

CHANNELS OF WESTERN LEARNING IN ISOLATED JAPAN, 1639~1853 (I)

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Channel V: Books

The role which Westerners, interpreters, or castaways had played as disseminators of Western learning had indeed been extensive in its size and effective in its outcome. In fact, without these people, and especially the former two, there would have been no Western learning existing in the country. However, their presence alone did not spread Western knowledge, because their actions had almost always been limited, both geographically and physically. Moreover, in the scene of imparting Western learning to the Japanese, explanatory remarks they made had frequently been fragmentary and insufficient because of limitations imposed upon them by the time span, unfavorable situations, and Bakufu regulations. And books about Western learning which had some concomitant values inherent in them would have been the best conceivable source at this point; a book has consistency, extended arguments, and full expositions; it is repeatable, conveyable, accumulative, and selective beyond time and space.

Throughout the isolation there had generally been three kinds of books available to the Japanese when they wanted to study Western learning: Dutch, Chinese, and Japanese books. Chinese books were widely used during the first half of the isolation and around the time of the opening of the country, whereas the Dutch and Japanese works had become increasingly popular during the second half. Depending on their ability in the language and on the nature of their study, the Japanese utilized one or two or all kinds of books. And in doing so, they were often tempted to write their own books¹ in Japanese or sometimes in Chinese.

The Dutch Books

In spite of its strong hostility toward Christianity and rejection of Chinese books dealing with Christianity, the Tokugawa government had never seriously suppressed the importation of Western books, except, of course, religious ones.² The ordering of books by the Japanese from Holland began no later than 1652. The Hollanders too brought European astronomical globes and charts to Nagasaki occasionally.³ One order sheet sent to Holland by a Japanese even included English and Russian books.⁴ Similar orders were sent each year and their number increased toward the end of the Tokugawa era.⁵

Aside from ordering books, the Japanese had several other chances to obtain

Dutch works. Sometimes the Dutch in Deshima held an auction for various items, including books.⁶ The Dutch who visited Edo for an audience with the shogunate often sold books to customers.⁷ The Japanese themselves sold books to one another.⁸ But because of high price of these books,⁹ some Japanese copied them and stored them in their family library.¹⁰ Yet, men who could afford it, like the military scholar Takashima Shuhan and the scholar Miyake Motonobu, brother to the Lord of the Tahara domain, spent a large part of their fortunes to purchase Dutch books.¹¹ Some feudal lords were eagerly collecting foreign works. For example, Lord Nabeshima of the Saga domain had a library with seven hundred thirty-two Dutch books in several fields around the time of opening the country.¹² In this way, a fairly good number of Dutch books were circulated among the Japanese. Even the prohibited books on Christianity, although quite rare, were found in the books owned by scholars of Dutch learning.¹³

The Chinese Books

Due to the centuries of cultural contact with China but even more so to the advocacy of Confucianism by the Tokugawa Bakufu, most educated Japanese could read and understand Chinese.¹⁴ Naturally, when their country was closed to foreigners and the Dutch books were not easy to be read or to be bought, Japanese turned their attention to a number of imported Chinese books dealing with Western culture. Many of these books were written by European missionaries in China and translated into Chinese. World maps written by Matteo Ricci between 1584 and 1604, for example, were brought over to Japan almost about the same time they appeared in China. Ricci's maps were widely circulated. The fact was that almost fifty percent of all world maps published in Japan during the seclusion was directly or indirectly based on his maps.¹⁵ Following Ricci, Giulio Aleni and Ferdinand Verbiest wrote on world geography. Their writings too were quite influential in Japan.¹⁶ But Chinese books were not limited to geography. In the fields of astronomy and mathematics, Chinese books were so common in Japan that Japanese scholars in the fields were indeed too slow to turn their attention to European books.¹⁷

However, high popularity of Chinese literature and the fear that Christian scientists might intend to propagate Christianity in Japan through their works led the government to issue an edict in 1630 banning importation and circulation of thirty-two works written by Matteo Ricci and other Europeans, together with all those books

related to Christianity.¹⁸ But because the edict by no means rejected culture of the West but simply Christianity, those publications which merely described or mentioned manners and customs of Christendom continued to be admitted to the country.¹⁹ And the edict did not seem to discourage the Japanese from importing Chinese books on non-Christian topics. Indeed, a considerable number of Chinese books were brought into Japan during the latter half of the seventeenth century.²⁰

However, in 1685, Mukai Gensei, a scholar as well as a keeper of the Confucian shrine in Nagasaki, happened to find out, to his great surprise, that a Chinese book on Christianity was smuggled to Japan under an innocent title. Thereafter, the government enforced the edict of 1630 even more strictly. Gensei himself became an adamant inspector of books, eliminating all the books even carrying such harmless terms as "Catholic," "Jesus," "Western," "Europe," "Ricci," and "Nestorian Christianity," together with those books containing even a passage describing the Western hemisphere or a map showing any of the Christian countries.²¹ Furthermore, between the years 1685 and 1720, from thirty-five to thirty-six new titles²² were added to the prohibition list. More than a third of these books were nothing but the Gazetteers or the local histories of China with a passing reference to Christian monuments, missions, or missionaries.²³

This severe prohibition edict was finally brought to an end in 1720 by the Shogun Yoshimune, upon the recommendation made by the calendar expert Nakane Genkei who wished to compile an accurate calendar for Yoshimune. In the new edict which appeared afterwards, Yoshimune declared that he would now go back to the edict of 1630. But in actuality his new decision turned out to be very favorable to Western learning. Thereafter in fact books referring simply to manners and customs of Christendom were imported and sold freely in Japan.²⁴

This does not mean, however, that banned books were totally and strictly controlled. They were still circulated among a small number of Japanese scholars. Nishikawa Joken (1648-1724), for example, apparently used one of such books in his writings, though for an obvious reason he did not reveal it.²⁵ Ogyu Sorai (1666-1728), one of the most notable Confucian scholars of the time, read a banned book. He went so far as to comment that the Bakufu should first allow a scholar to read a book on Christianity and let him decide if it was worthwhile or not. Arai Hakuseki also noted that some banned books were circulated in secret among scholars.²⁶

At any rate, it should be pointed out that the increasing number of Japanese

scholars were now capable of reading Dutch books and that more and more Japanese wrote about the West. This phenomenon somewhat diminished the importance of Chinese books, particularly from the late eighteenth century on. But then Chinese books again became important toward the end of the regime when the Japanese faced political crisis and searched solutions in political systems in the West, and such an issue was dealt with only in Chinese books.²⁷

The Japanese Books

Of all the written sources available to the Japanese for the study of Western sciences during the isolation, those written in Japanese or sometimes in Chinese were probably the most influential due primarily to their accessibility, price and readability. And the circulation of native books quite naturally popularized Western learning. People raised questions about Western learning, argued about it and pursued areas of their interest. Writers too became even more serious about their learning. And the publication of books helped them deepen and widen and furthermore perpetuate their new knowledge in the field, an act which in turn helped others engage in the endless process of the same development. The wide circulation and abundance of Japanese literature clearly show that the period of mere importation of Western sciences was now over, and that the time of digestion, adoption, and sophistication of Western learning had just commenced.

