

THE DEVELOPMENT OF JAPANESE
BOTANICAL INTEREST AND
DODONÆUS' ROLE:
FROM PHARMACOPOEIA TO BOTANY
AND HORTICULTURE

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徳川時代
蘭学

本草学者

松平定信

Dodonæus' *Cruydt-Boeck*, in particular in its Dutch editions of 1618 and 1644, was one of the great Western books that exerted a strong influence on the Japanese intellectuals of the Tokugawa period (Tokugawa jidai, 1600-1868). It can be said without exaggeration that Dodonæus' book opened the way to *Rangaku*, which literally means 'Dutch studies', but generally denotes the Western scientific inquiry of nature, an approach which was quite new to the Japanese scholars of the time. Especially the illustrations in the book made a deep impression on the intelligentsia, notably the *Honzôgakusha* or scholars of phytology. For more than a century, scholars would repeatedly attempt to read or translate the book and even two and a half centuries after the publication of its first edition, Matsudaira Sadanobu (erstwhile chief councillor to the Shogun, fl. 1758-1829), undertook the project of making a complete translation into Japanese. The question as to how deeply Dodonæus' book has influenced Japanese pharmacopoeia and phytology, has been debated from diverse angles, but we still do not have an accurate grasp of the extent to which it has stimulated the development of actual botany in Japan. In this essay, I would like to investigate the role Dodonæus' book has played in stimulating interest in Japanese herbs or plants.

1 THE "DISCOVERY" OF DODONÆUS

青木昆陽

The eighth Shogun Tokugawa Yoshimune attached much more importance to practical or utilitarian studies than his predecessors and actively promoted the introduction of Western scientific knowledge and technology. This was no doubt inspired by his ambition to foster an indigenous enterprise and production. He relaxed the ban on Chinese translations of Western books provided they did not deal with the practice of Christianity. He also ordered two scholars, Aoki Kon'yô

and Noro Genjô, to study the Dutch language. This new attitude of the Shogun was the initial impetus of what subsequently would develop into *Rangaku* or "Dutch Studies".

野呂元丈

It all began in the spring of the second year of *Kyôhô* (1717). Yoshimune had inherited the Shogunate just the year before. It is assumed that he ordered for two Dutch books, the *Cruydt-Boeck* by Dodonæus, and the *Naeukeurige beschryving van de natuur der viervoetige dieren, vissen en bloedloze water-dieren, vogelen, kronkel-dieren, slangen en draken* (Amsterdam 1660) by Jan Jonston [John Johnston], to be taken out from the Momijiyama bunko, the Shogunal library, or at least one of these.¹ According to the diary of *Oppelhoofd* Aouwer, who had an audience with Yoshimune in that year, Yoshimune had Johnston's book shown to him, and asked him some questions about it. These were extraordinary questions to be asked during a routine meeting between the Shogun and the Dutch officials from Deshima at Edo castle (*Edo-jô*), because ordinarily the exchanges during such audience never concerned concrete topics. It was unusual for the Shogun to ask specific questions about a book through an interpreter and since he did not understand a word of Dutch, his interest must have been aroused by the illustrations it contained. The questions were a demonstration of his strong intellectual curiosity and his deep interest in the West.

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265

紅葉山文庫

出島

江戸城

In that year, medical officers of the Edo Bakufu too visited the Nagasaki inn, where the Dutch delegation was staying and again asked questions about Johnston's book. Kurisaki Dôyû and three other doctors showed Johnston's book to the surgeon of the delegation, Willem Wagemans, and asked him about the names and habitats of the animals that were illustrated in the book. Namura Yazaemon, the chief interpreter (*ô-tsûji*), was reportedly on hand to do the interpretation. This query cannot have been unrelated to the Shogun's interest. Thus in the second year of *Kyôhô* Johnston's book moved all of a sudden into the limelight, fifty-four years after its introduction into Japan.

長崎屋

栗崎道有

名村八左衛門

大通詞

It was indeed in the third year of *Kanbun* (1663) that the book *Naeukeurige beschryving* had been introduced into Japan. In that year *Oppelhoofd* Hendrik Indijk took it as one of the gifts to be presented to the Shogun on the occasion of the annual audience at Edo castle. Dodonæus' *Cruydt-Boeck* had already been presented to the Shogun in the third month of 1659 (second year of *Manji*) by *Oppelhoofd* Zach-

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arias Wagenaer. However, the Bakufu official in charge of the audience at that time was unable to appreciate the value of the book of Dodonæus properly, and he reportedly gave orders that another book with larger and finer illustrations be presented. It was to satisfy this Japanese request, that Johnston's book was presented four years later.

