flowers left by his father, Ihee **III** also created *Kokasen kaedeshu*, compiling color illustrations of leaves of 36 maple varieties that he collected, together with explanation of the classic waka poems from which their names were derived, in 1710 and included them in *Zoho Jikinsho* that he later published in 1719. On display in this pamphlet to represent horticulture books containing beautiful botanical illustrations published in those days are: *Ehon noyamagusa*, which served as a model for painters to copy; Somoku kinyoshu, a collection of illustrations of spotted plants; *Matsubaranfu*, a collection of rare *Psilotum nudum*; *Kasho baiyouroku soko* on cultivation of *Iris ensata* var. *ensata* by Matsudaira, Sadatomo, also known as “*Sho-o*”; and *Santo iccho*, a collection of morning glory variants.

### *Kokasen Kaedeshu* (Collection of Maple with Old Poets)

Ito, Ihee **IV** (1676–1757).  
Published in 1710.

Written by Ito, Ihee **IV**, this pictorial book provides real-size color illustrations of maple leaves of 36 species and cultivars, each with the name, characteristics and the old waka poem from which the name is derived.



Right: “*Tamukeyama*” (*waka* by Sugawara, Michizane)  
Left: “*Meigetsu*” (*waka* by Prince Nakatsukasakyo, Tomohira)



“*Akachi no nishiki*” (*waka* by retired Emperor Go-Shirakawa)



“*Ogurayama*” (*waka* by Fujiwara, Teika)

### *Ehon Noyamagusa* (Picture Book of Wild Plants)

Tachibana, Yasukuni (1715–1792). Published in 1755. 5 volumes in total.

This botanical pictorial book was authored by a Kano school painter active in Osaka during the mid-Edo period. His colorful line-drawings of plants accurately depict the characteristics of the plants.



“*Botan bara*” rose characterized by the peony-shape flower



*Paeonia lactiflora*



*Rohdea japonica* cultivar called “*Nagashima*” brought by Shogun Tokugawa, Ieyasu to Edo Castle.



Variegated *Iris laevigata* and *Typha latifolia*



Illustrations of variegated rose and ginkgo

### *Soumoku Kinyoshu* (Variegated Leaves of Plants)

Mizuno, Tadaaki (1767–1834). Published in 1829. 7 volumes in total

This book is one of the rarest books in the world. The author explains the characteristics, peculiarities and cultivation methods of the plants in his collection to accompany illustrations drawn by a painter.

*Matsubaranfu*  
(Pictorial Book of Whisk Fern)

Choseisha-shujin (1794–1870). Published in 1836. This is a specialized book on *Psilotum nudum*, which became popular during the mid-Edo period and many variants of which were created and traded at high prices in the late Edo period. It contains color illustrations of 60 cultivars and descriptions of 122 cultivars.



"Fujiyuki" is an old cultivar of simple shape with thin variegated stalks.

*Kasho Baiyouroku Soko* (Draft, Record of Cultivating Irises)

Matsudaira, Sadatomo (1773–1856). Published in 1853.

This book contains 22 illustration pages of flower of iris, 1 page of leaves and text pages of two waka poems and cultivation methods. The author was called "Sho-o" (venerable sage of iris), and dramatically developed the shape of the flower of *Iris ensata* var. *ensata*.



"Oozora" is one of the historically precious cultivars of the Edo-line iris.



"Hououyanagi" has a bold stalk and pendulous twigs like weeping willow.



"Orizuru" features a thin stalk growing tall and branches studded with fasciation so that the ends of the branches look like origami cranes.



"Sennyu-no-hora" features stylish curvy contours of the petals. Sho-o loved the undulating look called "kuru".



"Kosho" has been kept to date at the Meiji Jingu shrine.

*Santo Iccho* (Three Cities, One Morning)

Naritaya, Tomejiro (1811–1891). Published in 1854. 3 volumes in total.

This pictorial book of morning glory was compiled by Naritaya, Tomejiro, a morning glory specialist from Iriya. The book contains 88 color illustrations of flowers from Edo, Kyoto and Osaka. It introduces new variations of various shapes, colors and patterns, including "botan zaki" (peony-like flower), "shishi zaki" (lion-like flower), "kuruma zaki" (windmill-like flower) and "furin zaki" (wind bell-like flower).