However, the publication of books dealing with Western things was not necessarily easy within the rigid framework of the Tokugawa society. In 1711, the Bakufu issued Regulations prohibiting people from buying or selling any new book with an unidentified source, which probably meant any book criticizing the government, mentioning Christianity, or translated from Dutch.²⁸ It seems that the Regulations were somewhat strictly enforced for an extended period. For example, as late as 1765, a time when the study of Western learning had already been promoted for nearly half a century after Yoshimune's edict in 1720, the government still banned Goto Rishun's *Oranda Hanashi* (The Story of Holland) simply because the book contained some passages in Dutch.²⁹ Consequently scholars in Western learning often had to show a copy of their book to the authorities before they sent it to the market, avoiding controversy and suppression. Arai Hakuseki showed his two books, completed in 1708 and 1715, to the shogun, though he did not actually publish them.³⁰ Sugita Gempaku also presented his monumental translation under the title of *Kaitai*

shinsho (New Work on Anatomy) to several highest Bakufu dignitaries and nobles before he published it in 1774.³¹ In 1783, Kudo Heisuke offered his new but otherwise controversial book titled *Akazeo fusetsu ko* (Notes on the Story of the Russians) to the Chief Minister; he did not publish it at all.³² Meantime, the Bakufu, under the leadership of the Chief Minister Matsudaira, issued Publication Regulations restricting publication of heterodoxy in 1790. The noted victim of Regulations was Hayashi Shihei, who published two books before he obtained sanction from Matsudaira and other dignitaries. It seems that he was punished not for his ideas criticizing the government defence policies but for the fact that he published them.³³

The absence of highly effective printing facilities also made it difficult to publish books. After the modern European printing press was destroyed in the early seventeenth century in connection with the expulsion of the Portuguese and the Spanish, Japan had no similar press during the isolation, at least until 1848, the year when two Japanese presented one such press to Nagasaki officials.³⁴ However, this press was not used till 1856. At any rate, around the middle of the sixteenth century, a copper-type printing machine was introduced from Korea and widely used during the early years of the Tokugawa regime. But when illustrated books were first printed around the mid 1620's, publishers turned from the copper types to more effective wooden types chiseled on a piece of wood with the size of a book.³⁵ The number of publications by this new wooden press increased as years went by. In 1671, only 3,874 titles with 22,164 copies had been published; but in twenty years, 7,204 with 35,574.³⁶ But as these figures suggest, not many copies seemed to have been published from the same title. *Halma wage* (Halma's Dutch-Japanese Dictionary) published in 1796 appeared only in thirty copies.³⁷ But then the scarcity of copies forced some people to duplicate an original one. This was especially true of the publications related to Western learning, because strict official censorship made few copies even fewer. For example, out of one hundred and fifty titles dealing with Western geography and history during the period from 1645 to 1852, as many as eighty six books were never published but circulated only in hand-copy.³⁸ Even professional copiers opened their business.³⁹ Under the circumstances, though many books were written about Western learning, they seem to have been circulated within a small circle of scholars.⁴⁰ Nevertheless, some books appeared in a relatively large number and were extremely influential in the propagation of Western learning. Of such books and dictionaries, we now present three publications to get a more realistic

picture of influences exercised by Japanese literature.

- I. Gempaku Sugita, *et al.*, *Kaitai shinsho* (New Work on Anatomy), 5 volumes, Edo, 1774

Sugita Gempaku (1733-1817), a physician to the Lord of the Kohama domain, obtained in 1771 in Edo a copy of a Dutch version of Johan Adam Kulmus' *Anatomische Tabellen* by the help of one of the chief councillors of the domain. The book contained simple explanations, charts, and drawings of anatomy.⁴¹ Soon he and his two pro-Western friends, Maeno Ryotaku and Nakagawa Junan, had a chance to observe dissected body of a criminal and were struck by the accuracy of the book. They immediately determined to translate the entire work. In the following day they gathered at the house of Maeno, a physician to the Lord of the Nakatsu domain, and initiated the translation work.⁴² But the work proved to be an extremely difficult one from the outset. Though Maeno was considered the most informed among the translation team and appointed the leader, he was not much better than the others. All he did was to go to Nagasaki once and come back with a number of Dutch books and one phrase-book containing a few hundred words; he knew few Dutch words and little grammar. As for Sugita, he did not even know a Dutch alphabet.⁴³ Soon the shogun's private physician Katsuragawa Hoshu and three other domain physicians joined the team. They met approximately six or seven times a month for the next four years.⁴⁴ After days of difficulties and efforts, they finally published the translation in 1774⁴⁵ under the Japanese title *Kaitai shinsho*. The translation turned out to be the first scientific work of the West ever published in Japan. The copies were immediately sold out.⁴⁶

The publication of *Kaitai shinsho* had a great impact on the development of Western learning in general, but particularly so in the field of medical sciences. For the first time in the long history of Western learning the translators used the term *rangaku* meaning Dutch learning. With the success of the translation, the term became fashionable among people and soon came to mean Western learning in general.⁴⁷ The new word also suggests that Western learning so far monopolized by interpreters in Nagasaki had now passed into the hand of Japanese scholars who had no particular affiliations with Dutch Factory workers. After *Kaitai shinsho* in fact, every field of "rangaku"⁴⁸ but especially medicine, was pursued by a greater number of enthusiasts⁴⁹ with no Nagasaki background. Naturally the number of other

translation efforts increased. Between the time of the publication of *Kaitai shinsho* and the year of opening of the country, for example, a total of thirty-six basic medical books and clinical books had been written or translated. Many more translations were made from unidentified sources.⁵⁰

Public response to *Kaitai shinsho* was almost immediate. Even when the translation was still in progress, some people, out of apparent curiosity, came to work with the translators on and off. Some, like Takebe Yusho, a physician to the Lord of the Ichinoseki domain in northern Japan, inquired Sugita about his work in a letter.⁵¹ When the translation was published, numerous aspiring young students, including Takebe's son and his student named Otsuki Gentaku, visited the translators to get some instruction in medicine.⁵²

One of the direct outcomes of the translation was the teaching of young scholars. And here the book was a prerequisite, so to speak, to the diffusion of Western knowledge. It drew students to translators. If the students on their part again write an influential book which causes them to teach their own students, who, once again in their turn, publish their own book of high popularity, the effectiveness of the book as a source of learning is perhaps most clearly exemplified. And this is exactly what happened when Sugita published *Kaitai shinsho*, which attracted Otsuki Gentaku, who wrote *Rangaku kaitei* (Introduction to Dutch Learning), which invited Inamura Sampaku, who compiled the first Dutch-Japanese dictionary. So we now deal with their publications.

