

## Japanese Acupuncture and Moxibustion in Europe from the 16th to 18th Centuries

Wolfgang Michel

Professor emeritus, Kyushu University

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### *Abstract*

Despite China's cultural impact on Japan, Japanese physicians used the medical knowledge they adopted from their great neighbor with surprising independence. Being more open to interactions with Westerners, even after the adoption of a semi-seclusion policy in 1639, Japan played a major role in the early transmission of knowledge of acupuncture and moxibustion to Europe.

The first reports concerning traditional Far Eastern medicine by Europeans came from 16th-century Japan, where Jesuit missionaries accumulated considerable expertise in acupuncture, moxibustion, pulse feeling, and materia medica. Their observations were dispersed among a variety of letters, reports, "historias", and dictionaries, and they had no significant impact on European readers.

Medical interactions in Japan changed significantly in 1641 with the relocation of the Dutch trading post from Hirado to Dejima (Nagasaki). Establishing a permanent position for a surgeon/physician laid the foundations for continuous exchange between Japanese physicians and their Western colleagues.

European scholarly interest in moxibustion began with a booklet by Hermann Buschoff, a Dutch clergyman in Batavia, about a remedy for Podagra that he called Moxa (in Japanese, mogusa). Buschoff found it difficult to understand the physiological principles underlying his miracle cure. After serious debate in the German Academy of Natural Science, Andreas Cleyer, a licensed physician and trading post chief in Japan, clarified the botanical background and the production methods of Moxa. However, since Western physicians found themselves unable to understand Eastern pathology, they inevitably looked for parallels in their own tradition and in Egyptian medicine. After Engelbert Kaempfer demonstrated the broad range of applications Moxa had in Japan, it was assimilated as a remedy for gout, following the old Western principle of "revulsion."

Following the scattered earlier remarks by Portuguese Jesuits, Willem ten Rhijne's article on acupuncture marked the beginning of scholarly discussions on the art of needling. He and his eminent successor at Dejima, Kaempfer, presented recent Japanese inventions, such as the guide tube needle and the tapping needle, which were not known in China. The guide tube needle was a simple technical improvement compared to previous free hand needling and the tapping needle was used as part of a new therapeutic concept that ignored the Chinese meridians (keiraku). Both highly educated physicians were unable to overcome the language barrier and depended on Japanese interpreters with limited knowledge of Dutch. Thus meridians were considered to be blood vessels, ki became "vapor" or "wind" (flatus), and the accumulation of ki in the abdominal area seemed to be a kind of colic. The use of needles in order to release such "winds" from the intestines was considered to be dangerous and inevitably led to rejection by Western medical authorities

**Key words:** *Intercultural exchange, East-West medical exchange, Japanese acupuncture and moxibustion, Moxa, Dejima physicians, early modern medicine*

## I . Medicine in Early Modern Interactions between East and West

The bulk of research on medicine in the history of the cultural exchange between Europe and East Asia focuses on the eastward transmission of Western medicine, whereas the westward transmission of Far Eastern medicine has not been sufficiently studied, even though it is equally rich in its content. In order to develop a comprehensive and accurate picture of these interactions, it is necessary to include a broader range of historic source materials on both sides, while avoiding some preconceptions that have taken root during the 20<sup>th</sup> century.

Generalizing terms such as "Eastern medicine" and "Western medicine" do not take into account the peculiarities and distinctive features of the various countries and regions included on both sides, as well as the profound historical changes in early modern Europe and Asia. There were numerous schools and factions that occasionally contested against each other fiercely in both Far Eastern and Western medicine, many among them showing quite eclectic combinations of new and old elements in their etiology and therapies. This situation implies that commonalities and uniformity existed only at a rather abstract level. In addition, medical knowledge as the theoretical foundation of medicine and medical practice implemented in the actual treatment of patients were not necessarily consistent. For example, before the invention of ether anesthesia in the 1840 s, Western surgeons could not effectively take advantage of most of the anatomical discoveries made by the eminent Andreas Vesalius (1514-1564), while in Japan acupuncture needles and Chinese *materia medica* can be found in the old medicinal boxes belonging even to the proponents of Western medicine. Although the reception of medical books and treatises is of great importance for the reconstruction of historic developments, the actual state of medical treatment has to be confirmed too by investigating treatment records, instruments, and drugs.

During the Edo period medical exchanges between East Asian and European physicians and pharmacists became significant, but direct encounters occurred only in the Far East. This imbalance had a significant effect on the exchange and how it was perceived. Furthermore, there was no antagonistic clash of Eastern and Western medical principles. Up to the second half of the 18<sup>th</sup> century, the evaluation of their counterpart's medical knowledge and practice was influenced mainly by actual

research topics and medical discussions in the observer's home country. In some Western cases Japanese acupuncture and moxibustion were even given priority over European treatments<sup>1)</sup>.

The transmission routes between East and West were not always straightforward and simple. For example, the Latin translation of Chinese medical texts made by Jesuit missionaries during the 1650 s in Canton was first passed to Andreas Cleyer, a merchant in Batavia of the (Protestant) Dutch East India Company, and afterward published in Germany under the auspices of the Academy of Sciences (Leopoldina). In another case, a Dutch translation of the Japanese book *Outline of the Deepest Secrets of Acupuncture and Moxibustion (Shinkyū gokuhi shō)* was made in Nagasaki, then brought to Paris via Batavia and after half a century incorporated into a French book on "electro-poncture."

Since the second half of the 18<sup>th</sup> century, cases of re-importing can sometimes be observed. The *Outline of the Deepest Secrets of Acupuncture and Moxibustion*, for example, was written by the Japanese physician Kimura Taichū<sup>2)</sup>, who like his heretic teacher Ogino Gengai from the Tenno's court in Kyoto tried to include Western bloodletting and selected Western drugs into his therapeutic arsenal. The ambitious scholar and trading post chief Isaak Titsingh (1745-1812) managed to make a Dutch translation of this book during his stay in Nagasaki, but both he and the later physician Jean-Baptiste Sarlandiere (1787-1838) failed to recognize these Western elements in Kimura's text. Sarlandiere published his French translation as a document reflecting traditional Sino-Japanese medicine<sup>3)</sup>. When turning to Japanese "Art and Science" in his famous *Nippon*, Philip Franz von Siebold quotes at length from the *Remarks on the Essentials of Acupuncture and Moxibustion (Shinkyū chiyō ichigen)*, a text composed by the Shgun's court acupuncturist Ishizaka Sōtetsu (1770-1842). But Ishizaka had already left the orthodox path of Far Eastern traditions by trying to harmonize Western anatomy with Japanese acupuncture and moxibustion.

Since the Japanese and Chinese share much in the way of culture, it was not easy for Europeans to discriminate between the two nationalities. When writing about the diversity of languages and the origin of ethnicities, Western scholars used to refer to the dispersal of people as described in Genesis, and in many cases the Japanese ended up as a mere offspring or branch of the Chinese people. Accordingly, up to the middle of the 19<sup>th</sup> centu-

ry, acupuncture and moxibustion were treated as common therapies of both China and Japan.