Dodonæus' book is a large volume of about 1,500 pages, containing more than 2,000 illustrations, but the illustrations are woodcuts and relatively small, being arranged one or two to a page, whereas the illustrations in Johnston's book are all copperplates of full-page size, and of a more luxurious execution than Dodonæus' illustrations. The Bakufu official seems to have been satisfied with the Johnston book. Since, however, there was nobody on hand who could read the Dutch text, both books were stored away in the Momijiyama bunko, without ever seeing the light of day again.

It was thanks to Yoshimune's curiosity that these 'forgotten' Dutch books were eventually rescued from oblivion and it were no doubt the illustrations that aroused the Shogunal interest in the books. The illustrations in the two books differ from one another in three respects:

- 1 Subject matter: illustrations of animals versus of plants.
- 2 Medium: copper prints versus woodcuts.
- 3 Size: full-page size versus small size.

The Japanese are likely to have been more attracted by the animals, the copper prints and the large size. There is no doubt that Dodonæus' book also contained many plants that were new and strange to the Japanese, but the unknown animals in Johnston's book must have struck their fancy more powerfully than the plants. Especially people who were not specialists were likely to be fascinated by illustrations of unknown creatures. Moreover, the Japanese were already familiar with the technique of woodcuts, while the technique of copper prints was new to them. Moreover, copper prints allow for visual effects that woodcuts cannot approximate, and this too cannot have failed to strike the fancy of the Japanese. In addition, Johnston's illustrations were of a more powerful expression and larger in size. As a result, Johnston's book was the first to arouse interest and elicit questions among the Japanese. Strangely enough, however, no attempt was made at that time to translate Johnston's book into Japanese. Not until the first year of *Kanpô* (1741), twenty-five years after Yoshimune had first shown interest in the book, did Noro Genjô try to understand its con-

tents. One of the reasons why this book was left unstudied for such a long time, is that, even if they were given explanations by the Dutch about the contents of the book, there was not enough intellectual interest among the Japanese of the time. Even Noro Genjō, who finally manifested an interest in the book, contented himself with a few questions, and without any further ado went on to focus his questions on Dodonæus' book. We can think of several reasons for this shift, but it is important to note that he was essentially a scholar of *Honzōgaku*. In Johnston's book, there were few descriptions about herbs and their medicinal effects, whereas Dodonæus' book abounded with explanations about medicinal herbs and their effects. After only a few questions about Johnston's book, Noro shifted his attention to Dodonæus' book and continued asking questions for ten years over in an effort to grasp and understand its contents.

本草学

II UNDERSTANDING DODONÆUS' BOOK

Noro Genjō (1693-1761) was born in Hatano, Seta-mura, Taki-gun, in Ise province. He went to Kyoto to study Confucianism under the guidance of Namikawa Tenmin, an authority of the Kogaku school of a stature equal to Itō Tōgai, and to study *Honzōgaku* with Inō Jakusui. In 1720 (fifth year of *Kyōhō*) he was persuaded by Niwa Seihaku [Shōhaku], a man from the same region and a fellow-pupil of Inō Jakusui, to go to Edo with him and take up a post as official herb collector for the Bakufu. In 1724 (ninth year of *Kyōhō*) he was given a residential site by the Bakufu. In 1739 (fourth year of *Genbun*) he became a physician in ordinary (*Omemie*) to the Shogun, and in 1741 (first year of Kanpō) he was appointed by Yoshimune as *Oranda honzō goyō* ('official in charge of Dutch pharmacopoeia') and started to study Johnston's book in earnest. In the third month of that year Noro paid a visit to the Dutch delegation that was just in Edo for the yearly audience with the Shogun. He was received by *Oppelhoofd* Van der Waeijen, Secretary Briel and Surgeon Musculus. With the book of Johnston before him and with the help of the chief interpreter Yoshio Tōzaburō, he asked them for clarification about a few matters. Later Noro wrote a book, based on the answers he had received on this occasion, entitled *Oranda kinjū chūgyō no zu waga* ('Illustrations of Dutch Animals, Insects and Fishes, Explained in Japanese').

