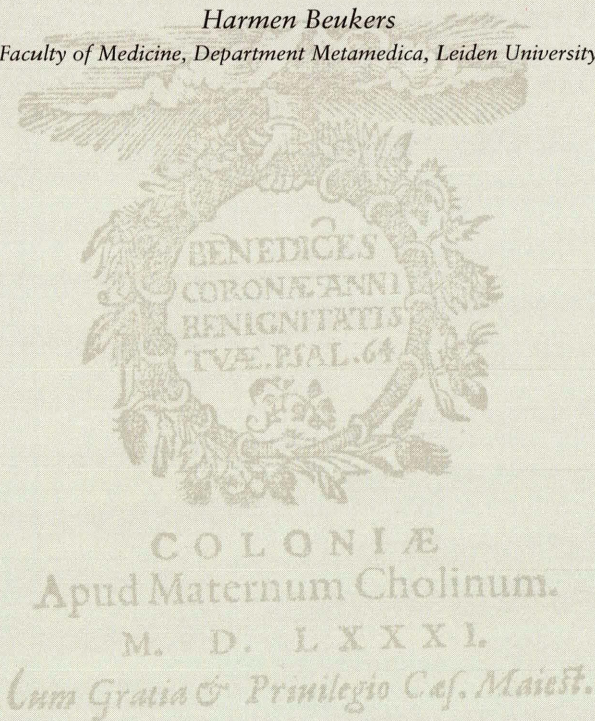


DODONÆUS IN JAPANESE:  
DESHIMA SURGEONS AS MEDIATORS  
IN THE EARLY INTRODUCTION OF  
WESTERN NATURAL HISTORY

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杉田玄白

The publication of *Kaitai shinsho* in 1774 is considered to be a turning point in the intellectual history of Japan: this translation of a Dutch anatomical atlas into Japanese was to be canonised as the most complete Japanese anatomy book of the Tokugawa period. The choice of the book is interesting since it underlines the visual argument as an evidence-based selection criterion. The comparison of the actual dissected body with the drawings in Dutch anatomy books had convinced Sugita Genpaku, one of the authors of the *Kaitai shinsho*, of the correctness of the European representations or, what he called the 'real things'. In 1771, after having seen two Dutch anatomy books for the first time, viz. Johann Adam Kulmus' *Ontleedkundige tafelen* (1734) and Bartholin's *Anatomia: ofte ontledinghe des menschelicken lichaems* (1656, 1658), he wrote:

"Of course, not a word in them we could read, but the structures of internal organs and the skeletal frames illustrated in them appeared very different from those we had seen in books or had heard of in the past. We concluded that these must have been drawn from the real things."<sup>1</sup>

骨ヶ原

After Sugita and his colleagues had attended a dissection in Kotsugahara, in March 1771, their main purpose became:

"[...] to show somehow to the people that the real structure of the human body was different from the one described in Chinese books."<sup>2</sup>

Genpaku considered Kulmus' *Tafelen* to be the more valuable of the two, and decided to translate the explanatory text that went with the drawings. The considerable annotations in the footnotes, the historical

passages and philosophico-religious discussions would remain untranslated.

The main difficulty in the translation process was of course finding adequate terms for anatomical structures and for European medical concepts. In this respect it is important to mention Sugita's colleague Maeno Ryôtaku, who was to contemporary standards rather well versed in the Dutch language, which earned him the nickname "Ranka" (he who has gone Dutch). Maeno had studied Dutch first under Aoki Kon'yô, and later – by order of Okudaira, *daimyô* of Nakatsu – in Nagasaki under the interpreters Nishi Zenzaburô, Yoshio Kôzaku and members of the Narabayashi family. The Nagasaki interpreters constituted an indispensable link on the Japanese side in the process of knowledge transfer – a process in which on the Dutch side the Deshima surgeons played an important role.

前野良沢

青木昆陽

奥平、中津

西善三郎、吉雄幸作

出島

## I A NEW LINGUA FRANCA

The closure of Japan in the 1630's created a language problem in the contacts between Japan and the Dutch. Until then Portuguese had been the common language to communicate with foreigners. The early interpreters at Deshima were known to be Portuguese-speaking. Gen'emon, the interpreter of Inoue Masashige of Chikugo was, according to the *Dagh-register* (*Deshima diary*) of 1652, fluent in Portuguese. It seems that this language was still important in the early eighteenth century; even as late as September 1734 the *Opperhoofd* (Jap.: *kapitan*) refers to four interpreters who speak Portuguese. That language was the basis for the dictionaries published by the Jesuits in the sixteenth century. Their Latin-Japanese-Portuguese dictionary may even have been useful to the Japanese to understand certain aspects of western science. Even in the eighteenth century it was still considered a treasure by the interpreters who possessed a copy. Although natural sciences and mathematics had been taught at the Jesuit colleges in Japan, they failed however to make a permanent impact.

