Ch. 29: "Dutch Learning"

In the seventeenth, eighteenth and into the nineteenth century, while the Netherlands lived on its flourishing international trade and commerce, especially through the remarkable East India Company (Vereenigde Ostindische Compagnie [VOC]), Japan adopted a so-called "closed country" (*sakoku*) policy, which sought to keep external contacts to an absolute minimum and to allow only a smidgeon of foreign trade under the closest government control. Yet, through the tiny "window on the West," which first Hirado and then, after 1640, Deshima became, bilateral trade with the Dutch continued despite the fact that its monetary significance to the Netherlands steadily declined. And through that same "window" into Japan via the very few Dutchmen who arrived annually, or else via Chinese reports about the West, entered most of what the Japanese in their self-imposed isolation were able to learn of European culture, society and politics.

The initial contact between the Dutch and Japanese came in the year 1600, the same year in which the battle of Sekigahara brought an end to a bloody civil war and confirmed the supreme power of the Tokugawa house, while the daimyo remained in local control of their own domains—a relationship which in theory was not to be disturbed so long as the Tokugawa regime held secure.

The study of the West, however, had its origins some fifty years prior to this. Three Portuguese castaways reached the shores of the southern coastal island of Tanegashima in 1543 and within a very few years thereafter Lusitanian ships were trading at several ports in Kyushu. In 1549, St. Frances Xavier and two other Spanish Jesuits arrived in Japan, as we have seen (Ch. 23), in order to spread the doctrines of the Catholic faith. This began what became known to some Western historians as the "Christian century." It was, however, an era marked by considerable tension and conflict which terminated in the firm resolve of the Bakufu to eradicate the despised religion forever from the island empire. For, despite the political advantages of trading with foreigners, the fear of

the government that native converts might have divided political loyalties and might even facilitate an invasion by a European power was conviction enough to ban from Japan both Christianity and its Iberian propagators.

At the beginning of the so-called *sakoku* (closed country) era which lasted from 1640 to 1853 only the Dutch remained from among the Occidentals who had contact with Japan prior to that time. Consequently knowledge of the West which entered Japan during the *sakoku* period eventually came to be known as *Rangaku* or Dutch learning. The actual word *Rangaku* seems to have come into use among the Japanese in the 1770s, originally to differentiate from the Nagasaki interpreters themselves those Japanese scholars with a particular interest in the West. At first among the *Rangaku* scholars the definition of Dutch studies was narrowly construed as the scholarship of Holland ([O]Ran). However since commerce during the *sakoku* era was only permitted with Holland, all of the knowledge and techniques from the West was transmitted through the medium of the Dutch language and it is not surprising that *Rangaku* became the prevalent appellation for all of Western learning..

The mainstreams of *Rangaku* were two: (1) medicine and (2) astronomy. The first included botany, pharmacopeia, mineralogy, chemistry, physics, and zoology—all deriving in some way from Western-influenced medical science. The second stream concentrated heavily on calendrical science but ultimately included surveying, cartography, and geography. The practical considerations which attracted the "Dutch" scholars to medicine and astronomy were perennial ones: the desire to prolong and save lives in the former instance and the correction of the calendar to improve the management of the agricultural cycle in the latter.

Rangaku scholars concentrated their initial efforts on those Western technological skills

which had the most obvious immediate application in Japan. Tokugawa authorities recognized the potential value of practical scientific knowledge obtainable from Europe but at the same time curbed inquiries into European history, philosophy, law, literature or religion. Fearing any repetition of what was seen as the disruptive effect of the introduction of Christianity into Japan, the Bakufu sought to set specific limits on the scope of Western knowledge in Japan. However since most of those who became *Rangaku* scholars were themselves either government employees or scholars who had imbibed deeply at the font of Neo-Confucian instruction, there was little inclination among those who took up things Western to see such study as outside the limits of the Neo-Confucian "investigation of things and extension of knowledge."

Dutch studies in Japan had certain distinct characteristics. The mainstreams of medicine and astronomy are indicative of the support which the Bakufu and the daimyo gave to the investigation of Dutch techniques by official physicians and astronomers in their respective fields. As the ruling authorities came to recognize the practical value of skills learned from the Hollanders, the Bakufu engaged the services of scholars, knowledgeable in certain aspects of Western astronomy, who could serve a number of official purposes. First, since the traditional function of making the calendar had always been assigned to court astronomers in China and in Japan, the establishment at Edo of an astronomical bureau, with greater competence in calendrical science than the traditional imperial astronomers at Kyoto, provided the shogunate with an important reinforcement of its claim to political and cultural predominance. Second, as Tokugawa officials who supposedly knew Dutch, these astronomers were useful to have on hand at Edo where in times of emergency their language skills could be pressed into service. Third, under government supervision certain of the astronomers were encouraged to study Russian and even Manchu in order to provide the Bakufu with expertise

in relation to problems emerging on Japan's northern frontiers. Fourth, by utilizing the astronomical bureau as an official translation center, the government could supervise and control Rangaku scholars brought into government service.

At Edo, the efforts of the astronomers were perforce focused on calendar-making, which continued to be based on the traditional Chinese model to which they were simply adding a few elements of Western astronomy. Such European concepts as Copernicanism or Newtonianism were, in fact, made known in Japan by the work either of Nagasaki interpreters or of private amateur astronomers. However, even these men often had difficulty in understanding the theories with which they were working, especially in view of the prevailing acceptance of the Chinese dualist yin-yang cosmology, according to which, since heaven was positive and earth negative, heaven was seen as round and moving, and earth as square and motionless (quiescent), in diametric opposition to the Copernican theory. On the other hand and by contrast, heliocentrism found no conflict with the centrality of the Sun Goddess in Shintō and of Dainichi (Great Sun) in Esoteric Buddhism. Yet, given the particular intellectual environment into which Western astronomy was introduced, it is not surprising that the immediate Japanese comprehension of its theoretical basis was minimal, as was its general influence during the Tokugawa Period.

The principle obstacle to the maturation of Dutch studies was that many of its practitioners, like the Bakufu itself, saw it as a utilitarian technological supplement to a well-ordered, harmonious, intellectually "satisfying" ethical system derived from Zhu Xi Neo-Confucianism. Like the Ancient Learning (*Kogaku*) or even National Learning (*Kokugaku*), Dutch Studies was not a complete system of knowledge constructed on the basis of a single world-view. Rather it was a random accumulation of certain quasi-scientific and technological information acquired from Western Europe through

restricted contact with the Dutch or indirectly through the Chinese trade in Nagasaki. It was only exceptional scholars, such as Miura Baien (Ch. 29) and Honda Toshiaki (Ch. 35), who saw in it a greater challenge than this.

Engelbert Kaempfer: Account of Visits to Edo

Kaempfer's carefully recorded experiences on two trips to Edo in 1691 and 1692 are unique. Both of these trips were in accordance with the requirement that the Dutch make annual pilgrimages to the capital to pay their respects and give appropriate presents to the shogun. Not only were these mandated by the original charter granted to the Dutch by the first Tokugawa shogun Ieyasu (1542-1616), but such annual visits were understood as giving the Dutch *opperhoofd* [chief of the Dutch factory at Deshima] status equivalent to a daimyo. These journeys, known in Dutch as *De Hofreis naar Edo* and in Japanese as *Edo Sanpu* or *Edo Sanrei*, were the only opportunity for the Dutch to know anything about Japan outside of Nagasaki. Likewise the trips afforded a significant segment of the Japanese populace an opportunity to know of the existence of the Dutch and, accordingly, the West.

It became customary for the *opperhoofd* almost always to be accompanied by the physician and the company secretary. Appropriate gifts both in number and value had to be selected and prepared. Accompanying Japanese personnel, i.e., officials, interpreters, servants, and porters, had to be hired. Since the trip from Nagasaki to Edo usually took some ninety days, an immense amount of baggage, including tables, chairs, wines, European foodstuffs and the like, had to be packed.

