Exploring the “Inner Landscapes”

: the *Kaitai shinsho* (1774) and Its Prehistory

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Previous research on the translation of Johan Adam Kulmus’ “Anatomic Tables” and the publication of the “New Book of Anatomy” (*Kaitai shinsho*) tends to focus on the individual genius and farsightedness of the physicians involved and the obstacles they encountered. This study sheds light on the historical background. It gives an outline of the indigenous developments, foreign influences, and various medical and nonmedical interactions in 17th- and early 18th-century Japan that led to a new view of the human body, anatomical dissections, and eventually the translation of European anatomy books.

General Background

Early modern Japan witnessed fundamental changes in many scientific disciplines, but the foundations for this development were laid out in the preceding centuries. New technologies were imported, mainly from China, and continuous military conflicts turned the social order upside down. Numerous Buddhist centers were destroyed, which led to the secularization of medicine. With the arrival of Portuguese missionaries and traders, Japan became involved in global trade and knowledge exchange. Japanese pirate-traders and official ‘red-seal ships’ ventured out to Southeast Asia, and at the end of the 16th century, Chosŏn Korea suffered heavily from Japanese

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invasions.

Only a few decades later, the era of semi-seclusion began. Only 'four portals (yotsu no kuchi) served for trade and, in the case of Tsushima, for limited diplomatic contacts with the Korean kingdom. Buddhist scriptures had been printed for centuries, but now the publication and distribution of nonreligious books started to increase literacy among the general public, while accelerating the flow of information. With the relocation of the Dutch trading post from Hirado to the artificial island of Dejima in Nagasaki in 1641, the era of continuous encounters between Japanese and European medical professionals began. A Chinese trading quarter established in 1689 served as the main portal for imports from China and Southeast Asia. Until the 'reopening' of the country in the mid-19th century, Nagasaki flourished as a prominent place of knowledge exchange.

**Early Western Stimuli**

Since 1641, annual delegations from the trading post at Dejima had traveled to Edo to convey the gratitude of the Dutch East India Company in audiences at the Shōgun’s court. In 1650, the German trading post surgeon Caspar Schamberger was called to the residence of the ailing Imperial Inspector General Inoue Masashige, one of the most powerful men in the Tokugawa government. 'Master Caspar’s' plasters and ointments must have been effective, because he was asked to remain in Edo for about 10 months. During his exceptionally long stay, Schamberger took care of high-ranking government officials and gave medical instructions to their personal physicians. Soon orders for instruments, medicaments, and books poured in at the Dutch trading post. This was the beginning of the continuous study of Western medicine in Japan, which was initiated and promulgated by the elites of society, partly because of individual afflictions and partly to stabilize the Tokugawa regime and its acceptance among the population.  

Rising Interest in Anatomy

Schamberger introduced Western plasters, ointments, and complex pharmaceutical formulas such as *theriaca* and *mithridatum*, as well as treatment methods for fractures, contusions, dislocations, and various wounds. Inevitably, he talked about anatomical features whenever asked about his art. Being without any medical knowledge, his Japanese counterparts registered most terms by transliterating their pronunciation in syllable characters and tried to figure out their meaning later.

Traditional Sino-Japanese medicine typically neglected anatomical studies. However, the encounters with ‘Master Caspar’ were a turning point—the first among his influential patients. Already in 1652, that is, shortly after Schamberger left Japan, an “illustrated book in Portuguese about human anatomy” was ordered together with “an anatomical model made of copper, wood, or other material showing all parts of the body and internal organs in as much detail as possible.” Two years later, the first copy of Andreas Vesalius’ *De humani corporis fabrica* arrived, to be followed by Ambroise Paré’s *Chirurgie* and Adriaan van de Spiegel’s *De humani corporis fabrica*. Medical books were officially exempted from the import restrictions the Japanese government had promulgated in 1641. From the very beginning of Dutch-Japanese medical interactions, we observe a continuous influx of literature on medicine, pharmacy, and other related fields of knowledge.