井上政重、筑後

甲比丹

After the expulsion of the Portuguese, the language barrier posed considerable problems in the contacts between the Dutch and the Japanese, not only in scholarly matters but also in trade. In the *Dagh-register* kept by the *Opperhoofd* we find references to the incapability of Japanese interpreters. In 1672, for instance, they had great difficulties in reading and translating documents presented by the *Opperhoofd*



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to the Nagasaki magistrate (*Nagasaki-machi bugyô*). The incident provided the *Oppeerhoofd* with a welcome argument to stress the need that Dutchmen could be given the opportunity to learn Japanese. The argument was repeated in 1683, when the *Oppeerhoofd* discovered fraud in official translations by the interpreters. At any rate, one year later there seems to have been a black servant in Deshima, who, according to the diary, could speak some Japanese, and who for that reason joined the court journey to Edo. As we shall see later on, other Deshima inhabitants too turned out to be fluent in Japanese. The situation had hardly improved in the early eighteenth century. *Oppeerhoofd* Boockesteijn complained to chief interpreter (*ô-tsûji*) Imamura Gen'emon about the proficiency of newly appointed interpreters. He foresaw serious difficulties if more able persons were not appointed.<sup>3</sup> Imamura himself was praised for his mastery of the Dutch language, as was his colleague Kafuku Manjirô. On the other hand, chief interpreters like Nakayama Sôemon and Narabayashi Ryôemon were known to have a poor understanding of the language or spoke it deficiently.

野呂元丈

Whatever the complaints of the *Oppeerhoofd* may have been, all the initial activities related to the introduction of western sciences and techniques depended on the official Nagasaki interpreters. They had personal contacts with the Dutch during their daily visits to Deshima, as well as during the compulsory annual journey of the *Oppeerhoofd* and two staff members to the court in Edo. The interpreters' poor knowledge of the Dutch language was on the one hand due to the lack of dictionaries and grammars and on the other hand to government restrictions. Moreover, as their principal duty was to serve trade, their emphasis was on language related to daily business. They had no primary intention of carrying on systematic scholarship. They even lacked academic training. The situation changed when in the 1720s Shogun Yoshimune sanctioned the study of Dutch by two scholars, the physician Noro Genjô (1693-1761) and the Confucian scholar Aoki Kon'yô (1698-1769), the teacher of the aforementioned Maeno Ryôtaku. Both scholars made use of the Nagasaki interpreters to query the Deshima surgeons during their annual visit to Edo. The most important were Motoki Nidayu, Nishi Zenzaburô and Yoshio Kôsaku.

The role of the Nagasaki interpreters was essential to the compilation of a Dutch-Japanese dictionary. The first complete one, the so-called *Haruma-wage* or *Edo-Haruma*, was not published before 1796. It marked the completion of a work started by the interpreter Nishi



Zenzaburô (1718-1768). As a member of the Nishi family of hereditary interpreters, he had learned Dutch in Deshima from 1722 on. Zenzaburô was finally appointed chief interpreter in 1754. He accompanied the Dutch missions to Edo as many as six times. He tried to compile a Dutch-Japanese dictionary, using Pierre Marin's Dutch-French dictionary as a reference, but he did only get through the letter 'B'. Aoki Kon'yô too published a list of 721 Dutch words in *Oranda moji ryakkô* ('Primer of the Dutch Language,' 1744). It was in fact a revision of earlier lists compiled by the interpreters. These lists gave the Dutch words only in *kana*, whereas Kon'yô's list featured the Dutch words in roman letters as well as their pronunciation in *kana*.

It is difficult to evaluate the contributions of the official interpreters in their entirety. The remnants of their early works are only fragmentary. At any rate, even before the publication of *Kaitai shinsho*, there existed unpublished, and for a general scholarly public inaccessible translations of Dutch medical books. The interpreter Motoki Ryô (1628-1697) translated the Dutch edition of Johann Remmelin's *Pinax microcosmographicus*, a set of anatomical tables. His *Oranda zenku naigai bungô-zu* ('Dutch Chart of the Inner and Outer Parts of the Body') became only known to the medical profession after its publication by Suzuki Sôden in 1772. His younger colleague Narabayashi Chinzan (1648-1711) translated six parts of Ambroise Paré's book on surgery (first Dutch edition of the complete works: 1592)<sup>4</sup> under the title *Kôei geka sôden* ('School Tradition of Red Barbarian Surgery,' 1706). It circulated in manuscript form as a 'secret manual' for *kômô* ('red-hair') surgeons. Chinzan was a member of a hereditary interpreters' family and studied under various surgeons at Deshima, especially Willem Hoffman (Deshima 1671-1675). He passed through the successive interpreters' ranks before he was finally appointed physician in ordinary to the Bakufu in 1691.