波多野勢多村多気郡
伊勢国
並河天民、古学派
伊藤東涯、稻生若水
丹羽正伯

元文
御目見

吉雄藤三郎

阿蘭陀禽獸虫魚
図和解

This book was very simple indeed: most entries were hardly anything more than a list of names of animals, insects or fishes. For example, the

馬 entry for “horse” (*uma*) simply mentioned “pâruto” (*katakana* trans-
 野馬 literation for Dutch “paard”), while the entry for *yaba* (‘wild horse’) had the word “*eruto pâruto*” (*katakana* for Dutch “wild paard”). These were simply transcriptions of the Dutch equivalents as he had heard them pronounced by his Dutch informants. An exceptional case was the entry about the elephant, because it contained more detailed information. It gives “*oorihare*” as its Dutch equivalent (i.e. “*olifant*”), while in the explanation *ge* it says: “the length of the elephant, measured from the tip of its nose, can reach one *jô* and nine *shaku*, and in the commentary *setsu* section, the author goes on to report that “these animals exist in great number in countries visited by the Dutch. However, in none of these countries do they regard their meat as edible. Neither have the Dutch heard that their skins, bones or dung are used as medicine. However the tusks, called “*ihôruto*” (in *katakana*, Dutch “*ivoor*”), is used for medical purposes”.

解
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説

In the preface to his book Noro explains about *ge* and *setsu*: *ge* refers to the Japanese translation of what is written in the body of the text, whereas *setsu* refers to oral explanations the Dutch gave in reply to his questions. In other words, Noro Genjô selected from Johnston’s book the plates that he understood or that struck his fancy, and the accompanying text he had a Dutchman explain to him. The record of what he had thus collected is the *Oranda kinjû chûgyo no zu wage*. The number of selected items was only eighty-one, and the explanations are quite simple, as already stated.

Reading through the preface of Noro Genjô’s book, we can understand what he felt while he was in the process of “translating” this book. He writes: “This book (i.e. Johnston’s book) was not meant as a herbal to identify plants with medicinal properties. Therefore it does not give any description about the medicinal effects of plants, but only about their shape or appearance. Even (the Dutch) said that they could not understand the contents properly because the explanations included so many Latin words.”

Consequently, not only had the Dutch he had asked for explanation, not enough knowledge of Latin to satisfy his queries, but he must also have felt that, contrary to what he had expected, the Johnston book hardly contained any descriptions of medicinal properties of herbs. The fact that he did not write any sequel to the *Oranda kinjû chûgyo no zu wage* suggests that he subsequently did not submit any further queries to

the Dutch about the book. He must have lost interest in it and stopped his attempts at translating it, although there still remained many items. After that time, nobody showed interest in Johnston's book.

The following year, the chief interpreter Yoshio Tôzaburô submitted queries about eleven plants to the Dutch delegation, including the roses, grapes, rice and maize. On the basis of this exchange he compiled the book *Shin Yû Oranda honzô* ('Dutch Herbal, [Compiled] in the Year of *Shin Yû*'). The following year saw the compilation of another book titled *Oranda honzô* ('Dutch Herbal'), a collaborative effort of the chief interpreter Nakayama Zenzaemon and the assistant interpreter Shige Shichirôzaemon who took care of the Japanese translation (*wage*) of two plants, while the translations of the remaining plants were the work of Noro Genjô. The work of compiling Japanese versions of Dutch herbal descriptions with Noro Genjô as the key person, went on for about ten years and continued until 1750 (the third year of *Kan'en*). Yet in the end no more than 119 herbs were dealt with, which reminds us of how arduous an enterprise translating from Dutch into Japanese was at that time.

辛酉阿蘭陀本草

阿蘭陀本草
中山善左衛門
茂七郎左衛門
和解

寛延

III MATSUDAIRA SADANOBU'S INTEREST IN BOTANY, HORTICULTURE AND DODONÆUS.

It was Matsudaira Sadanobu who planned to translate Dodonæus' book completely. He ordered Ishii Shôsuke, a former interpreter in Nagasaki, to translate the book. After Ishii's death, Yoshida Seikyô, a clansman of the Tayasu clan residing in Edo, succeeded him and completed the translation in 1823 (sixth year of *Bunsei*). Unfortunately the 170 volumes of the manuscript translation, together with part of the block copies that had already been completed, as well as all engraved blocks were almost all lost in the great fire that hit Edo in the third month of 1829 (sixth year of *Bunsei*). The collection that Waseda University Library presently holds is believed to be a part of the manuscript translation that Matsudaira Sadanobu had ordered.

石井庄助
吉田正恭
田安家
文政

The title of the book was to have been *Ensei Dodoneusu Sômoku-fu* ('The Western Herbal of Dodonæus Illustrated'), and if the book had been published it would have been the crowning achievement of all the efforts that had been invested in *Rangaku* since its rise. Yet, more than 200 years had already passed since the original had been published, so even if this translation had been published, it would hardly have been

遠西ドドネウス草
木譜

more than the presentation to a Japanese readership of a major classic in the field of natural history and botany.