Dutch documents also indicate the almost immediate impact of those books. To study the actual functions of organs, Vesalius recommended the autopsy of live animals, preferably pigs, because fixated pigs, he explains in his famous *Fabrica*, do not make much noise when they are dissected alive. Stimulated by Vesalius’ and Paré’s illustrated account, in the spring of 1659 and 1660, a live boar was dissected during the stay of the Dutch delegation in Edo. Both dissections were conducted at the request of the Imperial Inspector General Inoue, who throughout the 1640s and 1650s demonstrated a keen interest in the transfer of Western science and technology.3)

2) Diary of trading post chief Adriaen van der Burgh, 24 May 1652 (National Archive, The Hague, NFJ no. 65).

3)
An Early Anatomical Translation

Stimulated by the interest among high-ranking officials and their personal physicians, some of the Japanese interpreters in Nagasaki started to acquire Western books and instruments. They also collected personal copies of every report about instructions given by Westerners. Three of them, Narabayashi Chinzan, Kafuku Kichibe, and Motoki Ryōi, quickly accumulated a considerable medical knowledge and established small schools as a private side business.

In 1682, senior surgeon Willem Hofmann showed Motoki a copy of the *Catoptrum microcosmicum* ("Mirror of the Microcosm") published by Johann Remmelin in 1613. Motoki was fascinated by this lift-the-flap book, which allowed its readers to open flaps layer by layer and, in doing so, reveal the interior parts of the human body. He decided to produce a Japanese version of illustrations together with a list of related anatomical terms. Most such manuscripts were copied by disciples and friends and gradually spread throughout the country. But due to its difficult structure with numerous flaps, only a very small number of copies of Motoki’s Japanese version were circulated. It was 90 years before it was printed, just two years before the publication of the *Kaitai Shinsho* under the title “Dutch Disassembled Illustrations of the Whole Body” (*Oranda zenku naigai-bungōzu*, 1772).  

Fig. 1 Kawai Naohisa’s translation of the “Record of No Wrongs” (Kyoto University, Fujikawa Collection)

3) Diary of trading post chief Zacharias Waginaer, 26 April 1659 (National Archive, The Hague, NFJ no. 72); Diary of trading post chief Johannes Boucheljon, 28 February 1660 (NFJ no. 73).
Forensic Investigations

In 17th-century Japan, we also observe a sudden interest in forensic medicine. Pioneering Chinese publications, especially Wáng Yù’s “Record of No Wrongs” (Wǔ yuán jīlù, 1308), had finally found their way to the archipelago. This was a slightly changed version of Sòng Cì’s “Washing Away of Wrongs” (Xī yuán jīlù, 1247), a revolutionary book dealing with human corpses as objects of criminal investigations. To avoid judicial wrongdoings, Song and Wang describe the attitude that a responsible coroner should take when investigating damaged and sometimes decaying corpses. They proposed experiments to determine the cause of death and provide guidelines for writing precise reports. There is no mention of any kind of dissection, but these forensic books call for an unemotional, objectifying observation of human cadavers.

In 1439, by order of the Korean King Sejong, a former envoy to Ming China called Choe Chi-un published an annotated edition of Wáng’s text under the title Sinju muwŏnnok (“Annotated Record of No Wrongs”). This book was eventually brought to Japan during the 16th century. Then, in 1670, just at the time when Western-style surgery started to take root in medical circles, Itakura Shigenori (5), the powerful Deputy of the central government in Kyoto, issued an order to reprint the Korean edition as Muen rokujutsu

![Motoki Ryōi’s version of J. Remmelin’s illustration (National Museum of Nature and Science, Tokyo)](image)

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5) 板倉重矩 (1617–1673). After serving in Kyōto (1668–1670) he returned to Edo for a second term as imperial councilor (rōjū).

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("Record of No Wrongs"). It seems that forensic investigations of corpses were of great interest not only among government officials. Between 1670 and 1715, this book was printed seven times. In 1736, the second part was even translated into Japanese by Kawai Naohisa.

Contemplations on Decaying Bodies

In a society where members of the samurai class tested their swords on corpses of criminals (tameshigiri), and executioners such as Yamada Asaemon made a fortune by incorporating the human brain, liver, and gallbladder into pills for consumption (rōgai), there was no shying away from looking at corpses, even in Buddhist temples.