"Kakiro" (persimmon colored) hakemeshibori (white lines in dark color) kuruma botanzaki" bred by the author



Variegated "botan zaki" with "nantenyo" (deeply lobed leaf) (right) and with "yatsudeyo" (palmately lobed leaf) (left)

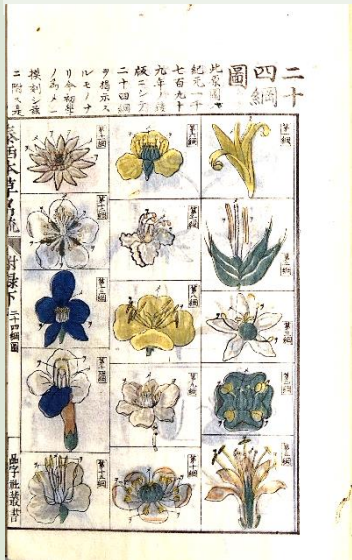


Sporting morning glory with persimmon-colored petal and purple petal

The key non-Japanese naturalists who introduced Japanese plants at the end of the Edo period to Europe were Engelbert Kaempfer, Carl Peter Thunberg and Philipp Franz von Siebold. Matsudo Library houses their books, and this pamphlet shows Thunberg's drawing of Japanese plants. Ito, Keisuke from Owari (today's Aichi Prefecture) visited Nagasaki and saw Siebold, who gave him Thunberg's *Flora Japonica*. Ito translated the book into Japanese and published it as "*Taisei Honzou Meiso*" in 1829. As Thunberg was a leading disciple of Linnaeus, the book was the first systematic introduction of modern Western botany to Japan. Meanwhile, in herbal medicine, Kaibara, Ekken had compiled *Yamato Honzo* based on Compendium of Materia Medica. By enhancing *Yamato Honzo*, Iwasaki, Kan-en completed *Honzo Zufu*, a pictorial book containing many sketches he had drawn, in 1828. Publication of the book started in 1830 and, after his death, was taken over to complete the publication of a total of 96 volumes in 1844.

*Taisei Honzou Meiso* (Notes on European Plant Name)

Ito, Keisuke (1803–1901). Published in 1829. Ito was a member of *Shouhyakusha*, a study group in Nagoya that first focused on herbal medicine and later developed to cover Western studies. He learned botany from Siebold, who gave him Thunberg's *Flora Japonica* in Nagasaki. He translated it to contribute to the introduction of modern botany to Japan. He later became a professor at the Imperial University of Tokyo.



Linnaeus' 24 classes



Portrait of Thunberg

*Honzo Zufu* (Illustrated Flora of Medicinal Plants)

Iwasaki, Kan-en (1786–1842). Published in 1830–1844. 96 volumes in total. Iwasaki was a herbalist during the Edo period. Skilled at plant cultivation and talented at drawing, he completed the first illustrated flora for herbal medicine containing more than 2,000 accurate color illustrations.



*Rosa multiflora*



*Rosa chinensis*

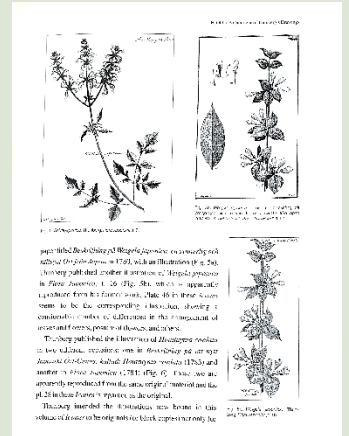


*Raphanus sativus var. hortensis*

Thunberg's Drawings of Japanese Plants: *Icones Plantarum Japonicarum Thunbergii*

Carl Peter Thunberg (1743–1866); Edited by Y. Kimura and V.P. Leonov. Published in 1994.

Thunberg was a Swedish naturalist and a disciple of Linnaeus. He stayed in Japan for one year during the period of national isolation as a surgeon of the trading post at Dejima. After returning to his home country, he compiled *Flora Japonica*. The book on display is the collection of botanical art left by Thunberg.



*Weigela japonica* in his paper (*Weigela japonica* in his paper (upper right) and *Flora Japonica* (lower right) were revised from the illustration of *Weigela japonica* below.