Ironically, in the same year that the manuscript translation of Dodonæus' book went up in flames, *Taisei honzô meiso* ('The Nomenclature of the Western Herbals') by Itô Keisuke (1803-1901) was published. This book presents in alphabetical order the Latin names of the plants in Thunberg's *Flora Japonica*, followed by their Japanese equivalent. Thunberg did evidently not adopt the taxonomic system of Dodonæus, but rather that of his master Linnaeus. By adopting this system it was introducing the methodology of modern botany in Japan. The focus was no longer on the collection of information about plants, as embodied in natural history, but on the research of plants as embodied in botany.

Let us take a look at some of the characteristic features of *Ensei Dodoneusu Sômoku-fu*. While in the original the illustrations are inserted into the corresponding passage describing the plant, in the *Ensei Sômoku-fu* each illustration is isolated and enlarged to full-page size. On the next page, the Latin name is mentioned, sometimes followed by the German and/or French, and English name. Then follow the Japanese and Chinese names. Next come a general description, a notice on the medicinal properties and therapeutic value, and sometimes the compiler (supposed to be Yoshida Seikyô) has added supplementary comments on the curative virtues.

As to the overall structure of the book, the translation closely follows the descriptions and the illustrations are faithfully reproduced, but the order of items has been rearranged, so as to fit the traditional Japanese make-up of herbals. Yoshida Seikyô, who was the chief compiler, and had a rich knowledge of Japanese herbal science, evidently supplemented the translation with data about the medical virtues of plants, in an effort to present the book as a genuine herbal (*Honzôsho*). When he saw the original Dodonæus with its 1,500 pages, Yoshida must have felt that the book was intended as a comprehensive study about plants, and therefore worthy of a full translation into Japanese.

Why then did Matsudaira Sadanobu plan to publish a complete translation of Dodonæus' *Cruydt-boeck*? First of all, he had always had

天明
老中

ple, he had ordered to transfer honeybees from Kishû Wakayama to Edo, to breed them with a view to honey production, in three places in Edo: the Fukiage garden and Ninomaru garden in Edo Castle and the garden in the Edo residence of the Kishi clan. He was also greatly interested in gardening. In 1792 (fourth year of *Kansei*), he made the grounds which the Bakufu had granted him, into his suburban residence (*shimo-yashiki*), and laid out a garden, which he called *Yokuon-en* ('garden of my lord's favour'). This garden became the scene for his experiments in gardening, cultivation of plants and horticulture. After retiring as *Rôjû* in 1812 (ninth year of *Bunka*), he made the *Yokuon-en* his permanent residence. Styling himself *Raku-ô* ('happy old man'), *Fûgetsu-ô* ('old man of wind and moon'), *Kyokuhô* ('peak of the rising sun') or *Kagetsu Shujin* ('master of flowers and moon'), he indulged himself in a life of poetical composition, essay writing, gardening and horticultural pursuits.

紀州和歌山

吹上の庭、二之丸の庭

寛政

271

下屋敷

浴恩園

文化

楽翁

風月翁、旭峯

花月主人

The *Yokuon-en* boasted a layout known as *kaiyû-shiki* ('strolling garden'), a style much favoured by *daimyô* and high-ranking *bushi* during the Edo period. Moreover, because the garden was by the sea-side, it had an ideal location for *shio-iri* ('drawing in the tide'), which meant that seawater could run into the pond in the middle of the garden through a small artificial waterway. This provided an ideal location for social gatherings and poetry parties with friends, but at the same time served as the testing ground for his experiments in gardening and horticulture, as well as a place for exhibiting samples.

回遊式

大名、武士

潮入り

Consequently the garden served as a kind of botanical garden, where all kinds of varieties could be admired. One area of the garden was called *Chigusa no sono* ('garden of a thousand grasses') and was even counted as one of the fifty-one most beautiful gardens of the time. Here were grown a variety of horticultural species including lotus, sasanqua and peach. In particular rare varieties of lotus were being collected and grown, including 'asahi', 'tennyo', 'goji-in' and 'tôzan-tenjiku-hasu'. There were also collections of peaches of both varieties, the ones appreciated for their flowers and the ones grown for their fruits. Moreover, he also laid out a section for herbs and medical plants, called *Go-yakuen* as well as an orchard called *karin*. All this is proof that from the mid-Edo period onwards, the burgeoning interest in herbs and natural history among the *bushi* or ruling class was reflected in the layout of the *daimyô* gardens and had an impact on the landscape architecture. It played a significant role in their culture and lifestyle.