Later, the analysis of cultures in the Far East was based on a more rigorous methodology. Even so, while China attracted much attention as the cradle of acupuncture and moxibustion, traditional medicine in neighboring countries used to be described in terms of transfer and imitation. Even experts did not recognize significant differences between Japanese and Chinese medicines when tracing the "influences" of Chinese medicine "on other cultures"<sup>4)</sup>. Such views are not rare even today. Since they distort our understanding of historical developments as well as the present-day situation, researchers need to pay more attention to the independence, creativity, and historical contributions of the "periphery"<sup>5)</sup>. The following cases have been selected to illustrate these points.

## II. A "Secluded Country" As a Source of Information

Since the Ming and Qing dynasties of China controlled interactions with other countries under a policy of maritime restrictions, Europeans rarely entered that empire. Starting with Toyotomi Hideyoshi's Anti-Christian Edict in 1587, Japanese rulers also gradually limited the range of activities of the Portuguese and Spanish ("Southern Barbarians") in Japan, and in 1639 finally banned all Westerners except the Dutch from entering the country. The archipelago did not adopt a policy of complete isolation. With the permission of the government in Edo the domains of Matsumae, Tsushima, and Satsuma continued to trade with neighboring regions, and Nagasaki, which was a shōgun demesne, became the official harbor for Chinese merchants and the Dutch East India Company. Until the "reopening" of the country in the mid-19th century, many European physicians worked at the Dutch trading post Dejima in Nagasaki, sustaining an uninterrupted medical exchange with Japan for about two centuries. More than 70 percent of about 240 Western books, papers, and reports on Eastern medicine published during that time were based on material and observations obtained in Japan.

## III. "Southern Barbarians" and Sino-Japanese Medicine

During the period of Japanese-Portuguese interactions (1549-1639) that started with the arrival of a Jesuit missionary, Francisco Xavier (1506-1552), it was mostly missionaries and merchants from Portugal and Spain who played a leading role in the cultural exchange with the West. Letters and annual reports from the Jesuit mission, a history of Christianity in Japan, a treatise on cultural differences between Japan and Europe, as well as dictionaries printed by the mission press give a detailed picture of those decades<sup>6)</sup>. There are no contemporary medical books or other texts that have survived, but numerous existing remarks and short descriptions refer to encounters between Japanese and Portuguese physicians. Only eight years after Xavier's landing, a hospital of about 100 beds was built in Funai (nowadays Oita) by the Jesuit missionary Lus de Almeida (1525?-1583). This was not at all part of a long-term missionary strategy but rather a circumstantial event being closely linked to de Almeida's personal history. He had obtained a surgeon's license in Europe and then made a small fortune as a trader in East Asia before entering the Jesuit order. Although many researchers praise this hospital as the starting point of Western medicine in Japan, in reality it was a place where Western surgery and Sino-Japanese internal medicine coexisted<sup>7)</sup>.

Contemporary letters show that Portuguese surgeons enjoyed a high reputation in Japan during the 1560s and 70s. Quite a number of historical studies point out innovations, such as the washing of gunshot wounds with alcohol (arak) and the application of beef fat and olive oil. However, it is disputable whether these measures constituted actual progress. Japanese surgeons used miso (fermented soy bean paste) as a disinfectant and never thought of pouring hot oil into wounds as their Western counterparts did<sup>8)</sup>. Furthermore, gunshot wounds were new to European physicians too, so there were no precedents for addressing them in ancient Greek and Roman medicine. Disputes about the nature and treatment for this type of wounds lingered until the 17th century<sup>9)</sup>. The *Innovative Method of Treating Wounds Caused by Harquebus and other Firearms* published by Ambroise Paré in 1545 did not immediately find its way to Portugal, let alone Japan<sup>10)</sup>.

Lus de Almeida requested the dispatch of European physicians to Funai in order to train Japanese "quasi

officias". This was not due to any kind of superiority of Western surgery but simply a measure to alleviate the shortage of baptized local surgeons<sup>11</sup>). In addition, clergymen were not supposed to be versed in medical treatment, especially surgery. Since the Council of Tours in 1163 "the church abhorred [any spilling of] blood" ("Ecclesia abhorret a sanguine"), and surgery does just that<sup>12</sup>). De Almeida was an exceptionally rare case of a qualified surgeon who happened to join the Jesuit order later in his life. As a non-clerical brother, he enjoyed more freedom than a priest would have, at least for a while<sup>13</sup>).

Although there were occasional critical comments about the state of local medicine, the Jesuits did not ignore Japanese expertise<sup>14</sup>). In Funai the "internal department" was completely run by converted former Buddhist monks. Some of these physicians were praised by name, such as "Paulo Qiogen"<sup>15</sup>), "Uchida Thomé", "Miguel", and a "Diogo from Yokoseura"<sup>16</sup>).

The attitude of the missionaries toward medicinal matters (*materia medica*) was practical. Since it was difficult to obtain European drugs, the missionaries collected herbs at mountains nearby and sent orders to Macau, Malacca, and Cochinchina<sup>17</sup>). There were many Chinese drugs and medical instruments at de Almeida's "officina" (pharmacy)<sup>18</sup>). Lus Frois (1532-1597) was always carrying "new drugs" from Portuguese overseas territories as well as from Japan<sup>19</sup>). Some prescriptions were very effective against "three-day fever, four-day fever and all other illnesses"<sup>20</sup>). Moreover, the crew of a Portuguese ship completely recovered from sickness after herbal medicines were administered<sup>21</sup>). Sources show that missionaries acquired some knowledge of Chinese and Japanese medicines. "Paolo Qiogen" explained "fever and onset of disease" from Chinese books<sup>22</sup>). Although a medical layman, Frois was able to take the pulse "in the Japanese way"<sup>23</sup>).

Therefore, it is not by accident that a Japanese-Portuguese dictionary (*Vocabulario da lingoa de Iapam*)<sup>24</sup>), which the Jesuits printed in 1603 in Nagasaki, contains a tremendous number of herbs and drugs (190 headwords), names of diseases (about 450 headwords), names of body parts and anatomical expressions (about 240 headwords), names of medical instruments (15 headwords), and terms related to veterinary medicine (27 headwords). Some of the approximately fifty entries related to acupuncture and moxibustion explained highly specialized terms such as "Vchibari," "Tomebari," "Guinxin," "Qinxin," and "Firabari"<sup>25</sup>).