II. Gentaku Otsuki, *Rangaku kaitei* (Introduction to Dutch Learning), 2 volumes, Edo, 1788

Otsuki Gentaku (1757-1827) once taught "rangaku" to Shiba Kokan, a notable Western-style painter and scholar, and to other citizens in Edo. And it was probably during this time that he was asked to write an introductory book for the study of "rangaku."⁵³ When he completed the work under the title of *Rangaku kaitei*, it turned out to be the most important text book ever published in Japan for the study of the Dutch language.⁵⁴ It was also the first book ever written by the Japanese on the subject of a European language.⁵⁵

But the book was not designed to give a full explanation regarding Dutch grammar but rather to defend and encourage Dutch study *per se*. For example, it deals with Dutch-Japanese relations, steps and value of the study of Dutch learning,

proper attitude toward the learning, the structure of Dutch conversation, calligraphy, alphabet, way of reading, etc, and it contains only thirty-two simple words, such as heaven, earth, red, yellow, autumn, winter, man, woman, etc.⁵⁶

The book aroused a great sensation among beginners in Dutch learning. Among those who were inspired by it were Tsuji Ranshitsu from Kyoto and Inamura Sampaku from the Inshu domain. Both of them studied under Otsuki later.⁵⁷ Meanwhile, Inamura went to Nagasaki for further study. Then he decided to compile the first full-scale Dutch-Japanese dictionary on his own.

III. Sampaku Inamura, ed., *Haruma wakai*, 1796

The first attempt at compiling a Dutch-Japanese dictionary was made before the year 1767, when the Nagasaki interpreter Nishi Zenzaburo used Pierre Marin's *Nederduitsch en Woordenboek* as the basis of his work. But he translated only some words under A and B headings. Maeno Ryotaku continued the job, but in vain. In 1783, this time Inamura took his predecessors' unfinished task. Taking Otsuki's advice, he started the work under the guidance of the former Nagasaki interpreter Ishii Koemon. Later, two of Otsuki's students, Udagawa Genzui and Okada Hosetsu, joined Inamura for help. In less than a year, Ishii left Edo for the Shirakusa domain to accompany the Lord who was on his way back to the domain. Inamura borrowed Halma's Dutch-French dictionary⁵⁸ from Otsuki, and told Ishii to translate it. Ishii came back to Edo with his translations a year later. With Ishii's work as a basis, Inamura further collected and translated words in collaboration with his two friends. After years of great efforts, Inamura finally printed thirty copies of his 80,000-word dictionary in movable type wood-blocks with his own hands,⁵⁹ and distributed them among his fellow Japanese scholars in Dutch learning.⁶⁰

Once the dictionary was compiled, similar attempts were made after the dictionary. Finding that Inamura's *Halma wakai* was too voluminous to be used by general readers, Fujibayashi Taisuke, one of Inamura's followers, compiled an abridged edition of his master's work. With less than half the words of its original, this dictionary titled *Yakken* (Key to the Translations) was published in one hundred copies in 1810.⁶¹ This dictionary was widely used for its compactness. For example, Hayashi Banri of the Hinode domain, a prominent Confucian scholar in the early nineteenth century, studied Dutch all by himself with *Yakken*. He later translated Dutch work on physics and published it.⁶²

After *Yakken*, another voluminous dictionary was made public by the efforts of Hendrik Doeff.⁶³

Footnotes;

¹For example, Mitsukuri Shogo depended totally on twenty-three Western books to write his *Konyo zushiki* (The Descriptions of the World) in 1845. Kaikoku Hyakunen Kinen Bunka Jigyokai, ed., *Sakoku jidai nihonjin no kaigai chishiki: sekai chiri seiyoshi ni kansuru bunken kaidai* (Japanese Overseas Knowledge during the Isolation: An Explanatory Bibliography of Japanese Literature on World Geography and European History), (Tokyo, 1953), p. 176. Also, Kitajima Kenshin used eighty-five Chinese and Japanese books to write his *Komo tenchi nizu zeisetsu* (The Explanations of the Dutch Celestial and World Map) in 1737. *Ibid.*, pp. 82-83. Furthermore, Shoei Yamamura referred to thirty-two Western, forty-two Chinese, and fifty-two Japanese works to complete his *Kaitei zoyaku sairai igen* (Revised and Enlarged Edition of a Collection of Strange Stories of the World) in 1802. *Ibid.*, p. 47.

²Itazawa, *op. cit.*, pp. 440-463. Shosuke Sato, *Yogakushi kenkyu josetsu—yogaku-to hoken kenryoku* (Introduction to the Study of the History of Western Learning—Western Learning and Feudal Authority), (Tokyo, 1964). pp. 19-21.

³Boxer, *Jan Compagnie, op. cit.*, p. 54.

⁴These were used for teaching interpreters. Sakamaki, *op. cit.*, p. 94.

⁵Itazawa, *ibid.*, pp. 464-465.

⁶Keene, *op. cit.*, p. 97.

⁷Sugita, *op. cit.*, p. 43; Hildreth, *op. cit.*, p. 144.

⁸Senzo Mori, *Watanabe Kazan*, (Tokyo, 1941), pp. 199, 205. As late as around 1830, sale of Western books in Edo was still prohibited. p. 256.

⁹For example, the price for Kaempfer's Dutch version of *The History of Japan* was around 15 ryo in Edo about 1830. *Ibid.*, p. 199. Okudaira Iki paid 23 ryo for a newly arrived Dutch work on military sciences around 1854: C. M. H. Pel, *Handleiding tot de Kennis der Versterkingskunst*, Hertogenbosch, 1852. Fukuzawa, *op. cit.*, p. 46. Lord Kuroda of the Echigo domain paid as much as 80 ryo for a Dutch work on physical science. *Ibid.*, p. 89.