To liberate the self from sensual desires, contemplations on the impurity of a decaying corpse (fujōkan) have been included in the exercises performed by monks and ardent devotees since the early days of Buddhism in Japan. The roots of such practices go back to the ‘reflections on repulsiveness’ (Pali: Paṭikkōlamanasākāra) of parts of the body (hair, nails, teeth, etc.) and all the other impurities a body contains. They are described in several canonical sutras (Dainenjokyo, Nenjokyo, and Shingyōnenkyō).

Since the Kamakura period (1185–1333), when power shifted from the nobility to the warrior class and Buddhism came into full flower, graphic depictions of the so-called ‘Nine stages of decomposition’ (kusō) served this purpose in colorful hanging scrolls and hand scrolls. From the late 17th century, illustrated books made them available to the general public. In addition to quotations from Buddhist textual sources, Chinese verses (kanshi) and Japanese poems (waka) were added at each stage. Although the anatomical precision of these pictures was low, they were helpful to overcome fear, anxiety, and other emotions vis-à-vis a dead human being.

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7) This translation was printed twice. Kawai Naohisa (tr.), Muen rokujutsu (Edo, 1768: Ōsaka, 1799) (王与編輯, 河合尚久訳, 無鬼錄通)
A New Concept of the Eye and the Power of Observation

A certain influence may be attributed to the systematic studies of human skeletons performed by Negoro Tōshuku (1698-1755). The history of this family goes back to a monk of the Negoro Temple (Negoro-ji), which had been the influential and prosperous center of the ‘New Doctrine Shingon School’ (Shingi Shingon-shū) since the 12th century. When this mighty temple complex with more than 2,000 buildings burnt down almost completely in 1585, the monk had to look for a new means to secure a living and started practicing ophthalmology under the name Negoro.

Negoro Tōshuku was well aware that his family’s professional expertise had

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its roots in monastery medicine and the teachings of Shingon Buddhism. But while performing numerous cataract surgeries, he was seized by doubts about traditional Chinese teachings and gradually developed a three-dimensional understanding of the eye and a new concept of the causes of cataracts, which secured his name in the history of Japanese ophthalmology. His writings reveal a self-confident scholar who stresses the importance of observation. Those who treat cataracts by uncritically adhering to old teachings, he writes in the “Elucidation of the Sight” (Ganmoku, 1742), are “blind people who walk in the darkness of night and have lost their cane.”

Negoro did not confine himself to ophthalmological studies. In 1732, he came across the decaying corpses of two executed criminals who had been burned and left to rot, presumably on the outskirts of Nara. The sight inevitably evoked images of the ‘Nine stages of decomposition’ and related verses written by Kūkai, the founder of Japanese Shingon Buddhism. Obviously, it was only a small step from Buddhist contemplation to medical observation. As the skeletal remains were still intact, Negoro visited the site several times, made sketches, and investigated the shapes of bones, the spine, and the function of the joints. Later, he expanded his sketches to two large colored “Illustrations of the True Shape
of Human Skeletons” (*Jinshin renkotsu shinkei-zu*). In his detailed
descriptions, he highlights various differences from traditional writings. In the
autumn of 1741, Negoro finished this project in Kyoto, the very city where 13
years later the physician Yamawaki Tōyō would carry out the first Japanese
dissection of a human corpse.\(^9\)

**Early Change in Thinking**

The first signs of a change in thinking among traditional physicians
appeared in the early 18th century. In 1722, Hattori Noritada, an expert in
materia medica (*honzo*) who practiced in Edo, raised the question of “how a
physician can keep someone alive without any knowledge about the shape of
the internal organs.” In his “Illustrated Explanation of the Inner Landscape”
(*Naikei zusetsu*), he presented the old ‘landscape’ together with his new
version. While using the basic outline of a limbless male body with ‘five
viscera’ and ‘six bowels’ (*gozōroppu*), which had dominated medical
iconography since the Chinese Song dynasty, he changed the size, shape, and
location of some organs. As there was no need for such a revision within the
framework of traditional diagnosis and treatment, his doubts must have been
raised by stimuli coming from outside his circles.\(^10\)