*Weigela japonica* (left) and *Weigela coraeensis* (right)

# Chapter 6 Rise of Botanical Art and Horticulture during Meiji and Taisho

In the early Meiji period, Japanese translations of many Western horticulture books were published. With the publication of *Shokubutsugaku Zasshi* (Journal of Plant Research) in 1887 and *Nihon Engeikai Zasshi* (Journal of the Japanese Horticultural Society) in 1889, modern botany and horticulture in Japan began. A major player in those days was Makino, Tomitaro who taught botany at an early-day horticultural school. Photography was not in widespread use in those times so sketches were needed for description in botany and horticulture. Using his talent for both drawing and writing, Makino contributed many articles to these journals. In 1916, he led the publication of *Shokubutsu Kenkyu Zasshi* (The Journal of Japanese Botany). In the private sector, plants became important export items during the Meiji period. For that purpose, beautiful pictorial books of plants were published.

*Saishoku Shasei Yushutsu Yurikashu* (Color Sketches of Export Lily Flowers)  
Ikeda, Jirokichi (1863–year of death unknown). Published in 1895.  
Ikeda was an employee of *Gakunosha* established by Tsuda, Sen, and later became the representative of *Waseda Noen*. *Gakunosha* was a society formed to spread modern agriculture and Western seeds and seedlings. Lily bulbs were a major export commodity of Japan during the Meiji period.



*Lilium japonicum*

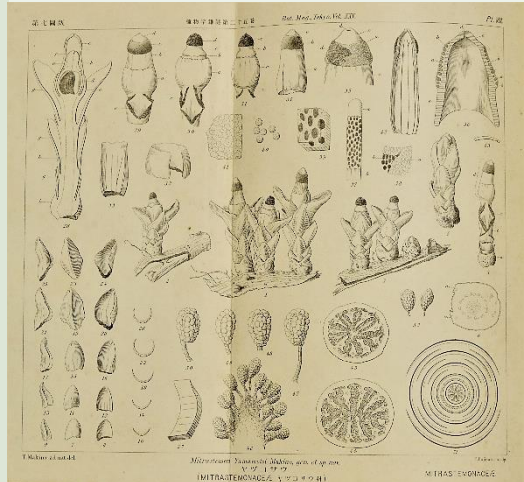


*Lilium longiflorum* (right) and *Lilium concolor f. coridion* (left)



*Lilium speciosum var. rubrum* (right) and *Fritillaria camtschatcensis* (left)

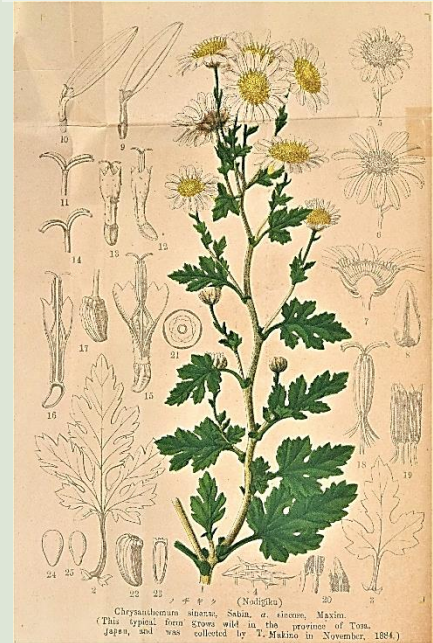
**Journal of Plant Research**  
The Botanical Society of Japan. First published in 1887.  
The first issue was published by Yatabe, Ryokichi and other members of the Botanical Institute at the University of Tokyo. Makino, Tomitaro contributed the leading article on Japanese Potamogeton. In volume 3, he coauthored with Okubo, Saburo the first-in-Japan paper on a new species in English.