According to Kiyooka, one ryo is worth about 9,300 Japanese yen, equivalent to about \$26.00, as of 1964. *Ibid.*, p. 342f. Hereafter, this conversion figure will be used in this study.

¹⁰Fukuzawa reports that a Yamamoto, one of gunnery specialists at Nagasaki around 1854 had a collection of numerous books—all of these were hand-written copies. *op. cit.*, 43.

¹¹Mori, *op. cit.*, p. 256.

¹²Sansom, *Western World and Japan*, p. 249.

¹³The Katsuragawas, hereditary house of physician to the shogun, kept in secret a religious story written by a Dane, Erich Pontepidous (1698-1764), *Mezona*. This book was probably presented by Thunberg to Katsuragawa Hoshu. Imaizumi, *op. cit.*, pp. 186-187, 224-226. Honda Toshiaki obtained Christian writings from Tachihara Suiken, a Confucian scholar of the Mito domain. Keene, *op. cit.*, p. 75.

¹⁴In fact, the reading of Chinese books constituted the core of traditional Tokugawa education. Dore concluded that "one could write Japanese, but wisdom could only be obtained by reading Chinese... Books written in Japanese in any case were considered inferior." Dore, *op. cit.*, p. 125. For detailed descriptions of dualism of Tokugawa education, i. e., writing Japanese but reading Chinese, see *ibid.*, pp. 124-136.

¹⁵Ayusawa, *op. cit.*, p. 45.

¹⁶Ayusawa conducted an intensive study on the works of these three European missionaries. For the influence of Ricci's works on the Japanese scholars, see *ibid.*, pp. 45-47; for Aleni's, pp. 48-49; and for Verbiest's, p. 49.

¹⁷Hideo Hirose, "The European Influence on Japanese Astronomy," *Monumenta Nipponica*, XIX (Nos. 3-4, 1964), pp. 73-74. Also see Sansom, *Western World and Japan*, pp. 203-204.

¹⁸Shio Sakanishi, "Prohibition of Import of Certain Chinese Books and the Policy of Edo Government," *Journal of the American Oriental Society*, LVII (September, 1937), p. 291. For the titles of these prohibited books, see *ibid.*, pp. 292-294.

¹⁹*Ibid.*, pp. 291, 294.

²⁰Sansom, *Western World and Japan*, p. 200.

²¹Sakanishi, *ibid.*, pp. 294-295.

²²*Ibid.*, p. 296. The titles of the newly banned books are listed in the same page.

²³*Ibid.*, p. 296.

²⁴For the titles of these nineteen books, see *ibid.*, pp. 297-298. But in addition there were twenty-two works which were not related to Christianity. But these

were still on the list for some unknown reasons. *Ibid.*, p. 298.

²⁵Ayusawa, *op. cit.*, p. 49.

²⁶Sakamaki, *op. cit.*, pp. 301-303.

²⁷Nobutake Ike, "Western Influence on the Meiji Restoration," *Pacific Historical Review*, XVII (February, 1948), pp. 3-4.

²⁸Hall, "Japanese Feudal Laws," *op. cit.*, p. 322.

²⁹Imaizumi, *op. cit.*, p. 146.

³⁰Itazawa, *op. cit.*, p. 310.

³¹Sugita, *op. cit.*, pp. 88-89.

³²Hall, *Tanuma Okitsugu*, p. 103; Sato, *op. cit.*, p. 105.

³³Goan Akiyama, *Hayashi Shihei genko roku* (Memoirs of Hayashi Shihei), (Tokyo, 1908), pp. 93-98; Keene, *op. cit.*, pp. 53-54; Sato, *op. cit.*, p. 105.

³⁴Koga, *op. cit.*, I, pp. 695-696. In 1856, the press started printing a hundred copies of a Dutch book at a considerably cheaper price.

³⁵Kokugo Gakkai, ed., *Kokugogaku jiten* (Dictionary of Japanese Language Study (Tokyo, 1963), p. 227. *Tamagawa Encyclopaedia*, 1959 edition, XV: 219, 222-223.

³⁶Inoue, *op. cit.*, II, pp. 36-37.

³⁷Koga, *ibid.*, I, p. 70.

³⁸Kaikoku Hyakunen, *ibid.*, pp. 461-474. In addition one hundred and ten different kinds of foreign maps, charts, and figures were written during the same period.

³⁹Takano, *op. cit.*, p. 264.

⁴⁰Kaikoku Hyakunen, *ibid.*, p. 7; Keene, *ibid.*, pp. 99-100. The extent of the number of Japanese books owned by an individual scholar can probably be guessed from the collection of Yamagata Banto (1748-1821), an Osaka merchant as well as a distinguished scholar in Dutch learning. His book list made in 1815 includes fifty-nine items of Japanese translation of Dutch astronomical and geographical works, thirty-one (probably) Japanese translations of medical and natural sciences, and ten of other fields. Iwao, *op. cit.*, pp. 10-11.

⁴¹Keene, *ibid.*, pp. 28, 38f; Sugita, *op. cit.*, p. 43. The Dutch version was translated by Gerrardus Dicten under the title of: *Ontleedkundige Tafelen benevens de daartoe behoorende Afbeeldingen en Aanmerkingen, waarin het Samenstel des menschenlijken lichaams, en het gebruik van alle deszelf Deelen afgebeelden geleerd word*, Amsterdam, 1734. Otori, *op. cit.*, p. 31.

⁴²Sugita, *ibid.*, pp. 51-57

⁴³Keene, *op.cit.*, pp. 27, 28; Sugita, *op.cit.*, p. 58.

⁴⁴For example, the manuscript for the book had been rewritten eleven times before it was published. Sugita, *ibid.*, pp. 64-65.

⁴⁵The accomplished work was not necessarily a mere translation. Charts in the book were copied from five other different sources; Kulmus' Dutch version too was supplemented by six other works. *Ibid.*, p. 164f.

⁴⁶Boxer, *Jan Compagnie*, pp. 47-48.

⁴⁷Sugita, *ibid.*, p. 65.

⁴⁸The fact was that the translators themselves had various interests. Though all of them were physicians, Maeno's chief purpose in translation work was to learn the Dutch language to compile a Dutch-Japanese dictionary, while Nakagawa was interested in natural history, Katsuragawa in general fields, and Sugita in medical treatment only. *Ibid.*, p. 31.

⁴⁹Keene, *ibid.*, p. 31.