千草の園

朝日、天女、護持院、

唐山天竺蓮

御薬園

菓林

清香譜

清香画譜

Matsudaira Sadanobu bred several kinds of plants, but had a particular fancy for the lotus. In his book *Seikô-fu*, which he compiled after his retirement from public life, he reportedly illustrated over ninety kinds of lotus. Unfortunately this book was lost during the Second World War, so that we cannot know its exact contents. However, another book entitled this one *Seikô gafu*, a collection of illustrations of lotuses, is still extant in Tenri University Library, and is believed to be related to Matsudaira's missing book. Judging from this *Seikô gafu*, Matsudaira's *Seikô-fu* appears to have been an album of beautifully coloured illustrations of a number of lotus varieties. Beside each illustration the date of the drawing is given, and the shape and inflorescence of the flower is described. It can be said to be a scientific pictorial based on actual observation. It is probably the record of Matsudaira's observation of the lotuses in the *Yokuon-en*.

Originally the lotus flower is the flower of the Buddha. It was only treated as a prop in Buddhist ritual. But thanks to Matsudaira Sadanobu, the lotus became an object of observation and appreciation, of which numerous variations were bred. It was the elegant shape and delicate fragrance of the lotus that he found attractive. *Seikô*, meaning "pure fragrance" denotes the lotus flower. Matsudaira's predilection for the lotus may be understood as indicative of a typically Japanese appreciation of plants.

Matsudaira's interest in Dodonæus' *Cruydt-boeck* was an extension of his interest for the natural world and his love for gardening and horticulture. However, his interest in plants is different from *Honzô-gaku*, the traditional study of herbs with medicinal properties. His interest in plants was free from a concern for medical effects, and was informed by a scientific and horticultural attitude that focuses on the plants themselves, their shapes and their characteristics. Furthermore, his interest in plants was an interest in their beauty, for aesthetics have always informed Japanese interest in plants. His botanical interest as it is embodied in *Seikô-fu* is an aesthetic interest in the broad sense of the term, and that is why its expression has taken the form of a pictorial. Dodonæus' book stimulated Japanese interest in plants on many levels. It was assimilated in a typically Japanese way, and aroused interest in horticulture, heightened the aesthetic appreciation of plants and strengthened the urge to depict them.

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NOTES

- 1 See Sugita Genpaku, *Rangaku kotohajime*, 1959.

ILLUSTRATIONS

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| ILL 1 | general view of the Yokuon-en (from <i>Seikō gafu</i>) |
| ILL 2 | orchard with pavilion (from <i>Seikō gafu</i>) |
| ILL 3 | Pavilion, shed and bonsai on display; in the background display of lotuses (from <i>Seikō gafu</i>) |
| ILL 4 | orchard and herb garden (from <i>Seikō gafu</i>) |
| ILL 5 | <i>garden of a thousand grasses</i> : in the foreground flowering peach trees (from <i>Seikō gafu</i>) |
| ILL 6 | <i>garden of a thousand grasses</i> : a variety of lotuses and a bed sasanqua's (from <i>Seikō gafu</i>) |
| ILL 7 | beach, bank of eulalia's and enclosed flower garden (from <i>Seikō gafu</i>) |



ILL 1



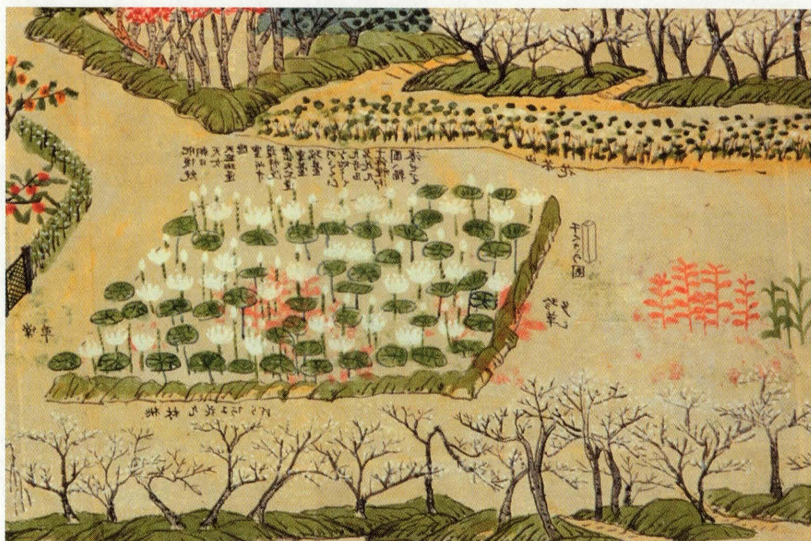
ILL 2



ILL 3



ILL 4



ILL 5



ILL 6



ILL 7