At Edo the Dutch usually spent two to three weeks. They were housed at and, of course, confined to the *Nagasakiya*, an official inn for visitors from Nagasaki. Obviously the high point of their trip was their actual audience with the shogun. In Kaempfer's account of his experience in 1691 note that he refers to the shogun as emperor. His understanding was that the Emperor at Kyoto was the spiritual ruler of Japan while the shogun was the temporal ruler.

On the 29th of March therefore, being Thursday, and the day appointed for our audience, the presents design'd for his Imperial Majesty were sent to court, attended by the Deputies of Sino Cami[1], and of the Commissioners for inspecting foreign affairs, to be there laid in due order, on

[1] Kawaguchi Munetsune, *bugyō* (magistrate) of Nagasaki.

wooden tables, in the hall of the hundred mats, as they call it, where the Emperor[1] was to view them. . . .

Having waited there upwards of an hour, and the Emperor having in the meanwhile seated himself in the hall of audience, Sino Cami and the two Commissioners came in and conducted our Resident into the Emperor's presence, leaving us behind. As soon as they came thither, they cry'd out aloud Hollanda Captain, which was the signal for him to draw near, and make his obeisances. Accordingly he crawl'd on his hands and knees, to a place shew'd him, between the presents rang'd in due order on one side, and the place, where the Emperor sat, on the other, and then kneeling, he bow'd his forehead quite down to the ground, and so crawl'd backwards like a crab, without uttering a single word. So mean and short a thing is the audience we have of this mighty Monarch. Nor are there any more ceremonies observ'd in the audience he gives, even to the most powerful princes of the Empire. For having been call'd into the hall, their names are cried out aloud, then they move on their hands and feet humbly and silently towards the Emperor's seat, and having shew'd their submission, by bowing their forehead down to the ground, they creep back again in the same submissive posture.

Formerly all we had to do at the Emperor's court, was compleated by the captain's paying him the usual homage, after the manner above related. A few days after, some laws concerning our grade and behavior were read to him, which, in the name of the Dutch, he promis'd to keep, and so was dispatch'd back to Nagasaki. But for about these twenty years last past, he and the rest of the Dutchmen, that came up with the embassy to Jedo, were conducted deeper into the palace, to give the Empress and the Ladies of her court, and the Princes of the Blood, the diversion of seeing us.

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[1] Tokugawa Tsunayoshi

In his second audience, the Emperor, and the ladies invited to it, attend behind skreens and lattices, but the Counsellors of State, and other Officers of the Court, sit in the open rooms, in their usual and elegant order. . . .

The Emperor and his Imperial Consort sat behind the lattices on our right. As I was dancing, at the Emperor's command, I had an opportunity twice of seeing the Empress thro' the slits of the lattices, and took notice, that she was of a brown and beautiful complexion, with black European eyes, full of fire, and from the proportion of her head, which was pretty large, I judg'd her to be a tall woman, and about 36 years of age. By Lattices, I mean hangings made of reed, split exceeding thin and fine and cover'd on the back with a fine transparent silk, with openings about a span broad, for the persons to look through. . . . The Emperor himself was in such an obscure place, that we should scarce have known him to be present, had not his voice discovr'd him, which yet was so low, as if he purposely intended to be there incognito. . . . On our left, in another room, were the councellors of state of the first and second rank, sitting in a double row in good and becoming order. The gallery behind us was fill'd with the chief officers of the Emperor's court, and the gentlemen of his bedchamber. The gallery which led into the room, where the Emperor was, was fill'd with the Sons of some Princes of the Empire then at court, the Emperor's pages and some priests lurking. After this manner it was, that they order'd the stage on which we were now to act. . . . After the usual obeisance made, Bengo[1] bid us welcome in the Emperor's name. The chief Interpreter receiv'd the compliment from Bengo's mouth and repeated it to us. Upon this the Ambassador [*opperhoofd*] made his compliment in the name of his Masters, withal returning their most humble thanks to the Emperor, for having graciously granted the Dutch liberty of commerce. . . .

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[1] Makino Narisada, grand chamberlain at the shogunal court

The mutual compliments being over, the succeeding part of this solemnity turn'd to a perfect farce. We were ask'd a thousand ridiculous and impertinent questions. Thus, for instance, they desir'd to know, in the first place, how old each of us was, and what was his name, which we were commanded to write upon a bit of paper, having for these purposes took an European inkhorn along with us. This paper, together with the inkhorn itself, we were commanded to give to Bengo, who deliver'd them both into the Emperor's hands, reaching them over the lattice. The Captain, or Ambassador, was ask'd concerning the distance of Holland from Batavia, and of Batavia from Nagasaki? which of the two was the most powerful, the Director-general of the Dutch East-India Company at Batavia, or the Prince of Holland? As for my own particular the following questions were put to me: What external and internal distempers I thought the most dangerous, and most difficult to cure? How I proceeded in the cure of cancerous tumors and imposthumations of the inner parts? Whether our European Physicians did not search after some Medicine to render people immortal, as the Chinese Physicians had done for many hundred years? Whether we had made any considerable progress in this search, and which was the last remedy conducive to long life, that had been found in Europe? To which I return'd in answer, That very many European Physicians had long labour'd to find out some Medicine, which should have the virtue of prolonging human life, and preserving people in health to a great age; and having thereupon been ask'd, which I thought the best? I answer'd, that I always took that to be the best which was found out last, till experience taught us a better: and being further ask'd, which was the last, I answer'd, a certain Spirituous Liquor, which could keep the humours of the body fluid and comfort the spirits. This general answer prov'd not altogether satisfactory, but I was quickly desir'd to let them know the name of this excellent Medicine, upon which, knowing that whatever was esteem'd by the Japanese, had long and

high sounded names, I return'd in answer, it was the Sal volatile Oleosum Sylvii. This name was minuted down behind the lattices, for which purpose I was commanded to repeat it several times. The next question was, who it was that found it out, and where it was found out? I answer'd Professor Sylvius in Holland. Then they ask'd me, whether I could make it up? Upon this our Resident whisper'd me to say, No, but I anser'd Yes, I could make it up, but not here. Then twas ask'd, whether it could be had at Batavia? and having return'd in answer, that it was to be had there, the Emperor desir'd that it should be sent over by the next ships. The Emperor, who hitherto sat among Ladies, almost opposite to us, at a considerable distance, did now draw nearer, and sate himself down on our right behind the lattices, as near us as possibly he could. Then he order'd us to take off our Cappa, or Cloak, being our Garment of Ceremony, then to stand upright, that he might have a full view of us; again to walk, to stand still, to compliment each other, to dance, to jump, to play the drunkard, to speak broken Japanese, to read Dutch, to paint, to sing, to sing, to put our cloaks on and off. Mean while we obey'd the Emperor's commands in the best manner we could, I join'd to my dance a love-song in High German. In this manner, and with innumerable such other apish tricks, we must suffer ourselves to contribute to the Emperor's and the Court's diversion. The Ambassador, however, is free from these and the like commands, for as he represents the authority of his masters, some care is taken, that nothing should be done to injure or prejudice the same. Besides that he shew'd so much gravity in his countenance and whole behaviour, as was sufficient to convince the Japanese, that he was not at all a fit person to have such ridiculous and comical commands laid upon him. Having been thus exercis'd for a matter of two hours, though with great apparent civility, some servants shav'd came in, and put before each of us a small table with Japanese victuals, and a couple of ivory sticks, instead of knives and forks. We took and eat some little things,

and our Chief Interpreter, tho' scarce able to walk, was commanded to carry away the remainder for himself. We were then ordered to put on our cloaks again, and to take our leave, which we gladly, and without delay complied with, putting thereby an end to this second audience. We were then conducted back by the two Commissioners to the waiting room, where we took our leave of them also.