"Suncô" (sunkô), "Quanjo" (kanjô), "Fumiacu" (*fumyaku*), "Chinmiacu" (*chinmyaku*), "Xogofuchin" (shôgô *fuchin*), "Iinmiacu" (*jinmyaku*)<sup>26</sup>

"Zzuqiô" (zukyô), "Zzubôxi" (*zubôshi*), "Gozô" (*gozô*), "Roppu" (*roppu*), "Iûniqei" (*jûni kei*), "Iûgoracu" (*jûgo raku*), "Sanxô" (*sanshō*), "Jôxô" (*jōshō*), "Chûxô" (*chūshō*), "Guexô" (*geshō*), "Qi" (*ki*), "Iaqi" (*jaki*), "Fiacuye" (*hyaku'e*), "Ietcot" (*zekkotsu*), "Qigai" (*kigai*), "Sanri" (*sanri*), "Yu" (*yu*)<sup>27</sup>

"Fari" (*hari*), "Farisuri" (*harisuri*), "Farifineri" (*harihineri*), "Faritate" (*haritate*), "Guinxin" (*ginshin*), "Qinxin" (*kinshin*), "Vchibari" (*uchibari*), "Tomebari" (*tomebari*), "Firabari" (*hirabari*)<sup>28</sup>,

"Qiûgi" (*kyûji*), "Yaitô" (*yaitō*), "Futçu" (*futsu*), "Qiû vo suyeru" (*kyû*), "Cauaqiri" (*kawakiri*)<sup>29</sup>,

"Chizaxi" (*chizashi*), "Vmano susono chiuo idasu" (*uma no suso no chi wo idasu*), "Faritçucaiuo itasu" (*haritsukai wo itasu*)<sup>30</sup>,

"Chinsô" (*chinsō*), "Cotçudô" (*kotsudō*), "Nhumiacu" (*nyumyaku*), "Taimiacu" (*taimyaku*), "Qiû" (*kyû*)<sup>31</sup>.

The missionaries also mentioned their experience as patients. Lus Frois, who wrote a "History of Japan" in 1584, explains about moxibustion as follows:

Likewise, there was a note saying as a therapy to treat patients suffering from eye trouble or excessive sensitivity to cold<sup>32</sup>), one should place 3000 to 4000 buttons of fire on the skin of the patient. This is quite common in Japan, but we should take it with a grain of salt. Because in Japan the buttons of fire are a bean sized or pomegranate-seed sized pellets made of dried leaves. They are placed on the skin, ignited at the top and burned up completely. The practice is very easy and after 15 to 20 at the same location the others cause almost no pain whatever, because the flesh there has already become numb. So, they are different from our cautery. I myself have tried the Japanese ones and taken more than 3000 at the back and knees for a variety of pains and eye trouble<sup>33</sup>).

The missionaries used the term "button of fire" (*botão de fogo*) whenever they referred to moxibustion in their letters and reports. In Europe this was a cautery with a button-like round top used to close wounds and broken blood vessels or to induce suppuration at certain locations. Understandably, Western readers were quite surprised that such "buttons of fire" were so frequently used in Japan. On the other hand, according to a treatise on the cultural differences between Japan and Europe written by Frois in 1585, the Japanese did not accept urinary diagnoses, bloodletting, enemas, cauterization, and other therapies deemed indispensable in Europe. Obviously, they were not always overwhelmed by Western achievements<sup>34</sup>. Medical interaction between Europe and Japan in the 16th century was by no means one-sided but instead rather well balanced. There was no fixed teacher-student relationship, nor was there a victory parade of Western medicine.

The fate of Jesuit churches, schools, hospitals, and nursing homes in Japan was short lived. The hospital in Funai was destroyed by troops of the domain of Satsuma in 1587, and as the suppression of Christianity became stronger, the promising attempt to combine Western and Far Eastern medicines quickly disappeared. In 1589 the Jesuit Vice-Provincial Gaspar Coelho sent a letter to the superior general of the order deploring that there were "no physicians and no drugs. Nobody knows how to perform phlebotomy. Three friars have already died of illness from the burden of persecution"<sup>35</sup>. Two years later, Padre João Rodrigues (1561-1633), who fell ill in Kyoto, had to travel as far as 700 km back to Nagasaki for his treatment<sup>36</sup>. In 1612 the vice-provincial Francisco Pasio proclaimed an unconditional ban that prevented members of the Jesuit Society from any study of medicine or medical practice. Since then, remarks on that subject disappeared from all correspondence<sup>37</sup>. In 1620, the last nursing home that Japanese Christians were running in Nagasaki was destroyed.

Franciscans and Augustinians, who arrived in Japan in those decades, devoted themselves to patient care, but like the Jesuits they ran into trouble everywhere, and no details are known about their medical endeavours<sup>38</sup>. From the 1620s on, a sustained exchange between Japanese and European physicians had become practically impossible.

#### IV. The Relocation of the Dutch Trading Post and the Beginning of Continuous Interactions between Japanese and European Physicians

The Dutch East India Company (Verenigde Oostindische Compagnie, VOC) established a trading post in Japan in 1609, only seven years after it was founded as the first stock corporation in world history. Employees working at the company's trading posts in the East Indies were usually treated by surgeons from anchoring Dutch ships or by local physicians. Gradually, a health care system was organized with Batavia at its center, but it was not easy to find able physicians or to secure drugs in sufficient quantities and at reasonable prices that were compliant with the standards of the *Pharmacopoeia Amstelredamensis*.

In Japan, after the deportation of the Spanish and Portuguese, the Dutch trading post was relocated from Hirado to Nagasaki, a city under the direct control of the central government. The Dutch were confined to Dejima, a small artificial island, and this brought about a fundamental change in the medical interactions between Japan and Europe. It was then that the company finally in-



**Fig. 1** Treatment of Podagra as described by Hermann Buschoff. (Michael Bernhard Valentini: *Museum Museorum*. Frankfurt am Main, 1704. Collection of the author)

stalled a resident physician who took care of the trading post personnel and accompanied his superior on the annual journey to the court of the Shgun. For the first time in Dutch-Japanese relations a continuous medical exchange was possible that even included Edo. In addition, a steady flow of reports on the activities of the Dutch was conveyed to the court as two Japanese Nagasaki governors, one residing in Edo and one in Nagasaki, had to switch residency every year.

As they were not engaged in trade, European physicians at Dejima enjoyed more freedom than merchants. They were occasionally asked to look after high-ranking Japanese patients and met with outstanding colleagues at the Shgun's court and at the residencies of officials and regional lords. In this respect Dutch physicians were luckier than the "Southern Barbarian" physicians during Japan's "Christian Century"; however, the length of their stay in Japan was limited to a few years at most. Furthermore, as they were not allowed to study the language, they were unable to read Japanese and Chinese books for themselves and had to rely, in encounters with patients and colleagues, on Japanese interpreters who were no experts in medicinal affairs. Accordingly, the language barrier prevented any detailed analysis and deeper understanding at least until the first half of the 18th century<sup>39</sup>.

In the diary of the trading post chief and other historical sources, we can find the names of more than ninety physicians/surgeons and pharmacists. For about a century the European medical presence in Japan was dominated by barber-surgeons who had received their educations in guilds. Later, the number of graduates from universities and military medical schools increased. Some trading post physicians had an interest in Japanese medicine. Willem ten Rhijne, Engelbert Kaempfer, Willem Wagemans, Carl Peter Thunberg, and Philipp Franz von Siebold in particular deserve credit for outstanding research on that subject. In addition, some ambitious trading post chiefs, such as Andreas Cleyer and Isaac Titsingh actively investigated Japanese and Chinese drugs as well as acupuncture and moxibustion.