**A New Medical Discipline**

In early 18th-century Japan, there emerged the new discipline of bonesetting
(*honetsugi*) or bone adjustment (*seikotsu*), corresponding roughly to
present-day osteopathy. Traditional physicians dealing with ‘internal
medicine’ (*honōdō*) could not do much with anatomy; however, for bonesetters,

\(^9\) Michel, Wolfgang. "Shitai wo miru: Negoro Tōshuku no Jinshinrenkotsu shinkeizu to
sono ichizuke nit suite". *Shiryō to Jinkutsu*, IV (Nakatsu, 2012), pp. 42-89 (ヴォルフハン
グ・ミヒエル，木尾史雄の「人身骨格解剖圖」とその位置づけについて）。

\(^10\) Hattori, Noritada. *Naikei zusetsu* (服部範忠道，内景圖說，享保7年 (1722)).
knowledge about bones, joints, vertebrae, and tendons was essential for a successful practice. The framework and basic treatment methods were developed by Kōshi Hōyoku in his “Treatment Treasures of Bonesetting” (Honetsugi ryōji chōhōki, 1746). Kōshi devoted a large part of his epoch-making book to anatomical details. Some of his illustrations refer to traditional Chinese writings, while others, especially those that show single bones or areas with joints, are unique and obviously based on protracted observations. In a paragraph on the ribs and spine, he recommends observing skeletons dumped in the fields and mountains, and describes the dispersion of the spine over the years. Kōshi did not perform dissections, but he deconstructed skeletons to find out more about their structure, particularly what he called the interlinking of the vertebrae.

Kōshi’s medicine was deeply rooted in Chinese traditions. He refers to 17 classical works, but, as he points out explicitly, in addition to this ‘old wisdom’ (koken), bonesetters should also familiarize themselves with the surgical therapies of the ‘Red-heads’ and ‘Southern Barbarians,’ that is, Europeans. Kōshi’s illustrations were significantly better than anything in previous Chinese and Japanese medical publications. Stimulated by his pioneering research, Japanese osteopathic medicine began to be reshaped by the combination of indigenous traditions with Western elements, while emphasizing the importance of observation. Considering the impact of Kōshi’s book, it is clear that by the mid-18th century, there were a considerable number of medical professionals engaged in observing corpses at execution places and in the fields.11)


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The First Dissection

Yamawaki Tōyō, nowadays considered a pioneer in the modernization of Japanese medicine, was not a proponent of Western surgery but a practitioner of the so-called 'Ancient Practice School' (ko-ihōha). The adherents of this school had managed to liberate themselves from the rigid doctrine of the dominating 12-14th-century Chinese medicine and come to appreciate the importance of observation and experience through studying Zhāng Zhōngjīng’s “Treatise on Febrile Diseases” (Shānghān lín, ca. 200 CE). At first, their interest focused on the symptoms of diseases and the effects of medicaments, but gradually, they also turned to anatomy.

Yamawaki’s teacher had once suggested he dissect an otter. When Yamawaki did so, he could find only eight of the nine organs (kyūzō) mentioned in the Chinese classic "Rites of Zhou" (Zhōulì). What he did then
was typical of his generation. He went to his bookshelves and studied other old Chinese writings such as the “Book of Documents” (Shūjīng), the book of “Master Lie” (Lièzhì), and the “Sayings of the States” (Gùyǔ). However, they presented widely different numbers of organs. Only then did it occur to him to open up a human body and find out for himself.

A dissection at a public execution place could not be conducted without the permission of the local authorities. As there was a strong interest in forensic investigations, the Deputy of the Tokugawa government in Kyoto (Kyōto shoshidai) accepted his request and in 1754 an executed woman was cut open following the instructions of Yamawaki, who did not touch the corpse himself. At the end of the day, during which he found nine organs, a monk was called to conduct a memorial service to console the soul of the deceased.\(^{12}\)

In 1759, he published his observations together with some crude illustrations in a “Book of Organs” (Zōshi). Aiming at the verification of classical concepts, the results of his dissection were modest at best. But he had come to the conviction that theories should be based on material investigations. As he had a Dutch translation of Johann Vesling’s *Syntagma anatomicum* at hand, he also became aware of the accuracy of the illustrations made by physicians “living ten thousand miles away.” Furthermore, the authorities in Kyoto had granted access to a corpse and did not raise objections to his book, thus setting a precedent for further dissections.\(^{13}\)