[From Englebert Kaempfer, *A History of Japan,* vol. III, pp. 85-94]

Sugita Gempaku and the Beginnings of "Dutch Studies"

Sugita Gempaku (1733-1817), descended from a family of physicians, was trained in traditional Chinese-style medicine, had studied with one of the Nagasaki Dutch interpreters and had closely questioned the Hollanders on their annual visits to Edo. Perhaps the outstanding achievement of Sugita Gempaku was the famous autopsy performed by himself and Maeno Ryotaku (1723-1803) together with Nakagawa Jun'an (1739-1786). On the night of March 3, 1771, it was reported in a letter from a man called Tokuno Mambei, a retainer of one of the Edo magistrates (*machibugyo*), that the corpse of a convicted criminal would be in Senju Kotsugahara at the execution grounds the following day. The corpse which the three *Rangaku* scholars were permitted to view was that of Aochababa ("Old Woman Green Tea"), a woman of about 50 from Kyoto. Both Ryotaku and Gempaku had with them copies which they had purchased individually of the 1734 Dutch translation (*Ontleedkundige tafelen*) by Gerard Dicten, a practitioner at Leiden, of the *Anatomische tabellen* (*Tabulae anatomicae in quibus corporis humani*) (1722) by Johan Adam Kulmus (1689-1745) of Breslau who studied medicine in Halle, Leipzig, Strasbourg, Basel, and with Boerhaave at Leiden and was a teacher of medicine and pathology at Danzig. In accord with the experimental spirit of the times Gempaku and Ryotaku compared their anatomy of the woman's body

with the charts of Kulmus, and they were amazed and impressed with the accuracy of the Western in contrast to traditional Chinese teachings. Realizing the import of their discovery Gempaku, Ryotaku and Jun'an agreed to translate Kulmus's book. With the help of other scholars of Dutch Learning, after three years and five months' work they eventually published the fruit of their labors as *A New Book of Anatomy* (*Kaitai shinsho*).

Despite the breakthrough which it definitely represented, *A New Book of Anatomy* (*Kaitai shinsho*) had a number of weaknesses. Maeno Ryōtaku was the only one of the translators who knew a fair amount of Dutch, and there were no dictionaries available. The original by Kulmus had a brief text and extensive footnotes, but the Japanese version omitted the footnotes entirely. Since the Japanese physicians who worked on the translation had not learned Western medicine in any systematic way and since they were still viewing the Kulmus volume as supplementary to their basic grounding in Chinese-style medicine, the translation had inaccuracies due to the translators' lack of understanding of several of the basic concepts prevailing among Western medical practitioners. Also, the illustrations were reproduced as woodcuts thus diminishing their clarity and precision when compared with the engravings of the original.

Nevertheless, these negative observations pale into insignificance when compared with the remarkable impact which *A New Book of Anatomy* had on the Japanese scholarly world. This undertaking, as a co-operative scholarly venture among already recognized physicians, had a particular distinction which, in turn, meant that other similarly qualified physicians became interested in medical knowledge from the West. Clearly, too, the reliance of the translators of Kulmus on demonstrable proof of the correctness of his anatomical charts laid the groundwork for scientific medicine and subsequently for a more scientific attitude among a significant segment of

the growing Japanese intelligentsia. Accordingly, the appearance of *A New Book of Anatomy* marked the opening of a new era in the history of *Rangaku* in which the physical center of Dutch studies moved from Nagasaki to Edo, and the intellectual mainstream broadened from the frequently part-time and often dilettantish scholarship of the official interpreters to the national scholarly community, with prestigious physicians at Edo in the vanguard.

Perhaps the greatest importance for the future of Dutch studies was the foresight of the translators in securing the sanction of the Bakufu for the publication of their work. This was accomplished by presenting *A New Book of Anatomy* to the authorities for their approval prior to its actual public release. While this act obviously reinforced shogunal control of *Rangaku*, it also provided an implicit signal that the government was ready to permit further scholarly activity at least in order to enhance medical knowledge.

For all its "newness," however, and the opening it gave to Western science and technology, Dutch Studies did not stand entirely apart from the Neo-Confucian learning that held sway in the Edo period. Sugita, though impressed by the new learning, gave credit to the Neo-Confucian promotion of rational inquiry, critical inquiry and "practical learning" which helped to prepare the Japanese for their encounter with the West.

The Beginnings of Dutch Learning

At the outset of *The Beginnings of Dutch Learning* Sugita compares the new European learning with the dominant Neo-Confucian learning of China.

Dutch Learning Compared with Chinese Learning

It is really surprising that “Dutch learning” has gained such great popularity lately. Far-sighted intellectuals study it with enthusiasm while the ignorant praise it in grandly glowing terms.

This pursuit of Dutch learning was casually started by us—very few of us—about fifty years ago. We never expected that it would come into such a great vogue.

The way Chinese learning was begun and promoted was quite different. In old Japan, envoys were sent to Tang China (618-906), and some great Buddhist monks were sent there to pursue their studies under the direct tutelage of Chinese scholars. On coming back, these men were commissioned to educate the Japanese, high and low, in Chinese learning. It was natural, therefore, for Chinese learning to become gradually diffused among the people.

Nothing like this happened with Dutch learning. Yet, it has come into such popularity that it makes me wonder what made it so. Was it because in medicine, teaching was first of all practical and it could be followed easily? Or was it because some old foxes, seeking after fame or gain, took advantage of the curiosity of the masses who considered Dutch medicine as a new, exotic and mysterious cure?

National Isolation. Surgery in South Outlanders' Style. Surgery in Dutch Style

Let us consider here how the Japanese contact with outsiders has changed since early times. Western ships began to visit the extreme western part of Japan about the Tenshō (1573-1592) and the Keichō Eras (1595-1615). Their avowed purpose was trading with Japan, but in fact they had an ulterior object and this caused all sorts of trouble.

After the establishment of the Tokugawa government (1603), all trade with Westerners came to be forbidden. This is a historical fact we all know about. The direct cause for this drastic measure, that is, the strict ban on heretical Christianity, is alien to me, and I have nothing to say about it. But I am quite positive in stating that some of the surgical knowledge, which the Japanese acquired from the doctors aboard the foreign ships coming to Japan in those days, is still with us as useful

techniques in healing. These are designated as surgery in "south outlanders' style (*nanban-ryū*)."

In spite of the general ban on Western ships visiting Japan, the Dutch were allowed to keep on coming to Hirado, Hizen province, as they were not considered "conspirators." Thirty-three years later, that is, in 1641 (the 18th year of Kan-ei Era), all the other "south outlanders" who had been in Dejima of Nagasaki were expelled to allow the Dutch alone to reside there. Ever since, Dutch ships have made it a rule to drop anchor at Nagasaki every year. It is reported that on board the ships which visited there, there was not a small number of doctors who were instrumental in initiating the Japanese into the knowledge of surgical operations. The medical art thus transmitted was called the "surgery in Dutch Style." Needless to say, the Japanese doctors did not acquire it by reading Dutch books, but by watching what the Dutch performed, and taking notes on their prescriptions. Since many of the drugs they applied were not available in Japan, some substitutes were used. . . . [1-3]

Dutch Learning Prospers

In the beginning, I did not think the Dutch learning would flourish and advance as we see today. This was due to my poor intellect and lack of foresight. Looking back now, I see that the Chinese learning took long to develop in this country, perhaps because it was primarily a rhetorical language while Dutch developed fast, because it expressed facts as they were and it was easier to learn. Or, perhaps, it was that Chinese had trained the Japanese mind and had made a foundation whereupon Dutch was able to make a rapid stride. I cannot tell.

Or, it may be that the time was just ripe for this type of learning. Takebe whom I came to know by correspondence as I mentioned before, wrote in his letter that he was beside himself with joy to receive my answer, proving our intellectual coincidence. This gentleman was twenty years my senior. Claiming that he was too old to study himself, he sent his son Ryōsaku and one of his

pupils, Otsuki Gentaku to Edo to be tutored by me.

I watched this man, Gentaku, and found him very positive in learning. He would not say or write anything unless he was convinced of it himself. He was not necessarily of vigorous mind, but he disliked frivolousness. He was exactly the man for the study of Dutch science. I loved his talent and personality and made a conscious effort to teach him. Afterwards, I entrusted him to Ryōtaku's guidance. As was expected, he proved a diligent scholar, and Ryōtaku instructed him in the fundamentals of Dutch language. Thus in a short while Gentaku became thoroughly versed in the essentials of Dutch learning.