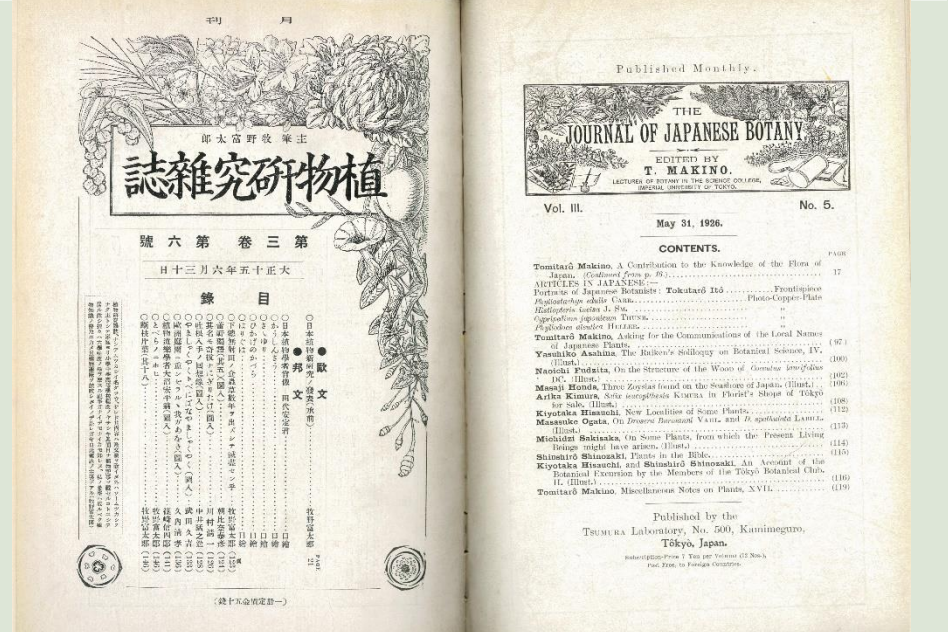
*Mitrastemon yamamotoi*: Illustration drawn by Makino to describe a new species in vol. 25 no. 299

**Journal of the Japanese Horticultural Society**  
The Japanese Horticultural Society. First published in 1889.  
The Japanese Horticultural Society was an organization established in 1889 by Yoshida, Susumu as an officer of the Ministry of Finance, Tanaka, Yoshio, a member of the delegation to the International Exposition of 1867 at Paris, and Tashiro, Antei, who was working for the Museum Bureau of the Home Ministry, in order to introduce and spread modern Western horticulture.

**The Journal of Japanese Botany**  
Makino, Tomitaro (1862–1957). First published in 1916  
This magazine was published by Makino as the chief editor, the writer and the publisher. The front and back covers of each issue carried gorgeous decorative illustrations of plants, such as chrysanthemum, azalea and cherry together with a botanical case and specimen, which imply Makino's talent for drawing and enthusiasm for plants.



*Chrysanthemum japonense*: Found and named by Makino. The illustration was contained in no. 23.



Decorative illustrations on the back cover of vol. 3 no. 5 (right) and the front cover of vol. 3 no. 6 (left)

## Chapter 7 The Education of Botanical Drawing at College of Horticulture

Tanaka, Torazo, who was born in Ehime Prefecture, showed his paintings at exhibitions of *Hakubakai*, a painters association led by Kuroda, Seiki, even when he was still a student at *Meiji Bijutsu Gakko* and Tokyo Academy of Fine Arts. After graduation, he taught at Wakayama Prefectural Tanabe Junior High School and then worked for the Botanical Institute at the Science College of the Imperial University of Tokyo. In 1914 he took a post at Chiba College of Horticulture, for which he worked until 1942. During that period, he was in charge of the education of drawing and taught many students while creating many paintings using the campus, including the college's lecture hall, as the subject. This pamphlet shows his watercolors of azalea, cherry, peony and so on, as well as botanical drawing by his students.

### Chronological biography of Tanaka, Torazo

- 1878 Born in Uwajima, Ehime Prefecture, as the second son of Bunji and Masa.
- 1885 The Tanaka family moved to Osaka.
- 1894 Torazo learned Western-style painting from Yamanouchi, Gusen. Got acquainted with Akamatsu, Rinsaku who became Torazo's lifelong friend.
- 1895 Entered *Meiji Bijutsu Gakko*.
- 1896 Graduated from *Meiji Bijutsu Gakko* (painting department). Entered Department of Western Painting of newly established Tokyo Academy of Fine Arts.
- 1898 Started to exhibit his work at *Hakubakai's* exhibitions (until 1910).
- 1899 Graduated from Tokyo Academy of Fine Arts and enrolled in the graduate course.
- 1901 Took a post in charge of drawing education at Wakayama Prefectural Tanabe Junior High School.
- 1903 Exhibited his work at the Fifth National Industrial Exhibition.
- 1906 Resigned from the post at Tanabe Junior High School.
- 1908 Employed by Botanical Institute, Science College, Imperial University of Tokyo.
- 1913 Organized *Gokokai* with his friends and held Gokokai Western Painting Exhibition and exhibited his work.
- 1914 Resigned from the post at Botanical Institute, Science College, Imperial University of Tokyo. Took a post as an assistant teacher in charge of drawing at Chiba College of Horticulture.
- 1917 Became an associate professor with the establishment of the imperial ordinance on public school employees.
- 1925 Concurrently took a post at Matsudo Women's High School (currently, Chiba Prefectural Matsudo High School) (until 1930).
- 1929 Resigned from the post of associate professor at Chiba College of Horticulture. Asked to be a lecturer of the college.
- 1938 Held a Western-style painting exhibition entitled "Sea and Ships" (until 1942).
- 1939 Started to exhibit his work at Marine Art Exhibition (until 1944).
- 1942 Resigned from the post at Chiba College of Horticulture.
- 1945 Held a solo exhibition (which continued to be held annually).
- 1961 Died at the age of 83.