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鈴木宗伝

櫛林鎮山

紅夷外科宗伝

紅毛

## 11 EARLY INTEREST IN DUTCH MEDICINE

It is not self-evident that Japanese physicians valued western medicine higher than their own. As the aforementioned translations show, only a specific part of western medicine aroused curiosity, *viz.* surgery, in this case especially the treatment of wounds, contusions and fractures, and the surgical instruments. Narabayashi's translations also included anatomy, since Paré considered the description of the body structures introduced by Andreas Vesalius (1543) as fundamental to the



surgical practice. The translation by Narabayashi Chinzan thus included books on wounds, plasters and anatomy. His translations of the parts on distillation and apothecary are evidence of an interest in western *materia medica*. Since the simple medicines were mainly of vegetable origin, it is not surprising to find a parallel interest in western botany.

The interest for 'Dutch' surgery arose during the 1650's, when its efficacy was demonstrated in the treatment of high-ranking officials by the Deshima surgeon Caspar Schamberger (Deshima 1649-1651).<sup>5</sup> During his stay in Edo in 1650, he treated successfully the senior councillor, the "*rijksraad Mino-samma*" Inaba Masanori (1623-1696), *daimyô* of Odawara and lord of Mino, who suffered from gout. It stimulated Inaba's interest for western medicine. The *Dagh-register* of 1668 reports a *Spiegel der anathomie* and the *Hortus Eystettensis* by Basilus Besler as books ordered by Inaba. In the 1680's the councillor probably also ordered Dodonæus' *Cruijdeboeck*, but when the "*geschilderde kruydeboek van Dodoneus*" arrived in November 1682, Inaba Masanori had just renounced his worldly possessions in favour of his son Masayuki. According to *Opperhoofd* Andreas Cleyer's diary, "Mino-samma" did no longer want to receive presents. The book was therefore requested by "Matzendairo Cange-zamma", i.e. Matsudaira Kaga Sama or Maeda Tsunanori (1643-1724), according to Cleyer, "second in the empire", nephew of the Shogun.<sup>6</sup> The book is now in the Library of Kanazawa University, erstwhile of the Kaga clan. It is interesting to note that Inaba probably possessed another copy, since the Inaba shrine in Yodo still owns a *Cruijdeboeck* by Dodonæus.

Another example of a high-ranking official was the governor of Nagasaki, Inoue Masashige (1585-1661), in Dutch sources known as Sickingodonne, i.e. 'Chikugo-dono', a champion of the Tokugawa system. His strong interest in useful western sciences and technology was probably related to his own health problems: haemorrhoids, bladder stones and catarrh. In a request dated to the year 1652 he ordered an anatomy book and a botany book in Portuguese, since, as we have mentioned earlier, his interpreter mastered only that language. An invoice dated later that year in Batavia mentions:<sup>7</sup> "een Herbarius van Dodoneus affgeseth voor d' Hr Sickingodonne 120 — een Historia Naturalis voor idem 52 —". The first book is evident; the second is probably Plinius' [Pliny] *Historia naturalis* (1635). The packing list of 1655 describes the 'Herbarium van Dodonæus' for Inoue as a book in folio with silver mounting and gilded edges.<sup>8</sup> In 1659 the *Oppe-*



*hoofd* Zacharias Wagenaer presented another copy to the Bakufu. Four years later, *Opperhoofd* Hendrik Indijck brought as a gift for the Shogun a “book on the nature of animals” (probably Jan Jonston [John Johnston]’s *Naeukeurige beschryving van de natuur der viervoetige dieren, vissen en bloedloze water-dieren, vogelen, kronkel-dieren, slangen en draken*, Amsterdam, 1660) and for the councillors a ‘book of the description of animals and fishes’ (possibly Plinius’ *Boecken, handelende van de natuere*). The books mentioned are finely illustrated books in folio, more suitable as presents to high officials than for the bookshelves of ship’s surgeons.