⁵⁰Otori, *op. cit.*, pp. 32-35. The Japanese titles of these thirty-six works are listed in : *ibid.*, pp. 32-34.

⁵¹Sugita, *ibid.*, pp. 67-68, 78.

⁵²*Ibid.*, pp. 91, 94; Keene, *ibid.*, p. 32.

⁵³Sato, *op. cit.*, pp. 81-82.

⁵⁴Keene, *ibid.*, p. 32.

⁵⁵Boxer, *Jan Compagnie*, p. 64.

⁵⁶*Ibid.*, pp. 64-65; Keene, *ibid.*, p. 32; Numata, "Introduction," *op. cit.*, p. 11.

⁵⁷Shiro Yamamoto, "Soseiki no Kyoto no rangaku ni tsuite (The Earliest Stage of Dutch Learning in Kyoto)," *The Shirin*, XXXIX (September, 1956), pp. 129-130. Sugita, *ibid.*, p. 105.

⁵⁸François Halma (1635-1722), *Woordenboek der Nederduitsche en Fransche taalen, Dictionnaire flamand et francais*, Amsterdam, 1708; Utrecht, 1710 and 1758. What edition Otsuki had is not certain. Itazawa, *op. cit.*, p. 25.

⁵⁹Itazawa, *ibid.*, pp. 214-217.

⁶⁰Boxer, *Jan Compagnie*, p. 65.

⁶¹Itazawa, *ibid.*, p. 220.

⁶²*Ibid.*, p. 63; *Who's who*, p. 301.

⁶³For a detailed discussion of the compilation of this dictionary, see p. 19. of this thesis in the previous issue.

CHANNEL VI: RANGAKU JUKU (THE PRIVATE SCHOOL FOR DUTCH LEARNING)

As we have already seen, the wide circulation of literature on Western learning made it possible for many Japanese all over the country to pursue Western sciences by themselves. It was natural that the more these self-guided students studied, the more they felt it necessary to obtain organized instruction from a well-informed individual so as to get further clarification, information, stimulation, and guidance in their study.

Throughout the isolation, the city of Nagasaki, with its Dutch residents and many interpreters, played a teacher's part for many inspired Japanese. A great percentage of distinguished Japanese scholars in Western learning during the seclusion paid at least one visit to the city to study the Dutch language and medicine, or to get first-hand knowledge of manners and customs of Westerners through Dutch merchants, or to obtain any other information and materials they happened to come across. Visiting to Nagasaki was, to the isolated Japanese, almost equivalent to going abroad.

In the meantime, the annual visit of the Dutch and accompanying Nagasaki interpreters to Edo for an audience with the shogun had served to arouse great interest in Western learning among officials of the central government, and among those feudal lords and their numerous retainers who were residing in Edo for the system of alternate residence. But, of course, their visiting alone did not cause the emergence of Western learning. The fact was that the city had been the political as well as academical center of the country throughout the Tokugawa era. Indeed, toward the end of the seventeenth century, Confucianism had already been broken up into several different schools and each school had established learning institutions for devotees of their school. Not surprisingly, each school claimed that theirs was the best and thus strong intellectual competition aroused. It must have been this strong intellectual tension in the city which turned some people to still higher challenge, Western learning.¹

Such favorable circumstances created in Edo reached a climax as the shogun Yoshimune lifted the ban of certain Chinese books and encouraged Western learning. Soon Aoki Konyo (1698-1767), one of the most prominent Confucian scholars and a custodian of the Shogunate archives, began the study of the Dutch language and

became the first person in Edo who openly declared the studying of Dutch.² In 1741, Yoshimune ordered both Aoki and Noro Genjo (1693-1761) to study the language for the scientific purposes.³ For the next several years they learned from Nagasaki interpreters during their short stay in Edo. But the progress they made was obviously minimal; they were simply too much occupied with their own official duty. The result was that they learned such simple terms as the sun, moon, star, heaven, earth, man, tiger, bamboo, etc.⁴ Despite their meager accomplishments in the beginning, however, Noro, by 1750, managed to complete his book under the title of *Japanese Explanations of Dutch Botany*.⁵ Aoki taught the Dutch language to Maeno Ryotaku,⁶ who later went to Nagasaki for further study. The study of Dutch in Edo was no longer a matter of impossibility.

Then came the liberal, if not inattentive, administration headed by the Chief Minister Tanuma Okitsugu, who was in power on and off from 1767 to 1787. In his days, people eagerly sought after various products from Holland. Dutch books were imported in such a great number that even commoners could obtain them.⁷ Interviews with the Dutch who were visiting Edo became relatively easy.⁸ Out of such a general interest in Western affairs appeared people whose prime concern was purely scholastic. With these people, Dutch learning in Edo changed its nature from a subject of mere curiosity to a work of scholarly pursuit. And as the demand for study increased, ways to meet it naturally began to take shape.

In Nagasaki, it was generally interpreters and civic officials who taught Dutch learning to others. Mostly they gave instruction at their private residence in their spare time. But it was different in Edo. Individual scholars with no official affiliations opened a private institution for learning and devoted to teaching full-time. Since many scholars were also physicians, some of these self-made scholars practiced medicine for their own study and additional income.

The Rangaku Juku in Edo

The fact that many private schools for Dutch learning were opened in Edo rather than in Nagasaki is probably due to the great demand for Dutch learning in Edo and the emergence of professional Dutch scholars. But at the same time we should not fail to point out the fact that numerous private schools of various types and interests had long been flourishing in Edo. The city was a Mecca of intellectual

devotees. These private schools, or shijuku, were originally private academies for advanced learning. They were opened by dedicated scholars of warrior class origin for the purpose of training people who wanted to enter into the academic professions.⁹ By 1829, there were a total of four hundred and thirty-seven shijuku throughout Japan with the highest concentration in Edo, Osaka, and Kyoto. In 1853, the figure jumped to a little over a thousand.¹⁰

Let us here take one shijuku and see how a private institution was opened. There was a physician by the name of Otsuki Gentaku who was an earnest student of the Dutch language. When he became proficient in it, he, like most such Japanese, decided to impart his knowledge to others. Thus in 1789 he opened rangaku juku, or the private school for Dutch learning. The institution was called Shirando and was the first school specifically dedicated to Dutch learning in Japan.¹¹ Others quickly followed Otsuki in opening the similar school. Around the first three decades of the nineteenth century, there were at least eight schools for the Dutch language and medicine, excluding Shirando; two schools for Dutch painting, and one for Western geography.¹² Of these schools, the most prominent were Nisshudo, which was opened by Tsuboi Shindo (1795-1848) in 1829 and one school founded by Totsuka Seikai (1799-1876) in 1832. The year 1833 witnessed the establishment of still another influential institution called Shosendo by Ito Gemboku (1800-1871), a student of Siebold. These three founders happened to be outstanding physicians, so people called them "three great Dutch-style doctors in Edo."¹³