## V. "Moxa" as a Remedy for Podagra

Although the Jesuits had occasionally referred to Japanese "buttons of fire," the first fully-fledged Western discussion of Moxa was triggered by a booklet written by Hermann Buschoff (1620?-1674), a Dutch clergyman

in Batavia<sup>40</sup>. Buschoff was suffering from Podagra and received treatment by physicians of the Dutch East India Company. Since they were unable to alleviate his intense pain, he called for a local doctresse who had come from "Quinam" (Quang Nam), a kingdom in present-day Vietnam. She carefully searched the affected area and placed about 20 pellets of Moxa on his legs and knees for about half an hour. It is questionable whether she diagnosed Buschoff with Podagra, but the effect of the treatment exceeded his expectations. After this experience, he devoted many years to finding out more about the miraculous Moxa and finally wrote a *Detailed Study on Podagra Including a Secure Discharging Remedy for its Cure* (Het Podagra, nader als oyt nagevorst en uytgevonden, midsgaders des selfs sekere genesingh of ontlastend hulp-middel)<sup>41</sup>. The fact that a clergyman in Batavia who had never visited Japan used the term Moxa (*mogusa* in Japanese), implies that Japanese Moxa was widely distributed in East Asia. Buschoff's booklet targeted general readers and attracted considerable attention. Following the Dutch printing (1675), an English version (1676) and a German version (1677) were published, which spread the new remedy and its name all over Europe<sup>42</sup>.

The end of Buschoff's booklet reprints an address in Amsterdam, where Moxa was available. The "burning wool" delivered by the Dutch East India Company fetched high prices. M. Gottfried Purmann (1648-1721), a German surgeon, paid a great deal of money when he began to perform a "miracle-like therapy using Moxa" during the 1690s. After he had treated several patients suffering from pain in the back and extremities, he ran out of Moxa and had to buy "from other surgeons the very small amount of Moxa that they had." He pointed out that Moxa was not used as often as it had been earlier<sup>43</sup>. In 1737 Johann Christian Kundmann (1684-1751) wrote that the Asian incense sticks, recommended to ignite the Moxa, had been sold 30 years ago at three guilders per lot (about 16 gramm) under the name of "Ambergris candles" since they were under an embargo<sup>44</sup>. In the trading documents of the Dutch East India Company, Moxa was subsumed under "medicinal material," but there is no doubt that it was brought to Europe and used there.

According to Buschoff, gout is an unnatural, internal small "swelling" (*geswel*) deep inside the periosteum, caused by a "dry and cold malignant vapor" (*een drooge en koude quaedt-aerdige damp*). This vapor is "driven

by the heart through the arteries into the space between bones and the periosteum." It occurs around the joints, and the vapor is trapped there. It expands the very sensitive periosteum, causing severe pain, and the affected extremities cannot be moved anymore<sup>45</sup>). The swelling is internal in most cases<sup>46</sup>). The bump that can be seen is only one of the symptoms<sup>47</sup>). Buschoff concludes that many of the leading experts had caused considerable etiological confusion<sup>48</sup>). He held that his own theory was not only backed by a number of European medical books and physicians but also by "Chinese doctors who have the same theory as mine as far as I know."<sup>49</sup>)

Although Buschoff might have obtained such an explanation from Chinese physicians in Batavia, there were still many obstacles to understanding their pathology. Eventually, he associated Western medicine with Far Eastern medicine, based on the hints he had obtained from various sources, and characterized the vapor as "dry and cold" and as "malignant rotten"<sup>50</sup>). Caused by a "weak warmth", it is generated, he said, from "rotten water and blood in internal organs", such as the stomach, liver, spleen, and "even within the head", and is carried

to the heart through the blood vessels. The heart removes it by driving it through the arteries, as far as the extremities<sup>51</sup>). The "vapor" penetrates the space between the periosteum and the bone, where it causes severe pain<sup>52</sup>). According to Buschoff, the purpose of the treatment is to "remove the vapor that has been trapped in the affected part"<sup>53</sup>). The best way is to place Moxa on the artery, after having confirmed that the "pain is severe and the malignant matter is still dispersed in the blood"; then, Moxa will draw out the malignant matter or vapor"<sup>54</sup>). These explanations show clearly some traces of Chinese etiology.

Since Buschoff did not disclose the raw material of Moxa, scholars of the German Academia Naturae Curiosorum (Leopoldina) were in a hurry to identify it and turned to their fellow member Andreas Cleyer (1634-1698), who was running the two pharmacies in Batavia<sup>55</sup>). Cleyer, a German physician, had been responsible for the company's internal supply of medicinal products since 1667. He knew that Moxa was prepared of nothing but simple mugwort (*Artemisia*) but pointed out that the processing techniques were of extreme im-



Fig. 2 Andreas Cleyer's report on Moxa. (*Miscellanea Curiosa*, Dec. 2, Ann. 4, p. 1. Collection of the author)



Fig. 3 Cauterization performed in 16th century Egypt, following the principle of "revulsion." (*Prospero Alpini: De medicina Aegyptiorum. Lugduni Batavorum, 1745, p. 218. Collection of the author*)

portance. Fortunately, Cleyer was appointed trading post chief at Dejima in the autumn of 1681. He had been investigating crude Asian drugs before and while conducting a general botanical survey, he collected more information about Moxa during his journey to Edo<sup>56</sup>. An excerpt from a letter to Berlin was translated into Latin and published as the opening article of the *Miscellanea Curiosa* (1686 edition), which attracted attention from European scholars (Fig. 2)<sup>57</sup>.

After several months of close contact with Cleyer, the physician Engelbert Kaempfer (1651-1716) served at the trading post Dejima from the autumn of 1689 to the autumn of 1691. Back in Germany he published the translation of an illustrated Moxa-Mirror (*Kysho kagami*), which he obtained in Japan, in his scholarly book *Amoenitates Exoticae* (1712) and for the first time indicated the wide range of applications for Moxa<sup>58</sup>.

Kaempfer paid particular attention to suppurative moxibustion (*dano-kyū*), in which the place where the skin is slightly burned by Moxa is rubbed with something like leeks to induce a light suppurating. As this treatment, which improves immunity, was applied to blastoma and other swellings too, it was more easily accepted by Europeans. Since the days of ancient Greek medicine, physicians were familiar with a method called "revulsio." In order to draw malignant matter (*materia peccans*) from the seat of disease to the surface and derive it from the body, the skin was irritated with a stimulant or ointment, and a suppuration was induced. As in Far Eastern moxibustion, the seat of disease and the place of treatment usually were not identical. In addition, Kaempfer knew a detailed report about a similar skin stimulus in a book about the medicine of the Egyptians (*De medicina Aegyptiorum*), which was published by the Italian professor Prospero Alpini (1553-1617) in 1591 and underwent many editions until the 19th century (see Fig. 3)<sup>59</sup>.

Kaempfer's Latin treatise on moxibustion and another one on acupuncture were translated and attached to his famous *History of Japan* (1727). Soon afterward a French, a Dutch, and finally a German version were published, leading to a widespread reception of his thoughts and materials that lasted until the 19th century.