These high-ranking officials became deeply interested in western medicine and botany. They sent their physicians to Nagasaki to be instructed by the Deshima surgeon. Both Inaba and Inoue had great influence on the trading conditions – Inaba was a “bugbear and spiritual father of the valuation trade of the VOC in 1672.” Therefore, their requests were granted by the Dutch East India Company as much as possible, in the first instance of course by the Deshima surgeons if the requests regarded their knowledge and skills. In this period, the surgeons occupied an important, if not the foremost position in the introduction of western knowledge. That position was further strengthened during Tokugawa Yoshimune’s reign from 1716-1745. He adopted a policy of importing western books on practical subjects like medicine, botany and astronomy.

### III DESHIMA SURGEONS

The historiography of medicine and sciences in Japan is strongly dominated by the traditional view that attributes essential roles in the introduction of western sciences to four Deshima doctors: Willem ten Rhijne, Engelbert Kaempfer, Carl Peter Thunberg and Philipp Franz von Siebold. This emphasis is mainly a consequence of the fact that they published eyewitness reports about things Japanese. One cannot deny their importance in the transfer of information from Japan to Europe, but that alone does not justify a comparable status in the opposite direction, particularly not, if one realises that – with the exception of von Siebold – they only stayed for a short period at Deshima. Ten Rhijne was in Japan from 1674 to 1676, Kaempfer from 1690 to 1692 and Thunberg from 1775 to 1776.

The situation was different for the Deshima surgeons in the eighteenth century. Most of them spent at least four years on the island.



Their careers differed from the aforementioned university trained physicians. Generally speaking surgeons belonged to the class of artisans. In most Dutch towns the training of surgeons and their certification was regulated by a surgeons' guild. Apprentices lived in a surgeon's home and acquired knowledge informally. In larger towns the guild provided an additional course in anatomy, sometimes even in botany. More than any other cities, Amsterdam and Middelburg rigged out ships for the VOC. Their chambers assembled the crew and consequently also enlisted the ship's surgeons. As early as 1610 the chamber Zeeland, and probably not much later that of Amsterdam too introduced an examination for ship's surgeons.

The traditional division of labour between medical doctors and surgeons did not apply, since the former were virtually absent in the merchant fleet. As a consequence ship's surgeons also treated internal diseases such as scurvy, beri-beri, dysentery and typhoid fever. They even had to prepare medicines themselves. Thus the training of ship's surgeons was not limited to the traditional teachings of anatomy and surgery, but also included basic internal medicine and pharmacy. For that reason from the early eighteenth century on Amsterdam provided a winter course for lower-grade ship's surgeons. The Middelburg examiners compiled textbooks for prospective ship's surgeons. An example is Johannes Verbrugge's popular textbook *Het nieuw-hervormde examen van land- en zee-chirurgie*. Between 1708 and 1768 it went through thirteen reprints. All this made that ship's surgeons, compared to their colleagues ashore, had a higher remuneration and a more attractive position: on board they served as junior officers and in Asia they often became independent medical men.

There was still another possibility to become a ship's surgeon. Larger ships usually had in addition to the senior surgeon (*oppermeester* or *opperchirurgijn*) a second surgeon (*ondermeester* or *onderchirurgijn*) or a surgeon's mate (*derde meester*). If the senior surgeon died during the voyage to the Cape, personnel applying for the vacancy (not only the lower-rank surgeons) could be examined by a committee of senior ship's surgeons present at the Cape, under the presidency of the senior surgeon of the hospital at the Cape. In Asia it was the senior surgeon residing in Batavia who was responsible for the examination and appointment of surgeons.

For the introduction of western medicine in Japan it was advantageous



that the medical practice at Deshima was in the hands of surgeons. Their education was practice-oriented and less influenced by purely academic discussions. Their handbooks had the same practical orientation; they were concise, written in the vernacular, avoiding Latin as much as possible.

#### IV PROLONGED STAY<sup>9</sup>

Three senior surgeons are known to have had some proficiency in Japanese: Wagemans, Musculus and Ketelaar. Only the latter one practised relatively briefly in Japan. Willem Ketelaar, from Vlissingen, arrived in the Dutch East Indies as second surgeon in December 1715. He was appointed senior surgeon in Japan in October 1722. Three years later, on 20 October 1725, Japanese officials ordered *Oppelhoofd* Thedens, without stating the reason, to send Ketelaar and the provisional assistant back to Batavia. After a few years of service on different ships Ketelaar returned back home to Zeeland in June 1728.