During this time, he made the acquaintance of such "Dutch" scholars as Nakagawa Jun'an, Katsuragawa Hoshū and Lord Fukuchiyama, resulting in a rapid advance in his studies. Ever enthusiastic in its pursuit, he expressed his desire to receive lessons directly from interpreters in Nagasaki. Ryōtaku and I happily supported him in this idea. "Go, young man—and study!" we said. "You will achieve greatness in your cherished desire."

Gentaku decided to go to Nagasaki, but the trouble was the question of expense. Impressed by his fervour, I wanted to do something for him. But I myself was pressed financially then. Still, I did everything possible within my capacity. Our companion, Lord Fukuchiyama, himself a student of Dutch, kindly rendered him generous help. Thus he had the good fortune of going to Nagasaki. Having carefully disciplined himself for some time under the guidance of Motoki Einoshin,[1] an interpreter, and having sought every possible acquaintance with many experts in the line, he came back to Edo and became a permanent resident there.

After he returned to Edo, Gentaku put out the book *A Guide to Dutch Learning* (*Rangaku*

[1] 1735-1794, a scholar well-informed in astronomy, humanities and natural history.

kaitei) which he had compiled but had laid aside unpublished. Many of the scholars who read the book were deeply moved and were stirred to fresh exertions. I am thankful to the providence which obliged us with the appearance of such a man and such a book in support of my cherished dream.

[Genpaku Sugita, *Dawn of Western Science in Japan*, pp. 1-3, 511-53.]

Sugita Gempaku: Report on an Autopsy

In his autobiographical account of the development of Dutch learning in Japan, *Beginnings of Dutch Studies* (*Rangaku kotohajime*), Sugita vividly recounts the famous autopsy and the subsequent labors involved in the publication of *A New Book of Anatomy* (*Kaitai shinsho).*

All of us together arrived in the designated place in Kotsugahara. The executed body to be dissected was of a female criminal about 50 years old, who, born in Kyōto, had earned for herself the nickname of "Aochababa" (Old Woman Green Tea)." She had committed a heinous crime, we were told.

Toramatsu, an Eta and a skillful dissector, was expected to perform the task, but he failed to appear on account of a sudden illness. His 90 year old grandfather, a sturdy-looking man, took his place. He said that he had performed a number of dissections ever since his youth. In dissecting the human body, the custom till then was to leave everything to such outcast people [as the Eta]. They would cut open the body and point out such organs as the lungs, liver and the kidneys while the observing doctors simply watched them and came away. All they could say then was: "We actually viewed the innards of a human body." With no labels attached to each organ, all they could do was listen to the dissector's words and nod.

On this occasion too, the old man went on explaining the various organs such as the heart, the liver, the gallbladder and the stomach. Further, he pointed to some other things and said: "I don't know what they are, but they have always been there in all the bodies that I have so far dissected."

Checking them later with the Dutch charts, we were able to identify them to be the main arteries and veins and suprarenal glands. The old man also said: "In my past experience of dissection, the doctors present never seemed puzzled, or asked questions specifically about one thing or another."

Comparing the things we saw with the pictures in the Dutch book Ryōtaku and I had with us, we were amazed at their perfect agreement. There were no such divisions as the six lobes and two auricles of the lungs or the three left lobes and four right lobes of the liver mentioned in old medical books. Also, the positions and forms of the intestines and the stomach were very different from the traditional descriptions.

The shōgun's official doctors—Okada Yōsen and Fujimoto Rissen—had beheld dissections seven or eight times before, but always what they saw was different from what had been taught in the past thousand years. They said they had been making sketches every time they saw something that struck them as strange. On this basis, I suppose, they had written that perhaps the Chinese and Japanese were different in their internal structures. This I had read.

After the dissection was over, we were tempted to examine the forms of the bones too, and picked up some of the sun bleached bones scattered around the ground. We found that they were nothing like those described in the old books but were exactly as represented in the Dutch book. We were completely amazed.

On our way home, three of us—Ryōtaku, Jun'an and I—talked of what a startling revelation we had seen that day. We felt ashamed of ourselves for having come this far in our lives without being aware of our own ignorance. How presumptuous on our part to have served our lordships and pretended to carry out our duties as official doctors when we were totally without knowledge of the true makeup of our bodies which should be the foundation of the art of healing! Based upon today's

experience, suppose we should, by some means, learn even the bare outline of the truth about the body, and practice our medicine according to that knowledge, we should be able to justify our claim as medical professionals.

Thus we talked and sighed. Ryōtaku, too, said all of this was very true, and he was in complete agreement. I broke the spell by saying, "Even this one volume of *Ontleedkundige Tafeln*—suppose we translate it—many facts about the body will be clarified and the art of healing will be greatly benefitted. I would like, in some way or another, to read this book without the aid of a Nagasaki interpreter."

Ryōtaku replied: "I have had the cherished idea of reading a Dutch book, but I have not found a friend to share that purpose and I have been passing the days in regret. However, if you are all for it—I have been to Nagasaki and learned something of the language—shall we, then, make mine the seed of our knowledge and start work on the book?"

"That makes me glad!" I said, "If you would join forces as comrades, I too will show you I can rouse myself to action."

Ryōtaku, very much elated, said, "'For good purpose, do not dally,' the proverb says. Let us meet in my home tomorrow. We will find some way to go at the work."

I promised earnestly to follow his words, and we parted.

Next day, we gathered at Ryōtaku's house. We talked over the experience of the day before. Then we faced the book.

But it was as though we were on a boat with no oar or rudder adrift on the great ocean—a vast expanse and nothing to indicate our course. We just gazed at each other in blank dismay.

Ryōtaku, however, had studied the Dutch language for some years. He had been to Nagasaki

and had learned something of the Dutch words and syntax. He was also an old man ten years my senior. So, we decided to make him our leader and respect him as our teacher.

As far as I was concerned, I knew nothing of the Dutch language, not even the 25 letters of the alphabet. As the project was such a sudden event, I had to begin by learning the letters and gradually familiarize myself with the language.

We conferred and discussed together how to approach the translation and put it into proper and intelligible Japanese.

We thought it too difficult to attack the internal structure of the body at the incipient stage of our work. At the beginning of the book, there were illustrations of the full view of the human body, front and back. As we were familiar with all parts of the body's outside, we thought it would be easy to pair off the signs on the illustrations and on the explanatory notes, thus to learn the names of the parts of the body; at any rate, these were the first of the illustrations—we decided to begin with them. The result of this work was the compilation of the volume called *Atlas and Nomenclature of the Human Body* (*Keitai-meimoku-hen*) in *A New Book of Anatomy* (*Kaitai shinsho*).

But coming to such auxiliaries as "de" (of), "het" (it), "als" (as) and "welke" (which), we were completely at sea. We had a fragmentary knowledge of Dutch words, but their connections in a sentence were always puzzling to us. For example, we once came across the sentence: "The wyn-braauwen (eyebrows) are the hair growing above the eyes." To us its meaning remained hazy in spite of a long spring day being spent on it. It was not rare that we would be thinking and staring together till sunset and yet be unable to decipher a line or even a sentence one or two inches long.

On another occasion, we came across the description: "The nose is a part which 'verhevene'."

We thought hard about it, but the expression remained a puzzle to us. Of course, we had no such thing as a *Wordenboek* (dictionary). We had only a small word book which Ryōtaku had procured in Nagasaki. In it we thought we read, "When a branch of a tree is cut, the cut end will "verhevene.' "When a yard is swept, the dust and dirt brought together 'verhevene.'" We tried to conjecture the meaning, as we always did, by straining its interpretation to the greatest conceivable extent, but in vain.

Just at this moment, it occurred to me: "When we cut a branch of a tree, and the cut end heals, it grows high; or when we gather dust and dirt, it will make a heap; the nose of a human being looks like a heap in the center of the face. So 'verhevene' may probably mean 'heaped up.' How would this go?"