Taking Matters into Their Own Hands

Among the physicians following Yamawaki’s example was Kawaguchiko Shinnin (1736-1811), who accomplished a similarly significant and pioneering feat. As a young man, he studied surgery first with Kurisaki Dōi and then with

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12) Yamada, Keiji and Kuriyama, Shigehisa, *Rekishi no naka no yamai to igaku* (Kyōto: Shibunkaku shuppan, 1997) (山田慶児, 柿山茂久, 『歴史の中の病と醫學』 (京都: 柿山茂久出版, 1997)).
13) For more on dissections in Edo-period Japan, see Sugitatsu, Yoshikazu, "Edo-jidai kaibō no jiseki to sono hankyō" in Yamada and Kuriyama, *Rekishi no naka no yamai to igaku*, pp. 503-542 (杉立義一, 『江戸時代解剖の事跡とその反響』).
the respected interpreter and scholar, Yoshio Kōgyū. During his stay in Nagasaki, he received and copied a great deal of material, including Johannes Vesling’s *Syntagma anatomicum*.

As physician to the House of Doi, Kawaguchi went to Kyoto in 1769 when Lord Doi Toshisato was appointed Kyoto Deputy of the Tokugawa government. In and around Kyoto, permission for a dissection had to be requested from the Kyoto Deputy, which made things easier for Kawaguchi, being Lord Doi’s personal physician. In 1770, he was allotted two cadavers and a head at the place of execution. That was the fifth dissection to be performed in Japan.

This time, a high-ranking doctor from the Tennō’s court, Ogino Gengai (1737–1806), participated as an advisor. The 35-year-old Kawaguchi was the first physician to perform a dissection with his own hands using a straight knife and a curved one. In 1772, he gave an impressive description of his actions in “Dissection of a Corpse” (*Kaishi-hen*). With a vigorous incision, he slashed open the thorax from the throat to the solar plexus. Before him, the heart and lungs lay exposed. After having determined their positions, he resected the organs and noted their size, color, and consistency. Beside him was Harada Iki, also trained in Nagasaki, who had been waiting a long time for an opportunity like this. Harada took the organs that were passed to him and subjected them to further scrutiny. He inflated the lungs with a bamboo pipe and then inspected the intestines inch by inch to see how the contents changed. Ogino Gengai was sitting nearby, naming the organs and commenting based on his previous experience in the dissection of otters. Another seven pupils were in attendance.

The attitude of Kawaguchi and Harada toward the cadaver differed greatly from that of Yamawaki. There was no searching through the classical Chinese literature, no detached reflection, and no awe induced by the knife and body fluids. Nor did they feel the need to compare their observations with illustrations in Western books. This was a cold and daring search for new insights. Kawaguchi was the first physician in Japan to dissect the brain, which did not figure very prominently in traditional medicine. He also
examined the eyes, which came to be considered, as in Europe, the most important human organ for collecting new knowledge by observing the world.

Ogino was opposed to publishing the results of their findings. He did not want the famous Yamawaki to be contradicted. He was also afraid that their findings, which could not yet be used in practice, would rock the very foundations of traditional medicine and jeopardize medical care throughout the country. However, his opposition was in vain. These were no longer the obedient physicians of the 17th century, restrained by personal bonds in master-disciple relationships.14)

Graphic Pictures

Decaying bodies had already become a motif for artists when painting hanging scrolls of the ‘Nine stages of decomposition’ for Buddhist temples and ardent devotees. With the emergence of dissection at places of executions, their mode of representation entered the world of medical illustrations.