The two other senior surgeons mentioned belong to a small group that stayed rather long in Japan [cf. table 1]. For instance, the chief surgeon Willem Wagemans, sent by the VOC chamber Delft, went to Deshima in the same year that he arrived in Batavia. With two intermissions he practised there until he was expelled on account of his proficiency in the Japanese language. His second surgeon from 1707 on was Hendrik de Vogel from Amsterdam. He died at Deshima on 11 January 1719 and was buried there by his compatriots the next day after an autopsy by the servants of the “*bongiosen*” i.e. the *bugyô*, the magistrate entrusted with inspection duties. In November of the preceding year De Vogel had drawn up his last will and testament. Since he was only a second surgeon, nothing is to be found about him in the *Dagh-registers*, except for the sad story of the suicide of his slave Pedro van Bengalen, who committed suicide after being accused of the theft of his deceased master’s money.<sup>10</sup>

The career of David Drinkman from Meurs is rather exceptional. He arrived in Batavia on the ship “*Valckenisse*” (from the VOC chamber Zeeland) as second surgeon in 1723. When he arrived in Nagasaki, in October 1725, he was senior surgeon. In 1729 he started a career in the trade and was finally appointed *Oppelhoofd* at Deshima. He resigned from VOC service on 20 November 1736 as senior surgeon and *Oppelhoofd*.



The careers of Philip Pieter Musculus and Doede Everts ran for a long time together. Both arrived in Nagasaki in July 1739. At his official installation in October of that year *Oppeerhoofd* Thomas van Rhee had in fact three medical men available: senior surgeon Philip Pieter Musculus, second surgeon Eelke Riskes and third surgeon Doede Everts. The Amsterdammer Riskes came as second surgeon on the ship *Batavia* to the Dutch East Indies, but in Deshima he was enrolled as second carpenter. He kept that position until he left Japan in 1745.

Musculus, from Claar-Oostersteijn in Germany, arrived in Batavia as senior surgeon for the VOC chamber Enkhuizen in December 1736. He reached the harbour of Nagasaki on 21 July 1739 on the ship “Popkenburg”, and would leave Japan on 28 October 1747. After Wagemans he has the second longest stay at Deshima and made eight court journeys. Within a year after his return to Batavia he died in the hospital there on 24 September 1748. Musculus’ stay in Japan coincided with the latter part of Tokugawa Yoshimune’s rule. He personally experienced the re-orientation of Japanese scholars to western sources. The court journey of 1746 gives some insight into the actual state of Dutch learning. *Oppeerhoofd* Jan Louis de Win reports on 21 April 1746 about the visit to the palace:

“We [*Oppeerhoofd* de Win and surgeon Musculus] were given three scrolls of paper. On each of them we had to write Dutch words with red ochre. We wrote *CRAANVOGEL* [crane], *SPARREBOOM* [spruce-fir] and *SCHILDPAD* [tortoise]. When we had finished, a slide in the screen was pushed open, leaving a space measuring two hands. A very old gentleman accompanied by the gentleman of fifteen to sixteen years previously mentioned observed us from a distance of three tatami. Two sheets of paper were given to Musculus, who had to write the words *BERG* [mountain] and *BAMBOES* [bamboo]. Thereupon the slide was closed and we returned to the *vertoefzaal* [...] Awa gave Musculus 12 sheets of paper on which he has to write Dutch words, which will be given to the crown prince.”<sup>11</sup>

These sheets of papers with Dutch words and their transcription in kana were still known to Ôtsuki Nyoden.<sup>12</sup> Musculus left Japan two years after Yoshimune’s retirement as Shogun.

Doede Everts from Groningen went to the East Indies as third surgeon for the Amsterdam chamber in 1737. He arrived in Batavia in



January 1738. He arrived in Nagasaki together with Musculus. After two years he was promoted second surgeon, which meant an increase in salary from 14 to 24 guilders. In July 1745 the ship “De Vrijheidt” and two other ships arrived in Nagasaki carrying the new *Oppeerhoofd*. Everts left Deshima in 1745, and served fourteen months on “De Vrijheidt”. In August 1747, he returned to Deshima as senior surgeon on the ship “Batavier”, having practised on board of that ship for ten months. With one year intermission he was again active in Japan and made four court journeys. He could not make his fifth trip to Edo, because of the illness he contracted in February 1753. Although the next year it was planned that Everts would join *Oppeerhoofd* Hendrik van Homoed and the assistant Johannes Reijnouts on the court journey, he fell ill again in January and had to stay back at Deshima. In November 1753 he left Japan definitively. He died on his way back to Holland on 25 July 1756.