This was my suggestion to my fellow-workers. They all agreed it fitted in the sentence very well and decided on it. Our delight was beyond words. We felt as though we had found a "gem worth fifteen castles," as the old Chinese saying goes. Such was the way we sought the equivalent Japanese for a Dutch word, and gradually enlarged our vocabulary and added to Ryōtaku's notes of translated words.

Often, however, we encountered such a word as "zennen (sense)" which was beyond our comprehension. In such a case, we let it alone with a sign, expecting that we might at some other time understand it. The sign was a cross in a circle which we called "a bit with a cross." Every time, therefore, when we had vainly struggled with an unintelligible word, we would exclaim in despair, "Let's give it the bit with a cross."

We used to say, "Man proposes, and God disposes." With this belief, we went on laboring and expending energy in six or seven meetings every month.

None of us missed an appointed date although there was no immediate prospect of success. Truly, as the proverb says: "Mind the light itself." After the passage of one year or so, our vocabulary was enlarged, and naturally we became informed of Dutch things in general. By and by we found ourselves capable of translating as many as ten lines a day without much trouble when the language was not very complicated.

Needless to say, we did take questions to the interpreters who came to Edo annually. Also, between times we attended the dissections of human bodies and more often we opened animal bodies to confirm what we read.

When I first obtained that book of anatomy and ascertained its accuracy by actual observation, I was struck with admiration by the great difference between the knowledge of the West and that of the East. And I was inspired to come to the determination that I must learn and clarify the new revelation for applying it to actual healing and also for making it the seed of further discoveries among the general physicians of Japan. I was anxious to bring the work to completion as fast as possible. I had no other thought in those days than to write down in the evening what we had deciphered in the day's meeting. I considered the forms of expression in many ways, trying and retrying, and in the four years, I rewrote the manuscript eleven times over before feeling ready to hand it to the printers. Thus the work *A New Book of Anatomy* (*Kaitai shinsho*) was completed.

[From Gempaku Sugita, *Dawn of Western Science in Japan*, pp. 29-37]

Ōtsuki Gentaku: Misunderstandings about the Dutch

One of the most noted and most learned of the scholars of things Dutch was Ōtsuki Gentaku (1757-1827), referred to above by Sugita Gempaku. Gentaku began his study of medicine at age 13, and, stimulated by a desire to try to acquire both language competence and Dutch medical skills, he studied with official interpreters at Nagasaki and Dutch-style physicians at Edo. Revered by both Tokugawa officialdom and Dutch studies specialists, by the time of his death Ōtsuki attained the

pinnacle of scholarly esteem for his all-encompassing knowledge. In Gentaku's *Ransetsu benwaku* (A clarification of misunderstandings in theories [about] the Dutch) (1797), which was supposedly written down verbatim by one of his disciples, both the kinds of inquiry that were commonly addressed to *Rangaku* scholars and the level of their "scholarly" achievement are evidenced.

Short Life

Q: It is rumored among the public that all Hollanders are short-lived. Is there really any basis for this in fact?

A: Where this story sprang up or the reason for it, I do not know. Human life, both long and short, is exacted in heaven, and there is no difference throughout the whole world in all countries and in all places. This fact is well known in both China and in Japan. However, among those peoples [of the earth] who continuously sail over great expanses of rough waters, it is said that there are many who are short-lived and who generally die around forty. . . . Even on voyages of one or two hundred *ri* how many times every year do we hear of ships sinking, goods being abandoned, or lives being lost? So all the more must such things be, since these others come and go, enduring the winds and waves of over tens of thousands of *ri* to the east and west. Therefore, people who continually sail the seas, though they be young, unwittingly grow old; moreover, though they may be treated kindly, they readily fall ill and in the end many have difficulty even getting to their feet. After all, their spirits unconsciously become empty and deficient in ordinary work, and since they live on a boat for several hundred days they are affected with seasickness; thus there are certainly natural reasons for the breakdown of their bodies. . . . On looking at the people who come to this country, [we see that] those who say they are twenty-two, twenty-three, twenty-four, or twenty-five all appear to be around forty. People who remain in that country [Holland] are no different from those in this country, and their spans of life are not all the same. There are those who live on to a

hundred years and those who die after ten or twenty fleeting years. [A2-3]

Without Heels

Q: It is said that it is a natural characteristic of the Hollanders not to have heels or that they have eyes like animals or that these people are tall. What is really the truth?

A: Where did these false stories develop? Since the eyes of the people of this country are very different from [the eyes of] those people [Hollanders], are they scorned as though they were animals, or is this because they are from a different continent? There is some degree of difference in the coloring of Europeans and Asians. However, there is none at all in the physical composition [of their bodies], nor is there the slightest difference in how they use [their bodies]. When I was at Nagasaki and saw people who were Indians and blacks, they differed slightly in their eye structure. There is a small difference among the Chinese, Koreans, and Ryukuans; and even in people of our same country I think I can discern some variations in the appearance of the eyes among the people of Tōō, Hokuetsu, Shikoku, and Tsukushi. There is a little difference in color and appearance, but as far as practical application is concerned, we are all the same. It goes without saying that citizens of a continent over ten thousand *ri* away will be different. Even though there are the same conditions of creation, there must be slight variations conditioned by the location of their homeland. Moreover, since the heel is the base of one's body—and without heels how could one move about?—this [question] is not even worthy of comment.

As far as saying that all of those people [Hollanders] are tall, was this said after looking at the height of the groups of three [Dutch captain, physician and secretary] who have come to Edo? They are neither equally tall nor short. They are not of one kind, tall or short. The many Hollanders I have seen at Nagasaki are of varying [heights]. . . .

The captain named "Hanreide," [Baron v. Reede tot de Parkeler] who visited Edo recently, was very short. However since they [the Dutch] wear tight-sleeved clothes and these do not flap about, people of medium height may seem as though they are particularly tall. Some even say that when those people [Hollanders] urinate, they lift one leg like a dog, or that they have many sexual techniques or use various aphrodisiacs, but these are false stories to which not one bit of attention should be paid. [A4-5]

Wine

Q: I hear that as intoxicants they have various things such as grape wine, *araki* [Du. *arak;* Arab spice wine], *chinda* [Port. *vinho tinto*; red wine] etc. How do they manufacture them?

A: As for the Dutch wines in general, there are many purchased abroad or imported from various countries. They are all fermented from grapes. They have various names depending on the method of manufacture. *Sake* is called "uein." This is taken from [the word for] grapes "ueingaarudo" with the last part omitted. Therefore they are all grape wines and only have different names according to their manufacture.

That country [Holland] has a great many kinds of wine. Grape wine, *araki*, and *chinda* are not different things. They have names which differ according to the method of manufacture. And the thing specifically called "biru" [Du. *bier*] is an alcoholic drink manufactured from grain. This is used after eating and is said to aid in the digestion of food and drink. [A9-10]

Various Glass Utensils

Q: The kinds of Dutch-made glass wine cups in this area are all called "koppu," the wine containers are called "flasks" (*furasko*), and the glass is called "biidoro" [Port. *vidro*]. Are there any distinctions among each of these?

A: From ancient times glass has been called "biidoro," and this is not a Dutch word. It is a Latin and Portuguese word. Years ago when Portuguese ships came to our country, this word was transmitted and became a common term. In Holland they say "garasu." Originally the thing known as "koppu" referred to an object like a *chawan* [tea-cup]. Now what is called "koppu" by the public is generally the "kerukii" [Du. *kelk*] There are various names depending on the shape. As for "furasko" [Port. *frasco*], the original name is "furesuku". . . the glass container in which is put medicinal oils, *sake*, etc. Here I have selected and included suitable pictures. They should be looked at together. [A17-18]

Bread

Q: We hear the Hollanders eat a thing called "pan" as their staple food. What is this made of?

A: They mix yeast with wheat flour, knead them together, and bake. This is their food both mornings and evenings.

Q: Don't they ever use cooked rice?