From the days of Vesalius, European illustrators had endeavored to assuage the viewer’s fears by presenting the corpse as more or less alive. It was idealized in its proportions and often portrayed in the poses of Greek antiquity, as if to show that although their bodies have been opened up, these figures feel no pain, and no body fluids are flowing. The Japanese artists of the

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14) Kawashima, Junji, Doi-han rekidai ran i Kawaguchi-ke to Kawaguchi Shinnin (Tokyo: Kindai bungeisha, 1989) (川島俊二, 『土井藩歴代蘭醫河口家と河口信任』 (東京: 近代文芸社, 1989)).
18th century had a completely different pictorial language. They show a cadaver, usually with recognizably individual traits. Some of these bodies even bear their own names. In many cases, blood and other body fluids are shown flowing, and the odor of death and decay seems to transpire from the colored illustration. There are also a considerable number of picture scrolls with stories extending from the execution to the preparatory arrangements for the postmortem, and on to the complete dissection of the cadaver.

These scrolls show striking similarities to the ‘Nine stages of decomposition.’ Sometimes even the dogs reappear, sniffing around the cadaver. Both types of depictions usually end with a calm landscape. With the growth of anatomical knowledge among Japanese physicians, the narrative character of anatomical illustrations faded away, but dissection and art were closely related in Japan, as in Europe.\textsuperscript{15}

Fig. 7 Imaginative depiction of Dutch physicians dissecting a Japanese woman (hanging scroll, collection of the author)

\textsuperscript{15} Michel-Zaitse, Wolfgang, "Paisajes Interiores. La Recepción de Japón de las concepciones occidentales sobre el cuerpo", in Carlos H. Sierra & Santiago S. Hernando (eds.), Habitar la Terra Incógnita. Experiencias, Miradas, Pensamientos sobre Extremo-Oriente (Santander, 2010), 107–132.
An Outstanding Interpreter and Scholar in Nagasaki

In the mid-18th century, the ability to read books in Dutch was still a rare skill. The only Japanese who was probably able to deal adequately with medical writings was the collector and scholar Yoshio Kögyū (1724–1800) in Nagasaki, who served as a senior interpreter at the Dutch trading post. Yoshio’s collection of books, instruments, imported plants, and other Western rarities attracted visitors from all over the country. During his long career, Yoshio instructed about 600 disciples in his private school. He translated numerous excerpts from Western books introducing new medicaments and treatment methods, but his writings do not indicate any interest in traditional Japanese medicine, or a desire for theoretical explorations.16

Growing Interest in Edo

Permissions to dissect executed criminals were usually given only once, and because the authorities did not want to stir any public unrest, all dissections had to be concluded within a single day. Therefore, gaining new knowledge through autopsies turned out to be a slow and laborious approach. In those years, a group of experienced and ambitious physicians in Edo developed a strong interest in Western medicine: Sugita Genpaku (1733–1817), Maeno Ryōtaku (1723–1803), Nakagawa Jun'an (1739–1786), and Katsuragawa Hoshū (1751–1809). Some of them had visited Yoshio Kögyū, but Nagasaki was more than 1,200 kilometers away, and there was a certain hesitation about accepting Yoshio as a scholar and fully fledged physician.

Sugita and Maeno played a leading role in this circle. Sugita was a gifted scholar and physician but he had no knowledge of Dutch. In contrast, Maeno was fascinated by this strange language and spent so much time on language studies that his lord Okudaira Masaka called him a “monster of Dutch

learning” (*Rangaku no bakemono*). Maeno possessed a handwritten vocabulary compiled by his teacher Aoki Konyō, and Pierre Marin’s famous Dutch–French dictionary (*Groot Nederduitsch en Fransch Woordenboek*), which gives extensive Dutch explanations under each heading. Maeno’s manuscript “All about Dutch Translation” (*Oranda yakusen*) shows how he analyzed (simple) Dutch sentences and book titles. Although he was better prepared than his companions, his level of proficiency was clearly insufficient to read and understand books about medicine.17)

**Toward the Publication of the *Kaitai Shinsho***

We know about these physicians and events from Sugita’s memoirs in “The Beginning of Dutch Learning”(*Rangaku koto hajime*). Being a touching retrospective written by an 83-year-old man, there are some doubts about the accuracy of this text. Moreover, Sugita does not pay much attention to the pioneering contributions of interpreters and physicians since the mid-17th century. ‘Dutch learning’ (*rangaku*) as an academic discipline started at this time, initiated by Sugita and his circle of scholars in Edo.