## V JAPANESE INTEREST IN DODONÆUS’ CRUIJDEBOECK

A strong impetus for the study of western sciences came from Shogun Yoshimune. After the death of Tokugawa Ietsugu in 1716, Yoshimune was chosen as successor. He refused three times before he finally submitted himself to the decision of the family council. After coming to power he adopted a policy known as the *Kyôhō no kaikaku* (‘Kyôhō Reforms’), which included the encouragement of the study of relevant western sciences. The official sponsorship of western learning coincided with a large-scale agricultural reform: the opening of new agricultural areas, the introduction of new products (sugarcane, sweet potatoes, wax trees) and new methods (sugar refining) and the encouragement of large-scale animal husbandry. Moreover, in 1721,<sup>13</sup> the Shogun established the Koishikawa Yakuen, a garden where medicinal plants were grown so that Japan would no longer be dependent on imports. Therefore, Yoshimune was interested in practical information from the West. From 1717 on, the year of the first court journey of the Dutch during his Shogunate, he showed great interest in querying the foreigners through his court officials, particularly on botany. According to Numata<sup>14</sup> (quoting the *Shomotsukata*), Yoshimune occasionally had Dutch books brought to him. One day in March 1724 chamberlain Arima Ujinori wanted to borrow a “Dutch botany book”, and after a search he was told the following day that the book was not in the library. Later it was found out that the book was in the Shogun’s private chambers.

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The new interest began indeed in 1717. In that and the following year the Dutch received queries about animals during their stay in Edo. *Opferhoofd* Jan Aouwer reports on 11 April 1717:

“Kizaemon [chief interpreter Nakayama Kizaemon] brought me a book that had been taken from the Curiosity Cabinet of the Shogun. He asked me if I could translate the names of the animals in the book into Japanese. I said it would be possible but it would take a long time because the names of thousands of animals are in it. The book by Johnston was a folio volume in red Russian leather with gilt stripes. The book was still in an excellent condition although it had been presented by *Opferhoofd* Indijck in 1663.”<sup>15</sup>

On 30 March 1718 *Opferhoofd* Christiaen van Vrijeberghe wrote in his diary:

“I translated the names of several animals and their places of origin from Johnston’s book *Beschrijvinge van de natuur der dieren* that was shown to Aouwer last year.”<sup>16</sup>

Starting in 1731, more pertinent questions concerning dried herbs collected in Japan were asked by Niwa Seihaku [Shôhaku] or Sawa Safak (1691-1756), described in Dutch sources as ‘imperial botanist’, ‘Shogunal botanist’ or ‘imperial apothecary’. Seihaku studied medicine and botany under the famous botanist Inô Jakusui of Kyoto. From 1720 on he collected, at the order of the Bakufu, botanical specimens throughout Japan. Two years later he was appointed physician in ordinary to the Shogun. In 1731 and 1732 he asked the senior surgeon Hendrik Thompson to help him identifying herbs.

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稲生若水

From the 1720’s on the diary kept during the court journey, frequently refers to “*Kiodaij*”, i.e. Fukami Kyûdayû or Fukami Arichika (1691-1773). Kyûdayû was the descendant of a Chinese immigrant who had come to Nagasaki in the early seventeenth century, to serve there as translator. Kyûdayû was librarian of the Shogunal library since 1734. In 1737 he showed a keen interest in Dodoens’s work. On 25 March he paid the Dutch a visit at their inn in Edo and “asked several questions pertaining to the books on herbs by Rembertus Dodonæus”. The following day he asked “more questions about Dodonæus”. At the end of March and the beginning of April the queries were repeated. At the conclusion of the court visit in 1737 *Opferhoofd* Jan van der Cruijse



was asked to order from Batavia among other things “a book about herbs with drawings of the herbs and their effects” and “a book about all known animals with illustrations and also the description of the nature of the animals”.

During Musculus’ second court journey, in 1741, the queries concerning natural history were taken up again. On 22 April 1741 Kyûdayû paid a visit to the Dutch and showed “a book by R. Dodoneus entitled the *Cruijdt-boeck*”. He asked Musculus questions about the effects of rosemary. A couple of days earlier a “court physician” had shown “a book by E. Swart” with drawings of flowers and trees to the *Oppehoofd* and asked him the names. The *Oppehoofd* succeeded with the help of the Latin, French, German and Dutch index. The book was probably E. Sweerts’s, *Florilegium, tractatus de variis floribus et aliis Indicis plantis ad vivum delineatum* (1615 or 1631). Two weeks later the chief interpreter Yoshio Chûjirô, known in Dutch sources as “Tosabro”, sought an explanation about what was written about the herbs in “Swart’s” book. “Musculus tried to explain – the *Oppehoofd* wrote – but he did not understand much of it”. Motoki Ryôei (1735-1794), grandson of the aforementioned Motoki Ryôei and translator of important books on heliocentricity, would later use Sweerts’s book while compiling his *Honyaku Oranda honzô* (1771).