A: They eat cooked rice but only in very small amounts . . . not as much as one bowlful in this country. For the most part they use Indian rice and call cooked rice "gekoukuto reisu" [Du. *gekokt rijst*]. This is what is called boiled rice. It is not yet clear from what country the word "pan" comes. In Holland they say "burouto" [Du. *brood*]. In a country next to Holland called France we hear that they call it "pain" [Fr. *pain*]. Can this be a version of the same word? [A23-24]

Portugal

Q: Usually caper spurge or mole-plant [*europhorbia lathyrus*] is called "horutogaru" [Portugal], and among the imported oils and medicines there is one called "horuto no abura" [olive

oil]. Please give me the correct information about these things.

A: Portugal originally is the name of the country that is more in the western corner [of Europe] than Holland. In China it is translated *Po-erh-tu-wa-erh*. The true name is "Poruchugaru." In days of yore it is said that many boats came here from that country. At that time words of that country were transmitted to our shores and even now there must be words that remain, such as "kappa" [Port. *capa* (raincoat)], "suppon" [probably Fr. *jupan* (petticoat)], "inondo" [Port. *eneldo* (medicinal herb)], "manteika" [Port. *manteiga* (grease)], and "hiriyōzu" [Port. *meias* (hosiery)]. This "hiruto no abura" is also a famous product of that country, and, since it was first brought over by people from that country, it seems to have directly assumed the name of that nation. Basically it is an oil pressed from the fruit of a tree called the "orefu boumu" [Du. olijf boom (olive tree)]. In Holland this is the only oil used especially for medicinal purposes. It is used like sesame oil in this country.

Food

Q: What sorts of things do the Hollanders have for food? People say that they are like the Chinese in eating inferior food and that like the Chinese also they smoke tobacco a great deal.

A: This [story] must arise because it is said that foreigners have varieties of beef and pork as staple foods. This [diet] is not limited to Holland and China. All foreign countries have such foodstuffs. Since Japan is a country surrounded on four sides by water, and, since ample food is derived from things produced in the sea, it seems that from days of old we have not made use of mountain products. Since foreign countries for the most part are states that continue far inland, distances from the seashore may extend from one hundred to three hundred *ri*. Therefore it is difficult to have a sufficiency [of food] by using sea products, and naturally people eat things that

live on land. It is thought that pigs and the like were created and put on earth by heaven for food. Since even in our country there are places such as the northern provinces that are deep in the mountains and are far from the sea, it is said that there are many places where, besides salted fish, wild boar and deer are always eaten. This practice is probably the same [as in Holland and China]. The cuisine of both Holland and China, according to what I hear of the appearance of their food, might not be what common people rumor it to be; they have from the beginning used as staple foods varieties of fowl, cow, and pig which are raised by people. Of course, as far as their method of cookery is concerned, everything they eat is very well cooked, and they never eat things that are boiled alive or things like raw fish which, after entering the intestines, are difficult to digest. It is said that Hollanders and others, though they be lowly persons, have no wish to eat animals and fish of unusual shapes which from ancient times they have been unaccustomed to eat. They do not eat things like the sea-devil, squid, and octopus. It is said that they eat such varieties of fish as the sea-bream, halibut, salmon, trout and carp. In reference to birds it is said that they do not make much use of birds like the pheasant and duck that are fat and deleterious. From the first they say that species such as the dog and the horse have not been [considered] edible. Of course, they have regular times for eating and drinking, but it is said that beyond these they never drink or eat to excess. When they [Hollanders] hear it said that all the people here ordinarily eat fish and that our town bullies can down two bonitos or . . . a great amount of *sake* in one gulp, the [Hollanders] must be horrified and must deplore it.

As for the saying that they smoke tobacco a great deal, this must be because they are seen using a long-stemmed pipe with a large pipe bowl. The whole pipe is made of porcelain. Since it has a long stem, it does not fill up with exudations over a long period of time, and from the way it

is made one would think it would easily break in a short time. Its length is more than a *shaku* [0.994 foot], probably with the idea that the fragrance of the tobacco on the throat should be slight. Although the pipe's bowl is relatively large, the hole that transmits [the smoke] is extremely narrow. And the thing they call tobacco is first boiled in hot water and then dried after thus being separated from its violent poisons. Of course, as far their smoking tobacco is concerned, they don't swallow [the smoke] but blow it all out. Always filling their cheeks up to the point of exhaling, they stop at two or three puffs. They are more moderate than our people who use short pipes that can be used coming or going and sitting and lying down.

"Black-boys"

Q: It is said that "black-boys" who come over on Dutch ships submerge in water easily and grow up practicing swimming, or that they are a kind of monkey.

A: "Black-boys" are poor people from India. The Dutch have engaged them as servants at "Jagatara" [Jakarta]. In that area are people from various places, and all of them have homelands which have their origins in the deep south, and therefore have very hot climates. Hence their bodies are bathed in the sunlight and their coloring becomes extremely black. And, since they are menial people, it is said that they do not clothe their bodies and only cover their private parts. Often they are said to have frizzled hair like Shaka who was born on a tropical island called "Seiran" [Ceylon] in India and whose swirled hair was curled by the extreme heat. Furthermore, it must have been owing to the heat of the land that the five hundred disciples of Buddha were either stripped to the waist or entirely nude. Among "black-boys"there is certainly a distinction between the noble and the lowly and the wise and foolish, and those people are no different from the rest of mankind. From the beginning I have not paid any attention to the story that they grow up practicing swimming.

People are not what others say they are. Each Hollander has his own servant, and each is useful in different circumstances. Without distinction the various waiters and chambermaids and seamstresses assist in washing, drawing water, rice-hulling, and cooking. The Dutch call them "suwaruto yongo" [Du. *zwarte jongen* (young black)]. "Suwaruto" is black , and "yongo" is a servant, a young person. This must mean a servant-slave. [B3-5]

Electricity

Q: "Erekiteru" [electrostatic generator] is said to be an instrument for taking fire from the bodies of human beings. What sort of thing is this?

A: A diagram of this [instrument] has already been detailed in Morishima's book *Kōmō zatsuwa*. ["Erekiteru"] is a version of the original word "erekiseriteito" [Du. *electriciteit* (electricity)]. The Dutch use the words "hiyufuru sutein karakuto" [Du. *vuur steen kracht* (fire-stone power)]. There is no justification of taking fire from human bodies. Fire emerges by contact with something. Rocks and minerals are rubbed against each other causing fire. Since this action is like steel striking flintstone to produce fire, we use the name fire-stone power. And it is this device which by causing friction among the forces of heaven and earth proves the principle which is manifested in a flash of lightning. Fire does not emerge from the tip of the thing which is struck, but erupts from the place which has been rubbed with this instrument and brings forth fire. In this light it is not at all a mysterious thing. It is an implement which has been devised according to this principle and creates fire. It should be known that this fundamental principle is the same as that of the igniting stone which is used every morning and evening in every home. [B6]

Shadow Picture Lantern

Q: Of late it is said that there is a thing brought over by the Dutch called a “shadow picture

lantern." In a dark room they light a fire in front of it, and show vari-colored silhouette pictures on a blank wall-hanging that is placed opposite it; if [the pictures] are of human beings, they are of human size and even seem as though they are living, though it may be a trick. What is this called, and what sort of trick is it?

A: In Holland this is called "toufuru rantaaru" [Du. *touver lantaarn* (magic lantern)]. When this is translated, isn't it a magic lantern? Originally it was a plaything for little girls. They [the Dutch] leave an opening in the end of a small box which is put at the front, and they light a fire inside it. When they insert into this opening an inverted picture that has been drawn on glass, the shadow is turned about and is correctly reflected on the opposite screen. Moreover its shape is large. This [apparatus] can be called an eye. It reflects all things using the same principle of the shadows making their impression on it. When one sees this thing and understands its principles, it should be quickly comprehended. Didn't it get the name "magic lantern" from people to whom the principle was obscure and who therefore had difficulty understanding it? [B7]

First Entry into the Harbor and Accommodations at Nagasaki

Q: When were the Dutch first in this country and have they come to Nagasaki since ancient times? Further, what sort of accommodations do they have in that place [Nagasaki]?