According to Sugita, they had gotten hold of a Western anatomy book. After marveling at the illustrations, it was decided to observe a dissection at the Kozukappara execution grounds, a sinister location along one of the main roads outside Edo. The dissection was performed by a member of the pariah caste, who made their living doing work that was considered impure according to Buddhist or Shintō beliefs. Their aim was to verify the reliability of Western illustrations. Soon they discovered that the interior of a human body was very different from Chinese depictions, but exactly as represented in the diagrams in their Dutch book. On their way home, they decided to make a translation of the book.

Their Western source was the Dutch edition of the *Anatomische tabellen* (“Anatomical Plates”) published by the German physician Johann Adam

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17) Torii, Yumiko, *Maeno Ryōtaku. Ōtaken Kyōikuinkai* (Ōtaken Sentetsu Sōsho, 2013) (鳥居由美子, 『外傳教育學會』 (大分縣教育委員會, 2013)).
Kulmus in 1732. Although this was “easy guidance for beginners in anatomy” (Kulmus), none of them was able to read it. In the end, Maeno Ryōtaku did most of the translation. Sugita describes in detail their agonizing struggle with a virtually unknown language. Sometimes it took days to find out the meaning of a simple word such as ‘nose’. Finally, after more than two years, they had prepared a rough draft.

As the book was intended to be read by educated physicians, Sugita produced a version in classical Chinese (Kanbun) based on Maeno’s Japanese translation and began preparations for its publication. However, at this stage, Maeno pulled out of the project. Sugita provides little information about Maeno’s motives. Considering the circumstances, it seems that Maeno was not satisfied with the quality of his translation and very much afraid of the possible damage that mistakes could inflict. In 1786, Ōtsuki Gentaku, a disciple of both Sugita and Maeno, wrote in his “New Thoughts on Six Topics” (Rokumotsu shinshi) that translation mistakes in astronomy, geography, or mechanics could be corrected later. However, when it comes to books about internal or external medicine, a single wrong translation could have fatal consequences.  

However, Sugita cared more about political interference, and he was right to do so. Only a few years earlier, Gotō Rishun’s work “Talks about the Dutch” (Oranda banashi, 1765) was prohibited. To test the reactions of the authorities, Sugita and Nakagawa Junan printed an “Illustrated Outline of Anatomy” (Kaitai yakuzu) consisting of a few pages with four illustrations. Possibly to avoid any attacks, the pictures of the internal organs resembled traditional Chinese illustrations and had nothing to do with those in the planned translation. As the authorities did not interfere, the “New Book on the Dissection of the Body” (Kaitai Shinsho), usually known as the “New Book of Anatomy,” was printed in 1774.

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18) Ōtsuki, Gentaku, Rokumotsu shinshi. Kenkadō, Preface 1786 (大槻茂宣譯, 『六物新志』兼葭堂 天明六
Mixed Features

On the title page, Sugita poses as the translator, and three of his colleagues are referred to as collaborators, respectively, supervisors. Maeno Ryōtaku is only mentioned in a dedication written by Yoshio Kōgyū.

Although the *Kaitai Shinsho* is often characterized as the first complete translation of a Western book, a comparison with the underlying Dutch text reveals a different picture. The title *Kaitai Shinsho* has nothing to do with the Dutch translation (*Ontleedkundige tafelen*) of Kulmus’ *Anatomische Tabellen* ("Anatomic Plates"). The frontispiece was taken from the Antwerp edition of Juan Valverde’s *Anatomie*. Several illustrations came from books published by Thomas Bartholin (1616–1680), Steven Blankaat (1650–1702), Volcher Goiter (1534–76), and Ambroise Paré (1510–1590). They are marked with the Chinese characters for wood, fire, earth, metal, and water and the corresponding Western sources are given in Sugita’s preface. The last four illustrations in the *Kaitai Shinsho* are taken from Govard Bidloo’s *Ontleding des menschelyken licaams* (1690). It is evident that scholars in Edo enjoyed access to a number of top-class European medical books.19)

The translation is comparatively short because it omits all annotations by Kulmus, which count for more than half of his book. Maeno and Sugita present the basic contents of Kulmus’ text, but due to their limited language skills and the complex translation process from Dutch to Japanese and then to classical Chinese, the *Kaitai Shinsho* is not a structurally close translation in a modern sense. Furthermore, it contains remarks added by Sugita and a number of short explanations taken from other Western authors. While drawing much from Kulmus, this turns out to be a ‘new book’ on anatomy in two senses.