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The aforementioned ‘court physician’ visited the inn of the Dutch again on 24 April and showed “a book written by J. Johnston”. Tosabro translated several captions. The next day Tosabro asked the *Oppehoofd*:

“[...] whether Musculus could join him in his room since the court physician wanted to check the captions translated by him yesterday. I [*Oppehoofd* Jacob van der Waeijen] told Musculus only to talk about the book and about nothing else.”<sup>17</sup>

The following years, the “personal physician of the Shogun” was no longer interested in animals. When he visited the Dutch in the years 1742-1745 – sometimes accompanied by students – his questions concerned the effects of certain herbs. Musculus tried to explain these effects. In 1743 the physician showed his source book. *Oppehoofd* Van der Waeijen noted on 18 March:

“The personal physician of the Shogun paid us a visit. He showed



us a book containing pictures of herbs and flowers and he also showed us dried herbs. He wanted the effect of the dried herbs to be explained to him. Musculus explained it.”<sup>18</sup>

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The next day the *Opperhoofd* reported:

“The troublesome personal physician of the Shogun asked me to summon Musculus to the room of [chief interpreter] Mangero. Afterwards Musculus told me that he had explained the effect of certain herbs, which the personal physician of the Shogun had shown to him.”

御目見医師

The aforementioned personal physician of the Shogun was Noro Genjō (1693-1761). At the age of twenty, he went to Kyoto to study Confucianism, medicine and botany. The latter subject he studied with the botanist Inō Jakusui. In 1719 Noro became official botanist of the Bakufu and travelled together with the aforementioned Niwa Seihaku throughout Japan, collecting botanical specimens. He published a report of his trip to the north of Japan in 1722: *Hokuriku hobutsu* ('products of the North'). In 1739 he had an audience with Yoshimune and was appointed *onemie ishi*, ('physician in ordinary'), who could practise in the inner Bakufu court. The same year he and Aoki Kon'yō received permission from the Shogun to learn Dutch. It is said that Noro acquired a fair knowledge of Dutch as a result of his annual contacts with Nagasaki interpreters, especially Yoshio Kōsaku, and Dutch surgeons, particularly Musculus and Everts. The results of the 1741 interview about Jonston's book (according to Noro's notes the 1660 edition) were recorded in a manuscript entitled *Oranda kinjūchūgyō-zu wage* ('Japanese Translations of Dutch Illustrations of Birds, Animals, Insects and Fishes'). That Noro lost interest in the subject becomes clear from one of his remarks:

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“This is not a botanical treatise treating medicinal herbs, and is therefore of no use whatsoever, giving only the outside shape.”<sup>19</sup>

It is also evident from the *Opperhoofd*'s journal that from 1742 on Noro turned to the work of Dodonæus, which he considered to be more relevant to medicine. Through the interpreters he continued interviewing Musculus and Everts every year except one up to 1750, when he completed his notes on Dodonæus concerning 118 plants and their medicinal use: *Oranda honzō wage* ('Dutch Botany Explained in Japanese').

阿蘭陀本草和解



After Yoshimune retired in 1745 in favour of his son, the official encouragement of Dutch studies ceased and turned into a policy of negligence for the remainder of the century. Accordingly, the references of the *Oppehoofden* to queries about natural sciences at the court, which had started in 1722, stopped in 1745. Medical and botanical studies of Dutch sources had to come from private initiatives. Natural history books were therefore no longer popular as official gifts to court officials. Especially the College of Interpreters now received Dodoens's *Crujideboeck* frequently: in 1757, 1760, 1761 (even three copies) and 1775. The *daimyô* of Satsuma was also eager to receive a copy; he requested a "Kruijtboek van Dodoneus" in 1772. Thunberg wrote in his *Voyage au Japon* (1796) that the Dutch gave the following books to the Japanese: Jonston's *Historia Naturalis*, Dodonæus' *Herbarium*, Woyt's *Gazophylacium*, the Dutch translation of the book of Heister and a beautiful copy of *Planten* by Muntingh. Thunberg's own influence becomes clear in the course of time. In 1800 the College of Interpreters received for the first time more up-to-date natural history books: Linnaeus' *Natuurlyke historie of uitvoerige beschryving der dieren, planten en mineraalen*, etc., Martinet's *Katechismus der natuur* including the *Aanmerkingen*. This does not mean that Dodonæus' *Crujideboeck* was no longer of interest to Japanese scholars. In 1815 Udagawa Yôan published his *Ensei Dodoneusu buppin-kô meiso*, and fourteen years later Matsudaira Sadanobu published parts of *Ensei Dodoneusu sômoku-fu*, a translation initiated by Ishii Tsune'emon (Shôsuke, Tôkô) and completed and arranged by others.