A: As I have already explained in my *Rangaku kaitei*, they began [coming here] about the time of Toyotomi [Hideyoshi (1536-1548)] in the Keichō period [1596-1615] and reached Hirado in Hizen. After that, during the Kan'ei period [1624-1644], they entered the harbor of Nagasaki in the same province. Not yet two hundred years have gone by. Ignorant and stupid women think that Nagasaki is a place in China, and there are those that think that the people of this country [Japan] are mixed with the people of that country [Holland]. These are gross errors. Both the Chinese and

Dutch have places of residence. The Dutch live on a small island constructed on the shore of the place called Edo Machi in the same city [Nagasaki]. It has been given the name Deshima. Facing northward from this place there is a gate by which various officials, interpreters, etc. may come and go. Nishikawa [Joken (1647-1724)] of this place has detailed this in a book called the *Nagasaki yawagusa*. The abode of the Chinese is a place called Jūzenji Mura. At the east of the harbor on the outskirts of the city there is a place called Umegasaki. Here the Chinese ships anchor. Facing this is a temple called Daitokuji. Below is a common. At the right on a high place there is a village called Koshima. In the area between this village and the temple is the [Chinese compound]. From Deshima the terrain can be viewed very widely. In years gone by, when I went there to study, they were making prints at that place, and I bought some pictures of Nagasaki that were for sale. Pictures that showed the general outline of the quarters of both the Chinese and Dutch could be obtained, and I keep them at home. [B11-12]

The Origins of the Visits to Edo and Commerce

Q: Why do the Dutch come to Edo every year in the spring? Their being ordinarily called merchant foreigners is very strange. What is the origin of this?

A: This [visit] is to obtain permission to cross the sea [to Japan]. I hear that they are permitted to come every spring bringing products of their country in order to pay homage in an audience with the shogun. As is the established custom, they leave Nagasaki on the fifteenth of January, and at the beginning of March various officials of the Nagasaki garrison, three Hollanders, the senior and junior interpreters, etc., leading several tens of men, go up to the castle for an audience and offer products of their country. When they take their leave, they are granted gifts from the shogun. I understand that they divide up these gifts into seven portions, send them to the seven provinces of their

homeland, and distribute them respectively. As far as the conduct of their trade is concerned, after entering the harbor in early autumn, during the three months of July, August, and September they exchange various goods at Deshima, Nagasaki. Those who come into port in early fall of the current year alternate with those who have remained on Deshima since the previous year. At the audience in the following spring the captain will take the secretary and the physician, and it is said that these are as a general rule the three who make the visit to [Edo]. [B13-14]

Surgery

Q: You speak as though all the Dutch doctors are ordinarily only surgeons. Is this really true?

A: As far as this [question] is concerned, when the first ships came into port skilled surgeons were on board, and the interpreters of that time [who were] learning the various unusual skills that they [the surgeons] had to offer were the founders of surgery and, before one knew it, formed a school. Following those people [these ideas] were handed down by hearsay and gradually became widespread, and it seems like Nagasaki was the source of surgery. At that time, since the books of that country could not be read directly, those studying these marvelous arts could only learn by memory, and it seems that these [students] did not extend their questioning into matters of internal medical treatment. Even when one speaks of Holland, how can external treatment alone be used to treat external injuries resulting from wind, cold, heat, and dampness, the various ailments brought on by internal injuries, conditions of women before and after childbirth, children's small-pox and boils, and varieties of measles? This is utterly unthinkable. Even aboard ship the same situation exists. Are there only external ailments and not internal ailments? On board ship, although [their doctors] do not distinguish between internal and external treatment, [they] combine both internal and

external medical science. In their books internal medical treatments and methods are very minute and detailed, and that country [Holland] has a great many books which can be selected from among the work of its wise men. Generally those persons who are doctors consider that it is of first importance to know the whole human body under ordinary conditions. The four extremities and the whole external human body from the skin, flesh, body hair, and hair on the head to the viscera, veins, and membranes on the inside are all vivisected and investigated, and on the basis of these [studies] the [doctors] consider the source of the illness and give treatments. Learning these facts in detail by research in these techniques, they know their procedure. Among medical skills internal medicine is especially difficult to master easily. . . . As for the whole field of medicine, even among the medical profession, it is said that there are men of [especially] good repute. They are called "heneisuheru" [Du. *geneesheer* (physician)]. This is a title of respect. Another name is "dokutofuru" [Du. *doktor* (doctor)]. Men such as these do not come over on ships, and it is understood that they recklessly [go] to other countries. They are also skillful surgeons. As far as [the doctors] who come over on the ships are concerned, many of them are persons who in a general way know the techniques. It is said that they come for the sake of pursuing their studies and that they endeavor to succeed in both medicine and surgery. From time to time there are people whose main endeavor is medicine, and for study and research they also come over to try to get better acquainted [with such work]. In their language a surgeon is called "heirumeisteru" [Du. *heelmeester* (surgeon)] or "hando uerukerusu" (craftsman, i.e. surgeon)] but, since on the ships he combines medicine [with surgery] he is called "dokutofuru." Two men come over on each ship. One is called "opporu meisuteru" and the other is called "onderu meiseteru." Our comparable terms for these are senior surgeon and junior surgeon. "Oppuru" is senior. "Onderu" is junior. The one who pays his respects at Edo is the

"opporu meiseteru." However, as noted above, they are called "dokutoferu."

[From Ōtsuki, *Ransetsu Benwaku*, A 2-24, B 1-18; tr. Goodman, pp. 71-99]

Shiba Kōkan: Discussing Western Painting (*Seiyōga dan*, 1799)

Shiba Kōkan (1747-1818), an Edo man, was a painter of traditional Chinese and Japanese styles (especially *ukiyoye*) before he developed an interest in Western art and, in association with the leading scholars of Dutch Studies, became an enthusiastic advocate of Western art and civilization, manifested in his work as a painter, etcher and engraver.

The distinguished historian Sir George Sansom saw Shiba as representing a significant restlessness among educated Japanese of his day: "[he] felt that his native culture was exhausted and stale. . .a man in revolt against contemporary Japanese life,. . .and impressed by the material and scientific aspects of Western culture." The following comments of Shiba reflect his sense of impatience with his own countrymen for their failure to appreciate things Western.

1. The diameter of the world is more than seven thousand miles, and the sea route circumnavigating it is over twenty-four thousand miles. The land known as the West is in the region lying to West of China and Japan. The most distant region of the West is called Europe. It is one of the great continents and contains several thousand countries the size of Japan. One of them, the Netherlands, is divided into seven districts, one of which is Holland.

The various countries of the West all have the same style of painting. Since this style was introduced to Japan by the Dutch, and since today there are numerous examples of Dutch art in Japan, we call all Western paintings "Dutch paintings." The technique employed in this art produces a true representation of reality, greatly different from the style that is used in Japan. Many persons in Japan--among them those who paint in the traditional Chinese or Japanese technique--consider Western-style painting absurd and have no desire to learn the Western method. Not only do they think it unworthy of study, but they feel that it has no artistic value and cannot be called painting at all! They seem to think that the artistic creations of the West are mere artisan's work. This is indeed

an extremely foolish notion.

The Japanese and Chinese painting that we refer to as *saiga*, or minutely painted pictures, actually come under the category of *saiku*, or artisan's work. Take, for example, the manner in which the Japanese draw hair and beards: every single strand of hair is drawn individually. The Western technique of drawing hair, however, is to suggest the hair in a few brush strokes, so that the resulting appearance is one of real hair, not a mere mass of lines. In ancient times people were not concerned with the stress and character of the brush stroke. Fundamentally, a brush is a tool for drawing pictures. If one attempts to draw an ox without expressing the actual appearance of the ox, if one is concerned mainly with the impression given by the brush technique, then a mere spot of ink could just as well be called a picture of an ox.