The number of students at these schools was by no means small. The Shirando, for example, had a total number of ninety-four students between the years 1789 and 1826,¹⁴ while the Nisshudo, several hundred throughout its existence,¹⁵ and the Shosendo, four hundred and sixteen between 1849 and 1854.¹⁶ The students came from all parts of Japan. According to Hara Sampei's study, both Shirando and Shosendo alone recruited their students from all the feudal domains, except only ten.¹⁷

Rangaku Juku in Osaka

Meantime, the Dutch learning in Edo was quickly introduced to Osaka and Kyoto, the country's largest commercial cities. Persons who worked for this expansion were mostly disciples of scholars residing in Edo or students who had once attended private institutions there. But some founders, though in a far fewer number, were

Nagasaki returnees.

In 1789, Hashimoto Sokichi (1763-1836), once an umbrella maker, went to Edo and studied under Otsuki. Returning home, he opened his school, or Shikando, and taught a number of students.¹⁸ He was regarded as a forerunner of Dutch learning in Osaka.¹⁹ The most influential scholar in the city was probably Ogata Koan (1810-1863). He studied Dutch at the Nishudo in Edo, while receiving a private instruction from Udagawa Genshin there. He had also been to Nagasaki for study. Upon returning to Osaka, he opened a private institution, or the Teki-teki Juku, in 1838. The institution had a total of six hundred and thirty-nine registered students for the span of twenty years from 1844; as far as the figure is concerned, an inscription on Ogata's tomb even claimed three thousand disciples.²⁰

The graduates of the school included a number of distinguished leaders during and after the Meiji Restoration: Hashimoto Sanai, a loyalist; Fukuzawa Yukichi, a distinguished educator and ardent advocate for public enlightenment who built the first modern private university in Japan; Omura Masujiro, a military man; Sano Tsunetami, a politician who founded the Japan Red Cross Society; Nagayo Sensai, a physician; and many others.²¹

The Rangaku Juku in Kyoto

Koishi Mototoshi, a founder of Dutch learning in Kyoto, began the study of Dutch sciences under Sugita Gempaku in 1786 when the latter stayed in Kyoto with his lord who was on his return trip to his domain. Later Koishi went to Edo and studied under Otsuki and other physicians. Back home again, he opened a private school for Dutch learning, or the Kyurido, in 1801 and gave a lecture on *Kaitai shinsho*.²²

But one year prior to the establishment of the Kyurido, one Yoshio Motokichi had already opened his school in the city. And Inamura Sampaku later moved to Kyoto and by his efforts the study of Dutch learning in Kyoto was greatly promoted.²³ Shingu Ryotei, a student of Dutch physicians Feillke and Bateiji at Deshima, opened the Junsei Shoin, a library, in the compound of the Nansenji Temple in 1839 and gave free lectures.²⁴ Eight years later, Hirose Genkyo opened another school in Kyoto.²⁵

The Rangaku Juku in Action

Matriculation fees, tuitions, regulations, and teaching methods at the school of Dutch learning varied from one institution to another. For example, the Admission Regulations at the Shosendo read as follows:

- | | |
|--------------------------------------|--|
| I. Matriculation fees in | |
| 200 piki (\$ 12.00), plus a gift fan | to teacher |
| II. gift money in 100 piki (\$ 6.00) | to wife of the teacher |
| III. 50 piki (\$ 3.00) | to son of the teacher |
| VI. 50 piki (\$ 3.00) | to head student or
assistant teacher |
| V. 200 piki (\$ 12.00) | to Institution |
| IV. 50 piki (\$ 3.00) | to servants |

All the fees mentioned above are required to pay when the students are admitted to the Institution.

Shosendo Secretary²⁶

But the admission requirements at the Nisshudo is as simple as follows:

- | | |
|-----------------------|--|
| I. Matriculation fees | one sho of soybean
(about half gallon) |
| II. Tuition fees | one sho of soybean,
twice a year |

Every student at the dormitory is required to take his turn in cooking.²⁷

The school expenses were also different from school to school. Students at the Teki-teki Juku at Osaka, for example, paid about one *bu* and two *shu* (about \$9.70) a month for all the expenses at the dormitory around 1855,²⁸ while at the Juntendo, a domain school for Dutch learning in Sakura near Edo, they first paid one *bu* and two *shu* a month for both school and dormitory expenses but soon fees were raised to two *bu* (about \$13.00).²⁹

The class stratification of students was different also. Before 1830, the main student body were from the commoners' class. But after that, due to the sense of restlessness caused by poor finances and bad weather throughout the country, many

domains now began to send their men to private institutions to study new techniques and sciences necessary for various reforms at their domains. For example, according to Hara Sampei's study, a total number of students at the Shosendo in the 1830's and 1840's was three hundred and fifty-six; of them one hundred and seventy-nine were from the military class, coming from sixty different feudal domains.³⁰ At the Teki-teki Juku around the year 1855, most of the students were from the military class, but also from the family of doctors.³¹ At the Juntendo, most of students, or one hundred to one hundred and thirty of them, were sent by numerous clans throughout the country.³²

Regulations of the rangaku juku seems to have been strict. The students at the Shosendo had to observe the following rules at school:

REGULATIONS:³³

- I. The student must not read miscellaneous items, but only Dutch books and translations thereof;
- II. Drinking and chattering are strictly prohibited;
- III. The student is not allowed to go out more than six times a month. In case he has to go out late at night or stay out overnight for due reasons, he must obtain a document from his guardian to substantiate his absence;
- IV. When going to a public bath or a barber's, the student must report to the office and deposit his identification card. Once returned, he gets his card back;
- V. The card must be turned in to the office before eight o'clock every morning and will be returned to him at four in the afternoon.

If any student should fail to observe these rules, he will never be permitted to go out for twenty days. In addition, he will be assigned to help prescribe medicine and to be on watch duty. If failures are to be repeated a few times, he will be suspended from school.