遠西鐸度涅烏私  
物品考名疏  
松平定信  
遠西独度涅烏斯  
草木譜、石井常右衛門  
庄助、当光

## VI CONCLUDING REMARKS

We have illustrated the introduction of western sciences with an example taken from natural history. The impetus for a strong interest in botany in the eighteenth century came from Yoshimune's need of practically useful knowledge to support his agricultural reform. It induced the Shogunal librarian Fukami Kyûdayû and the Shogunal botanists Noro Genjô and Niwa Seihaku to search foreign sources.

The exchange of knowledge was predicated on the availability of an intermediary and of mediators. The intermediary turned out to be Dodonæus' herbal, a voluminous book in folio. It is not an obvious choice; it is a detailed, complicated and highly professional text. Its illustrations, however, helped to overcome the language barrier. The visual information served as a guide to select relevant plant mono-



graphs for translation. The diaries kept by the Dutch *Oppehoofden* of Deshima give detailed information about the roles of the mediators, in particular, on the Dutch side the role of (now lesser known) surgeons such as Musculus and Everts. During their relatively long stay in Japan, they joined in many court journeys. In Edo they were used by the Bakufu officials as experts helping to select monographs for translation, to explain the effects of certain herbs, and to check in a later stage the translations made by the interpreters. This example shows that the surgeons played an important, if not crucial, role in the transfer of western knowledge to Japan, at least during the reign of Tokugawa Yoshimune.

TABLE I

SURGEON	ARRIVAL	DEPARTURE
<b>Willem Wagemans</b>		
chief surgeon	1698	1699
	1700	1701
	1706	1717
<b>Hendrik de Vogel</b>		
Second surgeon	1707	1719
<b>David Drinkman</b>		
Senior surgeon	1725	1729
(junior) merchant	1729	1733
<i>Oppehoofd</i>	1734	1735
<b>Philip Pieter Musculus</b>		
Senior surgeon	1739	1747
<b>Doede Everts</b>		
third surgeon	1739	1741
second surgeon	1741	1745
senior surgeon	1747	1748
	1749	1753

## NOTES

- 1 Sugita Genpaku, *Dawn of Western Science in Japan*, trans. Matsumoto Ryôzô (Tokyo: Hokuseido Press, 1969), 24.
- 2 Sugita Genpaku, *Dawn of Western Science*, 43.
- 3 Algemeen Rijksarchief [ARA] Den Haag, 1.04.21 Factorij Japan, inv. 142: 41 October 1731.
- 4 The Dutch version, acquired by Narabayashi Chinzan, was probably the 1649 Schipper Amsterdam edition. See Gabor Lukacs's contribution in the present volume.
- 5 Wolfgang Michel, *Von Leipzig nach Japan: Der Chirurg und Handelsmann Caspar Schamberger (1623-1706)* (München: Iudicium Verlag, 1999).
- 6 ARA, 1.04.21 Factorij Japan, inv. 96: 14 November 1682.
- 7 ARA, Kasteel Batavia inv. 776: 11 July 1652.
- 8 ARA, Kasteel Batavia inv. 797: 7 July, 1655.
- 9 The careers of the surgeons discussed here are mainly documented in ARA, 1.04.01 Archief V.O.C., inv. 5558, 6042, 12815 and 14172. Many of the details concerning their activities at Deshima can



- easily be traced by consulting the English translation of the marginal notes of the Deshima Diaries: see Paul van der Velde and Rudolf Bachofner, *The Deshima Diaries: Marginalia 1700 - 1740* (Tokyo: Japan-Netherlands Institute, 1992).
- 10 ARA, 1.04.21 Factorij Japan, inv. 130: 23 January 1719.
- 11 ARA, 1.04.21 Factorij Japan, inv. 155.
- 12 C.C. Krieger, *The Infiltration of European Civilization in Japan During the 18th Century* (Leiden: E.J. Brill, 1940), 33.
- 13 See Kasaya Kazuhiko's contribution in the present volume.
- 14 Jirô Numata, *Western Learning – A Short History of the Study of Western Science in Early Modern Japan* (Tokyo: Japan-Netherlands Institute, 1992), 37-39.
- 15 Van der Velde and Bachofner, *Deshima Diaries*, 209.
- 16 Ibid., 220.
- 17 ARA, 1.04.21 Factorij Japan, inv. 151.
- 18 Ibid., inv. 153.
- 19 Numata, *Western Learning*, 48; also Krieger, *The Infiltration*, 32.