For example, medical science cures illness with medicine. Relating this metaphorically to painting, let us call medical science the brush, illness the picture, and medicines the colors. The attempt of medical science to cure a specific illness with general medicine, or the attempt of the brush to correct a picture with color, is like not knowing exactly where the illness originates or just what is at fault in a painting. The primary aim of Western art is is to create a spirit of reality, but Japanese and Chinese paintings, in failing to do this, become mere toys serving no use whatever.

By employing shading, Western artists can represent convex and concave surfaces, sun and shade, distance, depth, and shallowness. Their pictures are models of reality and thus can serve the same function as the written word, often more effectively. The syllables used in writing can only describe, but one realistically drawn picture is worth ten thousand words. For this reason Western books frequently use pictures to supplement written texts, a striking contrast to the inutility of the Japanese and Chinese pictures, which serve no better function than that of a hobby to be performed

at drinking parties.

The bones of mermaids are reputed to make marvelous medicines. An old tale in a Dutch book tells of a mermaid who was caught just off the Indonesian island of Amboina, which once belonged to Portugal and later to Holland. The people of Amboina preserved the mermaid in embalming fluid and drew pictures of her, so that one could see both mermaid and illustrations. The drawings were done in color to convey her luster and shape, and they had an accompanying descriptive text. After some years the preserved mermaid lost her original appearance, so that a person today who desires to know what the mermaid once looked like must resort to the drawings made of her. Had the drawings not been executed in a realistic technique, they too would be virtually useless. (For further details concerning mermaids, see *Rokubutsu shinshi* by Ōtsui Gentaku.)

2. Instead of using glue as we do to mix our pigments, Western artists use oil. This means that even if their paintings get wet they are not damaged. These pictures are commonly called oil paintings. Although many artists in Japan have copied this technique, few have ever attained a genuine knowledge. When I visited Nagasaki some years ago, a Hollander named Issac Titsingh gave me a book on art entitled *Konst Schilderboek*. Perusing this work carried me into an intoxicating world. After a careful study of it, I finally attained a perfect command of its principles and can now draw whatever I wish with complete ease--landscapes, birds, flowers, men, or beasts.

Pictures that are intended to give information, because of the vast amount of accurate detail that they contain, are far more effective than simple words of description. All things depicted in paintings--from the great wild goose down to the tiny sparrow, and even further to the components of eyes and beaks and legs--differ in shape and feeling. Even the color in plumage varies

exceedingly. The written word in black and white cannot possibly recreate an accurate image of the true form. For this reason, the pictures drawn in Western countries are regarded even more highly than writing. Painting and writing both serve the nation; they are not devised merely for amusement.

3. Many Easterners consider Western art to be no more than "perspective pictures," but this belief is utterly fallacious for the reason I have stated previously: a picture that does not represent reality faithfully is not well executed. There is far more to realistic painting than the mere drawing of perspective. Eastern pictures have no accuracy of detail, and without such accuracy, a picture is not really a picture at all. To paint reality is to paint all objects--landscapes, birds, flowers, cows, sheep, trees, rocks, or insects--exactly as the original objects appear, thereby actually animating the drawing. No technique other than that of the West can achieve this feeling of reality. When a Western painter looks at the work of an Eastern artist, he surely must see it as the mere playing of a child, hardly worthy of the name "painting." But when an Oriental artist, who is used to living with his wretched paintings, has an opportunity to compare his work with the distinctly superior Western art, he stupidly considers the latter merely another school of art, calling it "perspective painting." Obviously, such categorizing represents an extreme misunderstanding of Western painting.

4. Western books contain pictures made by the copper-engraving process. They have, for example, botany books (something like our medicinal herb books) in which illustrations and words are equally important for description. Without illustrations it would be impossible to obtain a clear understanding of the plant's appearance. Similarly, in order to construct an unfamiliar article one must know its shape. What better way could there be to describe this than by means of a picture? Being realistic representations, the drawings of Western countries are executed according to the

"three-face method" of shading.

The technique of bestowing color tonality in addition to shading, particularly in copper engraving, is a very difficult art. Therefore, early Western books published before the technique of copperplate engraving was sufficiently developed contain extremely poor illustrations, which only slightly resemble the genuine article. An example of this is the ancient Dutch book by Ambrosius Paré, which roughly corresponds to our books on medicinal herbs. The inadequacy of these reproductions sometimes caused scholars of Dutch Learning and others who were unaware of the misrepresentations to misjudge the engravings, making serious errors. Starting from the Dutch zoological encyclopedias by Johnston, the technique of making copperplates improved markedly, so that more recent publications reaching us from abroad all contain carefully detailed engravings, so realistic the pictures almost come alive.

Even though we often cannot read the inscriptions written in the Dutch language, we still can get a thorough understanding of many of the things described merely by studying the pictures carefully. This fact alone proves the brilliance and superiority of Western art. Of course, the principles of Western art are quite impossible to comprehend unless one first has some notion of the principles of the art of Japan and China with which he can compare the Western technique. The three-face method of shading in Western art must be studied carefully and understood thoroughly: 1) Keep pure white that part of the painting which is to depict objects in direct sunlight. 2) Paint in pale tones those objects on which the sun shines obliquely. 3) Paint in deep tones those objects that are shaded from the sun and are therefore dark. The effect of light and dark shadows is achieved in engraving by the use of parallel lines: when single parallel lines are used in close proximity, the tonality is light; when two sets of parallel lines are used crossing each other, the tone becomes

darker.

When I was a young man, Hiraga Gennai said that many years ago a Hollander arrived in Japan, bringing with him several hundred Dutch copperplate pictures. He offered them for sale; but the Japanese, too frivolous and superficial to realize what a rare and wonderful opportunity this was, declined his offer! They knew nothing of the technique involved, and this, in fact, was their first indication of the existence of copper engravings

No one in Japan knew the proper method of making a copperplate. I therefore turned to the formula given in a book by a Hollander named Buys. I consulted with Ōtsuki Gentaku, who assisted me in translating the text so that I could manufacture copperplate pictures in Japan. In 1783, I produced the first engraving. Unfortunately, Asians are different in nature from Europeans, who have achieved such great skill in this art, and I could hardly hope to attain an equal perfection. At the time of this writing I am more than fifty years old, and gradually my energy wanes. Though I have still much to learn, I should like to offer what slight knowledge I possess on the art of copperplate engraving to those whom it might interest. I therefore intend to publish another book, *Oranda kik*ō, which will explain the engraving technique.

5. Western artists apply their theories to a technique of precise representation, and their works cannot be viewed in a frivolous manner. There is, in fact, a specific way to look at them. Perhaps to facilitate this, the pictures are usually framed and hung on a wall. Even when a painting is to be looked at casually, it should be hung directly in front of the observer. In the picture there is always a horizon line between sky and land. The viewer should move back five or six feet to a position where the horizon in the picture is level with his eyes. In this manner perspective is expressed in its truest form, clearly delineating the foreground from the background and setting off

objects in space. Often a mirror is used in looking at small pictures, giving them an even greater appearance of depth and reality.

6. Portraiture is an important art form in the West, where the faces of sages and political figures are recorded in copperplate engravings for the benefit of future generations. The portrayal of these men gives one as clear an understanding of their physiognomies as seeing the men themselves. Again, the contrast to Japanese and Chinese paintings is striking, for without the technique of copying reality, the Eastern artist can paint only a subjective impression of an object or a face. The same man, if painted by two different artists, will appear to be two different men. Consequently, since the true form is not described, only a vague image appears. An image of grass and flowers that does not resemble the actual plants can hardly be called a picture of them.

7. The indigenous art technique of Japan and China cannot reproduce reality. In drawing a spherical object, a Japanese artist will simply draw a circle and call it a sphere because he has no method for representing roundness. Being unable to deal with complexity, should he draw the front view of a man's face, there is no way of expressing the height of the nose! This difficulty is not due to the way in which the lines are drawn, but to the total disregard of shading in Japanese art. I shall discuss the drawing of Western pictures in greater detail in a later book, called *Seiyōga den*.

[From French, *Shiba Kōkan*, pp. 171-174]