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Translating Medical Terms

Although basic names of body parts and internal organs such as heart, liver, etc. were already known from Chinese medicine, for many Western anatomical terms, Maeno and Sugita had to find new ways to convey their meaning by using Chinese characters.

A number of compound terms were recreated by combining the (sometimes rough) translations of each component of the underlying Dutch word. For example, the translation for *slagader* (artery), which is a composite of *slag* and *ader*, became *dō-myaku*. When this approach did not work, they invented new words. In the case of *zenuw* (nerves), for example, they were inspired by traditional Chinese medicine. Their solution *shinkei* may have facilitated acceptance among Japanese physicians but it also introduced non-Western connotations by using *shin* from *shinki* (‘spirit Qi’) and *kei* from *keiraku* (meridians).

In many cases, they did not know what to do about the Western term in
question and chose phonetically suitable Chinese characters to transliterate the pronunciation. Dutch klier (gland) became kurĩ. Dutch band (ligament) became bando: and so on. All of the transliterations disappeared during the 19th century. However, a number of their creations for artery, nerves, cartilage, bone marrow, etc. entered into modern Japanese, and some even found their way into Chinese and Korean.

**Historical Impact**

The problems of the Kaitai Shinsho were soon recognized. The translation was incomplete and full of mistakes, and the wood-block print illustrations were rather crude. Sugita’s disciple Ōtsuki Gentaku and others began to work on a new translation with much better illustrations. The manuscript was finished in 1798 and printed in 1818 as the “Revised New Book of Anatomy” (Jūtei Kaitai Shinsho) in 14 volumes, including an elaborate discussion about anatomical terminology.²⁰

From the late 18th century, studies in the Dutch language and medicine made great progress. In 1805, the gifted scholar Udagawa Shinsai (1769-1834) published the influential "Essentials of Western Medicine" (Ihan teiko), based on the writings of Steven Blankaart, Jan Palfijn (1650-1730), and Jacques Bénigne Winslow (1669-1760), with copperplate engravings and elaborated anatomical descriptions. However, general interest in the Kaitai Shinsho seems to have faded quickly. The German physician Philipp Franz von Siebold, who collected vast amounts of natural specimens, artifacts, and literature from 1823 to 1829, did not know of it. Nor did many other Europeans who visited the country during the first half of the 19th century.

Nevertheless, despite its flaws, the “New Book of Anatomy” is of considerable historical importance. It demonstrated that physicians far from Nagasaki were able to acquire sufficient language skills to translate Western medical books without the help of foreigners and professional interpreters and that this was

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²⁰ Ōtsuki, Gentaku et al., Jūtei Kaitai Shinsho. Uemura Tōemon. 1818 (揭載模倣撰述 杉田翼 翻譯 大槻茂村重訂 重訂解體新書 植村藤右衛門 文政九年刊).
an effective way to gain expert knowledge. From then on, reading and translating became major tools in the reception of Western science and technology, and Edo became a new center of ‘Dutch learning’. However, dissections were not established as a means of anatomical education and study until the fully fledged introduction of Western medical education during the 1870s and 1880s.

Key Words: anatomy, *Kaitai Shinsho*, translation

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Abstract

Exploring the “Inner Landscapes” : the *Kaitai shinsho* (1774) and its prehistory

Wolfgang Michel-Zaitsu

Previous research on the translation of Johan Adam Kulmus’ “Anatomic Tables” and the publication of the ”New Book of Anatomy” (*Kaitai shinsho*) tends to focus on the individual genius and farsightedness of the physicians involved and the obstacles they encountered. This study sheds light on the historical background. It gives an outline of the indigenous developments, foreign influences, and various medical and nonmedical interactions in 17th- and early 18th-century Japan that led to a new view of the human body, anatomical dissections, and eventually the translation of European anatomy books.

Key words: *Kaitai shinsho*, Johan Adam Kulmus, Inner landscapes, human body, anatomy

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