## VI. On the Transmission of Acupuncture to the West

As mentioned above, missionaries accumulated considerable knowledge of acupuncture during the era of

Japanese-Portuguese exchange. However, most of their writings were short and dispersed among a variety of letters, annual reports, and dictionaries; therefore, they did not have any great impact in Europe. It was in the second half of the 17th century that acupuncture for the first time attracted considerable attention among Western physicians. Once again, Japan played a critical role. Jacob de Bondt (1599-1631), a Danish pioneer in tropical medicine, referred to acupuncture in Java with somewhat vague remarks, but Willem ten Rhijne (1647-1700), a Dutch physician who, like de Bondt (Bontius), worked for the Dutch East India Company and came to Japan in 1675, managed to make Far Eastern needling a focus of Western scholarly interest.

Ten Rhijne, a young, brilliant graduate from the University of Leiden, was selected especially to teach Western medicine in Japan. When he came to Nagasaki, he started to investigate acupuncture and moxibustion, in part to respond to the request from Buschoff, and managed to obtain some needles, Japanese illustrations, and the groundbreaking *Illustrated Manual Explaining Acupuncture and Moxibustion with the Aid of the Bronze Figure and its Acu-points* (*Tóngrén shùxué zhēn-jū tūjīng*) written by Wáng Wéi Yī (987-1067). To figure out the content of this Chinese classic, he asked for help from the trading post interpreters Iwanaga Sōko and Motoki Shōdayu Ryōi. However, since their Portuguese was much better than their Dutch, it was extremely difficult for him to grasp the meaning of Wáng's descriptions. Although there were still unanswered questions and a certain anxiety, he included annotated Japanese and Chinese illustrations and an outline of the Chinese book in a collection of treatises, which were published in 1682 in London. He proposed the term "Acupunctura," derived from "needle" (*acus*) and "puncture" (*punctura*), as the Western name for the Eastern needling therapy.

Although Ten Rhijne did not achieve a clear order in his descriptions, he was able to introduce three techniques of needling, i.e., the simple straight insertion, the insertion by twisting the needle with the thumb and index finger, and the insertion by slightly tapping a thick needle on the head. The first two techniques came from China, but the tapping technique did not exist there. His book includes a copper etching of a golden needle and a tiny hammer from Japan, but ten Rhijne obviously was not aware of Misono Isai (1557-1616) and his unique diagnostic and therapeutic concept.

Ten Rhijne's explanations about the *Illustrated Manual* reflected his doubts and hardships at Dejima. The Chinese "tracts and channels" (*meridians*) became "veins and arteries" (*venae et arteriae*), where "winds" (*flatus*) and "vital spirits" (*spiritus vitales*) circulate, and Yin and Yang are identified as the "primigenial moisture" (*humidum radicale*) and "innate heat" (*calidum innatum*) of ancient Greek and Roman humoral pathology. Ten Rhijne was also annoyed by the relationship between the points, from which "vapor" is drawn off (*signa*), and the affected area (*locus dolendi*). This book introduced the word "acupuncture" into European languages, but it also conveyed the impression that the Japanese and Chinese have strange and difficult-to-understand therapies<sup>60</sup>.

Kaempfer, who had met Ten Rhijne in Batavia in 1689, could not obtain Chinese medical books, but he was able to explain in detail the actual treatment methods, thanks to the cooperation of Imamura Gen'eemon Eisei (1671-1736), his bright personal servant, and the interpreter Narabayashi Chinzan (1648-1711), who possessed considerable medical knowledge. Kaempfer too explained that the problem of the locations for needling belongs to a "specific area of Japanese surgery," that there were numerous rules for acupuncture, and that a special relationship with the "wind" (*flatus*) causes illness.

For the needling techniques, Kaempfer used illustrations and, in addition to twist needling and tapping needling, introduced the so-called tube needling that was invented by Sugiyama Wa'ichi (1610-1694). Ten Rhijne listed the range of acupuncture applications as follows: headache, dizziness, cataracts, rabies, tension in the back and chest, nervous twitch disorders, epilepsy, coryza, rheumatism, intermittent fevers and chronic fever, hypochondria, melancholy, dysentery, cholera, colic pain, and other illnesses caused by "wind" in the intestines, testicle swelling, arthritis, and gonorrhea. By contrast,

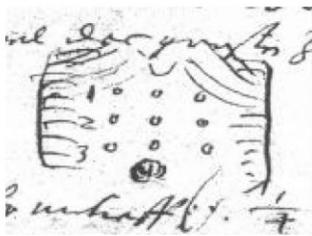


Fig. 4 Kaempfer's sketch of treatment points in cases of "colic." (British Library, Sloane Collection no. 3062)

Kaempfer's description centers on *senki*, a disease associated with pain and caused by the stagnation of *ki* in the abdominal area. As Kaempfer took *ki* as "wind," he also identified *senki* as a kind of colic (*Colica*). He described nine acu-points on the abdomen where the stagnant "wind" is released. This therapy does not seem to place any importance on traditional Chinese "tracts and channels" (*meridians*) but rather invokes the concepts of the Japanese physician Nagata Tokuhon (1513-1630). Kaempfer had drawn a simple sketch in Japan, showing only these nine acu-points above the umbilicus and a few ribs (see Fig. 4), whereas the copper plates in his *Amoenitates Exoticae* and the *History of Japan* present an erotic Japanese woman stretching her semi-naked body (see Fig. 5).

Through the treatises of Ten Rhijne and Kaempfer the Eastern art of acupuncture became widely known in Europe. After Kaempfer's return, a great number of Western physicians arrived at the Dejima trading post, but none of them managed to make further contributions to that subject until the arrival of Philipp Franz von Siebold (1796-1866), who is known to have observed

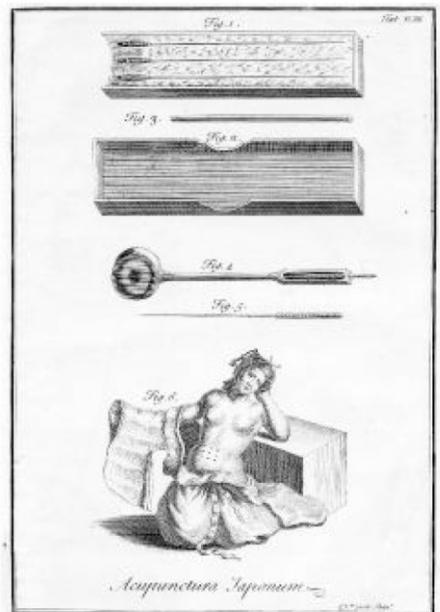


Fig. 5 Illustration of a "tube needle," a "tapping needle," and treatment points in cases of "colic." (Engelbert Kaempfer: *The History of Japan*. London, 1727, Vol. II, Tab XLIII. Collection of the author)

acupuncture from the perspective of modern Western medicine. The only exception was Isaac Titsingh, who had earned a doctor of law degree before entering the East India Company. From 1779, he served as trading post chief at Dejima three times and conducted an outstanding investigation of Japan. In Kyōto, Titsingh obtained the *Outline of the Deepest Secrets of Acupuncture and Moxibustion* (*Shinkyū gokuhi-shō*) published by Kimura Taichū in 1780 and, with the help of a dedicated trading post interpreter, made a Dutch translation. This book too differed significantly from orthodox Chinese writings by integrating Nagata Tokuhon's unique concept of acupuncture with Ogino Gengai's combination of Japanese needling and Western bloodletting. Titsingh brought his translation to Europe, but it was used many decades later in a completely different context, so it can be omitted here<sup>61</sup>.