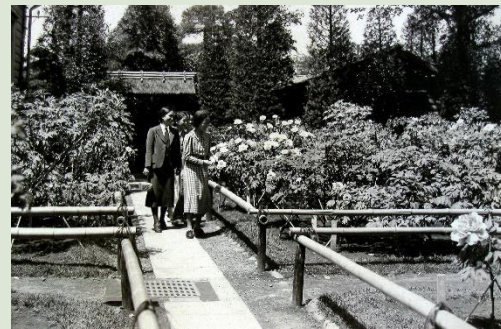
### A graduate's memories of Tanaka, Torazo

"Kase, Toshio (graduated in 1937) remembers that around 1935 the art room was relocated from the lecture hall to the old dormitory, where a window was created on the ceiling for lighting. All students in the first year took the art class in which they did drawing using 4B pencils and watercolor painting. In the third year, only students who majored in landscape architecture took the art class in which they did the charcoal sketch of a plaster statue or of a student model, watercolors, reproduction and so on. Tanaka did not provide much explanation but let students draw freely and occasionally retouched their works. Tanaka bought large sheets of Whatman paper, with which students reproduced classic European paintings using watercolors. Tanaka first let students choose paintings that they wished to reproduce from the many art books and pictures at hand, and then guided them to reproduce other paintings if what they chose were not worth learning. He was an outspoken critic but not out of malice, so all the students liked him. He was enthusiastic and taught carefully."

(Tanaka, Noriko. The life and works of Tanaka, Torazo, in "Tanaka, Torazo: Hakubakai Painter Who Rooted Himself in Matsudo", 1995.)



# Views at College of Horticulture



The campus of College of Horticulture, where Tanaka and his students drew many plants, was full of flowers and plants. The upper left shows the Azalea garden and greenhouses, where Building B stands now. The upper middle is the flower garden and rose arbor, situated in today's experimental field. The upper right is the Peony garden and visitors at the place of the current Building E.

The lower left is Tanaka, Torazo's painting of the college lecture hall (ca. 1920s), where Building A stands today. The lower middle is the plan view of the college campus, drawn by Yuasa, Shiro (ca. 1917). The lower right is a bird's-eye view of the college campus, drawn by Mori, Kannosuke (in 1928).



## Horticultural plant database: Flower Pigment Library

Plant molecular science is a research area that aims to analyze various metabolites in plants, and clarify the functions of genes and proteins related to their synthesis and accumulation at the molecular level.

Plants cannot move freely so that they have developed unique ability for environmental adaptation, which is different from that of animals. It is also known that plants produce "phytochemicals" that are plant-specific metabolites to protect themselves from infection by microbes or insects as well as the severe environments. With a focus on familiar plants and diverse horticultural cultivars, the Faculty of Horticulture conducts research to find their characteristic metabolites and functions, and develop new highly functional plants by using the knowledge and expertise gained. In conjunction with the opening of the Academic Link Matsudo, we prepared and released the Flower Pigment Library, a database of diverse pigments of flowers. It allows you to freely browse information about pigments, as well as enzymes and genes related to their synthesis, of representative varieties, primarily *Dahlia* and *Delphinium* that are well studied in the Faculty of Horticulture.

You can search for the pigment information based on the color of the flower (photograph) or name of cultivar, or display a cultivar that contains specific pigments and their biosynthetic pathway from the pigment list. We will continue enhancing this database to make it convenient and useful not only for students and researchers in the plant science field but also for people in the horticultural industry and everyone who is interested in horticulture and flowers.

This database is also available on the following URL (<https://www.cu-hort.com/plant/index.html>).



Top page of the Flower Pigment Library



You can search for flowers from colors.



You can search for the pigment of a flower based on the name of the cultivar.