Also, Takano Choei, one of the most distinguished scholars in Dutch learning, prepared a lengthy regulations with a list of eight items when he was asked to teach Dutch learning at the Uwashima domain in 1848. The topics of the regulations ranged from proper attitudes toward Western study to explanations of the sentence structure and to the study hour. They also covered the following items:

REGULATIONS:³⁴

- I. (Omitted)
- II. (Omitted)
- III. (Omitted)
- IV. Study will be done from eight to noon every morning. From noon to evening, the student is to practice spelling and reading. If he has time, he should collect Dutch words with Japanese equivalents, so that he may compile a word-book for his own use;
- V. Lectures are to be given from eight to noon every day. Lectures on translation methods will be held from noon to six or eight or ten at night. However, every first and fifteenth day of the month will be set aside for conference with Clan officers and friends;
- VI. School is also off on days with the number 3 appearing on the first digit. If the student wishes to talk with his teacher, he is welcome to do so on these days;
- VII. (Omitted)
- VIII. Books owned by the Clan but placed at the teacher's room should be handled with great care. Finger-tip oil may damage the books; be clean.

Teaching at the Teki-teki Juku³⁵ at the time when Fukuzawa Yukichi studied from 1855 to 1858 was organized at three different levels. At the beginners' class, two texts, *Grammatica* and *Syntaxis* both published in Edo, were assigned to students.³⁶ They had to read them aloud. They also received instructions for what they had read. When they were through with them, their formal study at the academy was over, too. If they wanted to pursue further, they had to study alone, but still at the institution. Then they took part in "kaidoku" meaning reading competitions or class recitations held six times a month.³⁷ They also read prefaces or introductions contained in books they were using. Sometimes a small class was set up for them to expose them to those written materials which were important but not readily available; or the students would ask Mr. Ogata to give them special lectures.³⁸ In addition to reading books, they often conducted experimentations on what they had read. It was not unusual for them to dissect a dog, cat, pig, bear, and other animals; they went so far as to examine the corpses of decapitated criminals. They

plated iron, and produced iodine and ammonium chloride, all by the aid of books.³⁹

Footnotes;

¹Itazawa, *op. cit.*, pp. 37-38.

²Sato, *op. cit.*, pp. 74-75.

³Keene, *op. cit.*, p. 20.

⁴Sugita, *op. cit.*, p. 22.

⁵Keene, *ibid.*, p. 20.

⁶Sugita, *op. cit.*, p. 22.

⁷Jiro Numata, "The Acceptance of Western Culture in Japan," *Monumenta Nipponica*, XIX (Nos. 3-4, 1964), p. 6.

⁸Sugita, *ibid.*, pp. 36-37.

⁹Herbert Passin, *Society and Education in Japan*, (New York, 1965), p. 25. The size of shijuku ranges from tiny schools with twenty or thirty students to some with thousands of students. *Ibid.*, p. 24.

¹⁰*Ibid.*, p. 24.

¹¹Keene, *ibid.*, p. 37.

¹²Hanazono, *op. cit.*, pp. 48-49.

¹³Itazawa, *ibid.*, p. 46.

¹⁴*Ibid.*, p. 45.

¹⁵*Ibid.*, p. 46.

¹⁶*Ibid.*, p. 465.

¹⁷Kasai, *op. cit.*, p. 26.

¹⁸Sugita, *ibid.*, p. 99.

¹⁹Itazawa, *ibid.*, p. 60.

²⁰*Ibid.*, p. 465.

²¹*Who's Who*, pp. 252, 192-193, 1190, 1313, 967.

²²Itazawa, *ibid.*, p. 59; Kasai, *ibid.*, p. 630; Sugita, *ibid.*, pp. 97-98.

²³Itazawa, *ibid.*, p. 59; Yamamoto, *op. cit.*, p. 114.

²⁴Kasai, *ibid.*, p. 630; *Who's Who*, *ibid.*, p. 1416.

²⁵Kasai, *ibid.*, p. 630.

²⁶Yogo Suzuki, *Rangaku zensei jidai to Ranchu no shogai* (The Golden Age of Dutch Learning and Life of Ranchu), (Tokyo, 1933), p. 18.

²⁷*Ibid.*, p. 18.

²⁸Fukuzawa, *op. cit.*, p. 84.

²⁹Suzuki, *op. cit.*, p. 25.

³⁰Sato, *op. cit.*, pp. 138-139.

³¹Fukuzawa, *ibid.*, pp. 59, 68.

³²Suzuki, *ibid.*, pp. 23-24.

³³Itazawa, *op. cit.*, p. 522.

³⁴Takano, *op. cit.*, pp. 540-543. The paragraphs which are omitted here deal with Dutch grammar and not with behaviors of the students.

³⁵Fukuzawa calls his school "the most progressive one of the time." Fukuzawa, *ibid.*, p. 52.

³⁶These texts were probably the following Dutch works translated by Mitsukuri Gempo (the last name first), *Grammatica* in 1842 and *Syntaxis* in 1848:

Grammatica, of Nederduitsche Spraakkunst, uitgegeven door de Maatschappij: tot nut van't algemeen, Tweede druk, 1822. *Syntaxis, of woordveeging ter Nederduitsche Taal, uitgegeven door de Maatschappij: tot nut van't Algemeen*, 1810. Itazawa, *ibid.*, pp. 236, 68. At the Nisshudo, these original Dutch editions were used as early as 1831. *Ibid.*, p. 63. Once the translations were made, they were used on a national scale as authoritative textbooks for the study of Dutch. Numata, *Introduction*, p. 17.

³⁷Fukuzawa describes "kaidoku" as follows: "Several pages from various Dutch texts would be assigned to a class. There being seven or eight classes, each consisting of ten or fifteen students, the members of a class would draw lots to decide on the order of reading. The monitor of each class would take the text on the day assigned and call on the student whose lot was to read first. If he recited successfully, he would receive a circular mark: if he failed in his passage, a black dot. When a student could not make his translation, the next one by lot would take up the passage, and so on through the class until it was rendered. Whoever made a perfect recitation without a hitch would receive a triangle which had three times the value of the circular mark. Our rule was that if a student received the highest mark in his class for three months in succession, he would be promoted to the higher class. This competition was held on these days of the month containing ones and sixes, or threes and eights." Fukuzawa, *ibid.*, pp. 80-81.

³⁸*Ibid.*, pp. 80-83.

³⁹*Ibid.*, pp. 62-63, 85-86.

CHANNEL VII: THE TOKUGAWA CENTRAL GOVERNMENT

Needless to say, all types of the channels of Western learning which have been discussed so far played their roles under the strict and uncompromising control of the Tokugawa central government. The visits of Westerners, the conduct of the Nagasaki interpreters, the return of castaways, the importation of foreign publications, and the opening of the rangaku juku had been more or less watched, examined and directed by the government. In this sense, government policies concerning Western learning also played one distinctive role as a channel for dissemination of new knowledge, although the role was somewhat a negative one.