## VII. Controversy about the Evaluation

Like Japanese adherents of "Dutch Studies" (*rangaku*), European physicians visiting Japan could only fragmentarily understand the indigenous concepts about the human body and pathology due to the language barrier and insufficient knowledge. Nevertheless, Kaempfer, who summarized the debates of the 17th century, came to a very friendly conclusion:

They are more expert in Physick than Surgery, at least the European way of treating chirurgical cases. The physicians however do not load their patients with medicines. They make use of two external remedies, fire and the needle, both which are thought very efficacious, to exterminate the causes of distempers (which they call obstructions) and to give room to the obstructing matter, as the cause of pain (which they call wind) to escape from its prison. The frequent and daily use of bathing, which the natives of this country are so fond of, out of a principle of purity in point of religion, and a natural love of cleanliness, greatly contributes to keep them in good health, and dispels many distempers, which they would be otherwise liable to. But there are besides many and efficacious hot baths in the country, whether they send, as we do, patients labouring under stubborn and lingering sicknesses<sup>62</sup>.

Kaempfer's doubts about Western medicine can be seen even more clearly in his descriptions about

moxibustion. It is interesting that he praised acupuncture as a surgical treatment method.

It may not be amiss to take notice, that there are two principal remedies in surgery, supposed to be equally successful in the cure and prevention of diseases and which on this account are called in to assistance in these parts of the world by the healthful, as well as the sick, by regular Physicians and Quacks, by rich and poor. [...] Their very names indeed will appear terrible and shocking to the reader, they being no less, than fire and metal. And yet it must be owned in justice to the Japanese, that they are far from admitting of all that cruel, and, one may say, barbarous apparatus of our European surgery. Red hot irons, and that variety of cutting knives and other instruments requisite for our operations, a sight so terrible to behold to the patient, and so shocking even to the assistants, if they be not altogether destitute of all sense of humanity and mercy, are things, which the Japanese are entirely ignorant of. Their fire is but moderate, it hath nothing to terrify the patient, it is such, as the very Gods of the Country are not displeased to have burnt before them, and in a word nothing else but a gently glowing tent of the Plant, which bears the name of that celebrated Queen Artemisia. So likewise the metals they make use of in their operations of surgery, are the very noblest of all, the ornament of royal palaces, the produce of sun and moon, and, as the Philosophers pretend, richly imbued with the qualities and virtues of those two celestial bodies. The reader easily apprehends, that I mean, gold and silver, of which they have needles made in a particular manner<sup>63</sup>.

However, Western physicians, who read a variety of reports regarding Far Eastern medicine without knowing its background, tried to judge its usefulness by looking for similar therapies in their own tradition. Moxa seemed to be quite familiar to them. Although they ignored Eastern concepts of meridians and treatment points, Moxa eventually was adopted as a new therapeutic mean that gained a certain level of appreciation.

On the other hand, acupuncture soon evoked sceptical responses. Professors such as Lorenz Heister (1683-1758) and Georg Ernst Stahl (1659-1734) and many other scholars who read Ten Rhijne's and Kaempfer's treatises took stagnant "vapor" and "wind" as intestinal gas and imagined Japanese and Chinese physicians inserting needles into the abdomen to release this gas.

Needless to say that such a life-threatening procedure inevitably was rejected. The severe criticism by well-known medical authorities strongly affected the reception of research on that subject for many decades to come. With the rapid progress of Europe's medicine during the 18th century, interest in Far Eastern therapies weakened even more. This slump continued until the rise of studies on the human nervous system and electrical stimulation at the beginning of the 19th century.

## References

- 1) See Engelbert Kaempfer's writings on acupuncture and moxibustion, first published in *Amoenitates Exoticae*. Lemgo, 1712, pp. 582-605. Both treatises were translated into English and included in Kaempfer's *The History of Japan*. London, 1727: Appendix III ("Of the cure of the Colick by the Acupunctura") and Appendix IV ("An account of the Moxa").
- 2) Kimura Taichū Motosada: *Shinkyū gokuhi shō*. Kyōto, 1780 (An'ei 9).
- 3) Jean-Baptiste Sarlandire: *Mémoires sur l'électropuncture, considérée comme moyen nouveau de traiter efficacement la goutte, les rhumatismes*. Paris: Delaunay, 1825.
- 4) Lu Gwei-djen / Joseph Needham: *Celestial Lancets - A History and Rationale of Acupuncture and Moxa*. Cambridge: University Press, 1980, pp. 262 ff.
- 5) Wolfgang Michel: *Japans Rolle in der frühen Vermittlung der Akupunktur nach Europa*. In: *Deutsche Zeitschrift für Akupunktur*, Vol. 36, No. 2 (1993), pp. 40-46.
- 6) Wolfgang Michel: *Frühe westliche Beobachtungen zur Akupunktur und Moxibustion*. In: *Sudhoffs Archiv. Zeitschrift für Wissenschaftsgeschichte*, Vol. 77, No. 2 (Stuttgart 1993), pp. 194-222.
- 7) For more on the medical activities in the Christian Century, see Ebizawa Arimichi: *Kirishitan no shakai-undō oyobi Nanban-igaku*. Fuzanbō, 1944. Most of the letters written by Jesuit missionaries can be found in the *Cartas que os Padres e Irmãos da Companhia de Jesus escreverão dos Reynos de Iapão & China*. Euora: Manoel de Lyra, 1598 (below abbreviated as 'Cartas'). For de Almeida, see *Cartas*, Livro I, fol. 51, 52, 56, 62, 64.
- 8) *Cartas*, I, fol. 62.
- 9) Carol Dealey: *German Wound Surgeons 1450-1750*. *EWMA Journal*, Vol. 5 (2005), No. 2, pp. 48-51.
- 10) Heinrich Haeser: *Lehrbuch der Geschichte der Medizin*. Gustav Fischer, Jena, 1881, pp. 145 ff.; Max Neuburger / Julius Pagel: *Handbuch der Geschichte der Medizin*. Vol. 3, Jena 1905, pp. 17 ff.; Ambroise Paré: *La methode de traicter les playes faictes par hacquebute et aultres bastons feu*. Paris, 1545.
- 11) *Cartas*, I, fol. 64, 110, 63. Luis Frois: *Die Geschichte Japans (1549-1578)*. Übersetzt und kommentiert von G. Schurhammer und E. A. Voretzsch. Verlag der Asia Major, Leipzig 1926, p. 58. Below abbreviated as 'Frois (1584/1926)'.
- 12) Dorotheus Schilling: *Das Schulwesen der Jesuiten in Japan (1551-1614)*. Regensburg/ Münster 1931, pp. 63 f.
- 13) Schilling (1931), p. 87.
- 14) *Cartas*, I, fol. 30, 98, 216 v.
- 15) There are also remarks on a Paulo, a former monk from Tonomine, and a "Yofo" or "Yofogen Paolo".
- 16) *Cartas*, I, fol. 64 v.
- 17) *Cartas*, I, fol. 56, 62 v, 77; Frois (1584/1926), p. 63.
- 18) *Cartas*, I, fol. 72 v. *Jesuitas na Asia (Biblioteca de Ajuda, Lisbon)*. Codex 49-VI-8. Photographic reproduction in album form. Tokyo, Ikubundo, c. 1931, fol. 128 v.
- 19) Frois (1584/1926), pp. 292-293.
- 20) *Cartas*, I, fol. 64.
- 21) *Cartas*, I, fol. 64 v.
- 22) *Cartas*, I, fol. 64 v.
- 23) *Cartas*, I, fol. 77; Frois (1584/1926), p. 295.
- 24) *Vocabulario da Lingoa de Iapam*. Nagasaki, 1603.
- 25) For a detailed discussion, see Michel: *Frühe westliche Beobachtungen zur Akupunktur und Moxibustion*.
- 26) *Vocabulario* (1603): "Suncô. Certo lugar onde se toma o pulso, que responde ao primeiro dos tres dedos que he odice com que os Chinas, & Iapões tomaõ o pulso."; "Quanjô. Hum certo pulso, de que tratão os medicos."; "Xacuchû. Hũa parte do pulso que responde ao dedo medicinal, que he o que está junto do meimiubo, quando se toma com tres dedos, como costumão os Chinas, & Iapões."; "Fumiacu. Pulso que se sente logo em se sonãdo."; "Chinmiacu. Xizzumu miacu. Pulso escaco, & fraco."; "Iinmiacu. Pulso que responde aos rins."; "Xôgôfuchin [...] Cada sillaba destas he nome de hũa maneira de pulso conforme aos quatro tempos do anno. Xô he o pulso da prima vera. Gô, Do Outono. Fu, He do

- estio. Chin, O do inuerno."; "Quatmiacu. Certo Pulso."; "Ximiacu. Pulso de quem está pera morrer, ou vizinho à morte."; "Ximeacu. Pulso de que está pera morrer, ou intercadente."; "Xinmiacu. Pulso que vem do coração. Item, O tomar, & ver o pulso. S."
- 27) Vocabulario (1603): "Zzuqiô. Liuro de anotomia dos fisicos pera saberem as veas, & partes do corpo."; "Zzubôxi. Pintura que mostra distintamente as partes do corpo pera aprender a curar."; "Gozô. Cinco partes que ha nas antranhas. v.g. Can, I, cannozô. Baço. Xin, I, xinnozô. Coração. Fi, I, finozô. Fígado [...] Fai, I, fainozô. Bofes. Iin, I, jinnozô. Rins."; "Roppu. Seis partes, ou lugares nas entranhas, & corpo do animal. S. Daichô, Xôchô, Bôquô, Sanxô, Y, Tan: cuja significação se veja em seus lugares. Item, Se diz, Daichôno fu. Xôchôno fu, &c."; "Iûniqei. Doze veas que ha nos pês, & nas mãos de que fálão os medicos. Vt, Iûniqei, jûgoracu. Vide Iûgoracu."; "Iûgoracu. Quinze veas, Vt, Iûniqei jûgoracu. 12. & 15. veas do corpo de que fálão os medicos."; "Sanxô. Tres partes do corpo. S. Iôxô, Chûxô, Guexô. Partes superiores do peito pera cima, partes do meo, & partes inferiores."; "Iôxô. As partes superiores do corpo como cabea, & pesçoço."; "Chûxô. O espao que ha do peito ate a cintura."; "Guex. Partes inferiores do corpo. Vt, Guexôno fiyeta. Esfriarôse as partes de baixo. Iôxô. As partes de cima como cabeça, &c. Chûxô. As partes do meo como barriga, &c."; "Qi. Coração, espiritos vitaes, ou vigor do coração."; "Iaqui. Yocoxima no qi. Bafo ruim, ou pestilence. S. Iaqi aru. Auer algũa doena contagiosa, como peste, ou vento pestifero. Iaqiga tachisar. Acabarse este vento ruim, ou doença contagiosa, ou de ruim bafo. S."; "Fiacuye. Certo lugar no cume da cabeça, onde se dam botoens de fogo de Iapão."; "Ietcot. Certo lugar dos pees onde se dão botões de fogo."; "Qigai. Certo lugar nos lombos, ou cadeiras onde os Iapões dam seus botões de fogo."; "Sanri. Certo lugar a baxo dos joelhos onde se dão botões de fogo na canela da perna."; "Yu. Certos lugares ao lôgo do espinhaco onde se dão botões de fogo."
- 28) Vocabulario (1603): "Fari. Agulha, ou lanceta. Fariuo fineru. Meter certas agulhas, ou alfenetes por algũas partes do corpo por mezinha. Fariuo tçucô. Dar lancetada como quando sangraô cavalos."; "Farisuri. O que faz as agulhas de que usam os Iapões pera dar agulhadas em certos lugares do corpo por causa de alga doença."; "Farifineri. O que dáagulhadas a alguns doentes com certas agulhas de ouro, ou prata por mezinha."; "Faritate. O que da agulhadas com certas agulhas a alguns doentes conforme ao costume de Iapam."; "Guinxin. Xiroganeno fari. Agulha de prata. Vt. Guinxinuo fineru. Meter a agulha de prata na carne torcendoa."; "Qinxin. Coganeno fari. Ha laya de agulhas de ouro, de que usam os Iapes por mezinha."; "Vchibari. Agulha que se mete no corpo batendo. Vchibariuo vt. Meter esta agulha assi."; "Tomebari. Agulha que se mete em certa parte do corpo pera impedir as camaras. Tomebariuro taturu. Dar esta agulhada."; "Firabari. [...] Item, Firabari. Lanceta de sangrar caualos, ou homs. Vt, Firabariuro taturu. Dar lanetada pera tirar sangue."
- 29) Vocabulario (1603): "Qiügi. i, Yait, I, yaifi. Botoês de fogo. Qiügi suru. Dar botoês de fogo."; "Yaitô. Botão de fogo que se da com certa erua seca: posto que a propria palaura he Qigi."; "Suye, yuru, eta. [...] Yaitôuo suyuru. Dar botoês de fogo."; "Cauarayomogui. Certa erua medicinal."; "Cauaqiri. O primeiro botão de fogo dos de Iapão que se dà, ou a primeira agulhada das que se dão por mezinha."
- 30) Vocabulario (1603): "Chizaxi. O sangrar caualos. Vt, Vmano chizaxiuo suru."; "Idaxi, su, aita. [...] Susono chiuo idasu. Sangrar caualos, &c."; "Tori, ru, otta. Tomar. [...] Chiuo toru. Sangrar: particularmente se diz de caualos."; "Chi. Sangue. [...] Chiuo idasu. Tirar, ou botar sangue, ou sangrar. Vt, Vmano susono chiuo idasu, I, toru. Sangrar os caualos nos pees."; "Tçucuroi, rô, ôta. [...] Vmauo tçu-curô. Sangrar os caualos, cortar lhasas unhas, & curalos para que não se danem os pês &c."; "Faritçuca. O sangrar bestas. Vt, Faritçucaiuo itasu."
- 31) Vocabulario (1603): "Chinsô. Certo pulso que tem o cauallo na barriga; Quacuyû. Certo pulso que se toma na barriga ao cauallo."; "Cotçudô. Certo pulso que se toma ao cauallo na barriga."; "Nhumiacu. Pulso que se toma na barriga do cauallo."; "Taimiacu. Certo lugar na barriga do cauallo onde lhe dao agulhadas por mezinha, quando está doente."; "Qiû. Certo modo de botam de fogo de que às vezes usam os Iapões em curar os cauallos."
- 32) Schütte translates "frialdade" as "rheumatism".
- 33) Frois (1584/1926), p. 9.

- 34) Luís Fróis. Kulturgegensätze Europa-Japan (1585) - Tratado em que se contem muito susintae abreviadamente algumas contradições e diferenas de costumes antre a gente de Europa e esta provincia de Japão. Erstmalige, kritische Ausgabe, von Josef Franz Schütte. Tokyo, Sophia Universität, 1955.
- 35) Cartas II, fol. 237 v.
- 36) Lettera Del Giappone De Gli Anni 1591. Et 1592. Scritta al R.P. Generale Della Compagnia de Giesv. Milano, 1595, p. 113.
- 37) Schilling (1931), p. 65.
- 38) Victor Bernardin de Rouen: Histoire universelle des missions Franciscains. Tome II. Paris, 1899.
- 39) Wolfgang Michel: Medicine and Allied Sciences in the Cultural Exchange between Japan and Europe in the Seventeenth Century. In: Hans Dieter Ölschleger (ed.): Theories and Methods in Japanese Studies: Current State & Future Developments - Papers in Honor of Josef Kreiner. Vandenhoeck & Ruprecht Unipress, Göttingen, 2007, pp. 285-302.
- 40) Wolfgang Michel: Yōroppa ni Moxa wo shō-kai shita Batabia no bokushi Heruman Bushofu no shō gai to chosaku ni tsuite. Nichi-Ran gakkai kaishi, No. 23 (1988), pp. 47-63.
- 41) Het Podagra, nader als oyt nagevorst en uytgevonden, midsgaders des selfs sekere Genesingh of ontlastend Hulp-Middel. Door Hermanus Busschof de Oude van Utrecht, Predikant op Batavia in Oost-Indien. Amsterdam: Jacobus de Jonge, 1675.
- 42) Two Treatises, The one, Medical, Of the Gout, And its Nature more narrowly search'd into than hitherto, together with a new way or discharging the same. By Herman Busschof Senior, of Utrecht, residing at Batavia in the East-Indies, in the service of the Dutch East-Indian Company. London: Printed by H.C., 1676. Das genau untersuchte und auserfundene Podagra, Vermittelst selbst sicher-eigenen Gensung und erlösenden Hülff-Mittels / Durch Herrmann Busschoof den Iteren von Utrecht / zu Neu-Batavien in Ost-Indien wohnhafft / Niederländisch beschrieben / und anietzo ins Deutsche übersetzt von einem aus dem Collegio Naturae Curiosorum. Breslau: Esaiiae Fellgibel 1677. For an annotated reprint and extensive commentary, see Erste Abhandlung ber die Moxibustion in Europa. Herausgegeben, bearbeitet und kommentiert von Wolfgang Michel. Heidelberg: Haug, 1993.
- 43) Matthaei Gotof. Purmanni, Chirurgi und Stadt=Artztes zu Breslau Herausgegebene Chirurgia Curiosa. Franckfurt/Leipzig, 1699, p. 723.
- 44) Rariora Naturae & Artis item in Re Medica, oder Seltenheiten der Natur und Kunst des Kundmannischen Naturalien=Cabinets, wie auch in der Artzeney=Wissenschaft. Überlassenvon D. Johann Christian Kundmann. Breslau/Leipzig, 1737, 20. Artikel, Col. 933.
- 45) Buschof (1675), p. 3.
- 46) Buschof (1675), pp. 8 ff.
- 47) Buschof (1675), pp. 36 ff.
- 48) Buschof (1675), pp. 10-16.
- 49) Buschof (1675), p. 13.
- 50) Buschof (1675), p. 16.
- 51) Buschof (1675), pp. 24 f.
- 52) Buschof (1675), p. 20.
- 53) Buschof (1675), p. 51.
- 54) Buschof (1675), pp. 27 f.
- 55) The German Academy of Sciences (Leopoldina) had a deep impact on the reception of Far Eastern medicine in early modern Europe. Wolfgang Michel: Far Eastern Medicine in Seventeenth and Early Eighteenth Century Germany. Studies in Languages and Cultures (Faculty of Languages and Cultures, Kyushu University), No. 20 (2004), pp. 67-82.
- 56) For an annotated edition and detailed analysis of Cleyer's letter after his first stay in Japan, see Wolfgang Michel: Ein 'Ostindianisches Sendschreiben' - Andreas Cleyers Brief an Sebastian Scheffer vom 20. Dezember 1683. Dokufutsu Bungaku Kenkyū (Faculty of Languages and Cultures, Kyushu University), Vol. 41 (1991), pp. 15-98.
- 57) Andreas Cleyer: De Moxa. In: Miscellanea Curiosa, Decuria II, Annus IV, Observatio I (1686).
- 58) Wolfgang Michel: Engelbert Kaempfer und die Medizin in Japan. In: Detlef Haberland (ed.): Engelbert Kaempfer - Werk und Wirkung. Boethius-Verlag, Stuttgart 1993, pp. 248-293.
- 59) Prospero Alpini: De medicina Aegyptiorum. Venetia, 1591.
- 60) Wolfgang Michel: Willem ten Rhijne und die japanische Medizin (I). Dokufutsu Bungaku Kenkyū, No. 39 (1989), pp. 75-125. Wolfgang Michel: Willem ten Rhijne und die japanische Medizin (II) - Die Mantissa Schematica. Dokufutsu Bungaku Kenkyū, No. 40 (1990), pp. 57-103.

- 61) Wolfgang Michel: Japansk läkekonst i teckningar av Clas Fredrik Hornstedt. In: C. F. Hornstedt, Brev från Batavia - En resa till Ostindien 1782-1786. Utgivare Christina Granroth under medverkan av Patricia Berg och Maren Jonasson. Svenska litteratursällskapet i Finland, Helsingfors Bokförlaget Atlantis, Stockholm, 2008, pp. 117-150.
- 62) Engelbert Kaempfer: Regnum Japoniae optimâ ratione, ab egressu civium & exterarum gentium ingressu & communione clausum. In: Amoenitates Exoticae, Lemgo, 1712, p. 490. Quoted from Scheuchzer's English translation in Engelbert Kaempfer: The History of Japan, 1727, Vol. II, Appendix p. 63.
- 63) Engelbert Kaempfer: Curatio Colicae per Acupuncturam, Japonibus usitata. In: Amoenitates Exoticae, Lemgo, 1712, p. 584. Quoted from Scheuchzer's English translation in Engelbert Kaempfer: The History of Japan, 1727, Vol. II, Appendix p. 30.