During the earlier stage of the seclusion, the government was not necessarily opposed to introduction of all kinds of Western learning, despite their fears for the spread of Christianity.¹ Within the central government circles, this attitude of leniency was first made public by Arai Hakuseki (1657-1725), who was an extremely able advisor to the shogun. In 1708, Arai had an opportunity to question an Italian missionary, Giovanni Battista Sidotti (1668-1715), who was captured for smuggling into the country. After the questioning Arai concluded that Western sciences revealed by Sidotti were highly advanced and could be equally useful in Japan. But he dismissed Christianity as a sheer nonsense.² In other words, Arai accepted Western sciences, rejecting Christianity. Such a favorable attitude toward Western sciences finally took a concrete form when the shogun Yoshimune himself encouraged the introduction of Western sciences. Deeply rooted in his love for learning,³ but also motivated by possible strength that Western sciences might give to his administration,⁴ he introduced new policies and encouraged the people to pursue useful sciences of the West.⁵ But Yoshimune was not simply an administrator; he himself was an enthusiastic student of Western learning. He studied various fields of Western learning, from astronomy to cooking, from geography to paintings, using all the channels of learning open to him as the shogun. And the careful analysis of these channels shows, to a significant degree, the scope, trend, and limitations, if not prejudices, of the government's attitude toward new knowledge of the West (see Table 1).

After the death of Yoshimune in 1751, no immediate shoguns or the Chief Ministers encouraged or stimulated Western sciences. Yet we should not fail to point out that the liberal trends under Chief Minister Tanuma Okitsugu's administration from the late 1760's to the 1780's helped Dutch learning spread among people from

Table 1. Areas and channels of Western learning pursued by Yoshimune

channels areas	Interview with visiting Dutch	Send man to Naga- saki	Have Na- gasaki officers report in- formation ^a	Importing	Summon overseas Dutch technicians	Summon specialist from Nagasaki
Astronomy and Calendar	X ^b	X	X	X ^c		X ^d
Watch	X		X	X	X	
Geography	X	X	X			
Shipbuilding	X		X			
Firearms	X		X	X		
Horse and Horsemanship	X		X	X ^e		
Medicine	X ^f		X		X ^g	
Paintings			X	X ^h		
Animals	X ⁱ		X	X ^j		
Plants	X ^k		X	X		
Food	X ^l		X			
Others ^m						

^a It is possible that Nagasaki interpreters accompanying the Dutch for an possible audience made a report.

^b The Shogun showed astrolabium quadrant and others and made inquiries about them.

^c telescope

^d Nishikawa Joken

^e about thirty horses

^f including clinical lectures

^g invited Hans Jurgen Keyserling three times; Arima, *op. cit.*, p. 123.

^h five oil paintings

ⁱ asked about the pictures in a book

^j hunting dogs (hound); birds; others.

^k asked about the pictures in a book

^l including cooking

^m This includes such miscellaneous items as dancing, fencing, singing by the Dutch, clothes, houses, fire extinguishing, the methods of making glasses, history, murder, arson, etc.

all walks of life and all over the country.⁶ Dutch learning was no longer a monopoly of the ruling class. Commoners also purchased Dutch books and commodities, formed a study group, invited scholars for lectures, and wrote books on Western sciences.⁷ And warrior scholars on their part enjoyed much more freedom than ever before in their study.⁸

However, this atmosphere did not last long. The government again imposed strict restrictions on the introduction of Western learning before the learning was brought into fruition as an independent academic discipline. The change was caused by Matsudaira Sadanobu, Yoshimune's grandson, when he succeeded Tanuma as a chief administrator and embarked upon "Back to Yoshimune" policies, very reactionary ones.⁹ His attitude toward Western learning seemed similar to Yoshimune's. He, for example, also believed that only practical knowledge should be introduced to Japan.¹⁰ But the difference became clear when he declared that Western knowledge could be inimical, particularly a kind of knowledge which was pertinent to Christianity or to any thought unfamiliar to the Japanese.¹¹ Yoshimune did not welcome such a knowledge either, but he was not overtly worried. But time was changed. Relatively liberal trend prevalent before Matsudaira's era prepared a way for freer criticism of the government and for the creation of heterodoxy challenging Chu Shi Confucianism advocated by the government. And it was with this new movement in mind that Matsudaira proclaimed notorious policies intended to suppress dangerous thought.¹² Unlike Yoshimune, therefore, Matsudaira saw Western knowledge negatively from the outset. In details, the government, under the leadership of Matsudaira, issued two edicts which immediately restricted the nature and goal of Dutch learning, and changed scholars' views of the learning in general: one was to prohibit heterodoxy in favor of orthodox Confucianism; the other was to ban publications of any literature containing new and dangerous doctrines and ideas. Moreover, Matsudaira even put restrictions upon the amount of commodities to be imported at Nagasaki, in 1780. and to make up for this measure, he permitted the Dutch to have an audience with the shogun only once every five years. And to see them in Edo became even more difficult.¹³

Matsudaira's new policies now made it extremely difficult for commoner scholars to see the Dutch in Edo. Warrior scholars in general and even a group of progressive domain physicians who translated *Kaitai shinsho* began to avoid the commoners in fear of violating new edicts,¹⁴ and stopped helping them study Dutch

learning. Both parties, one frustrated and the other fearful, began to slander each other harshly. In the meantime, warrior scholars were offered new positions in new projects of the government and thus obtained security. Now on the government side, some of warrior scholars denounced their former friends for the exactly the same reasons that Matsudaira had.¹⁵ Their split was now beyond doubt and Western learning became something which must be handled most carefully.

With competent scholars on their side, the government, under the growing pressure of both internal and external forces working counter to them, initiated large-scale programs to utilize the practical sciences of the West. In 1803, an office was established at the Observatory in Edo for the purpose of translating astronomical and surveying works written in Dutch.¹⁶ Immediately afterwards, the Dutch version of J. J. Francois Lalande's *Astronomie*¹⁷ originally printed at Paris in 1711 was translated by Takahashi Shigetoki upon the order of Matsudaira. The translation was completed in 1809 by his son Takahashi Kegeyoshi. In parallel to the translation work, the Observatory initiated projects on the survey of Hokkaido around the year 1800, also on coastal surveying of the whole country under the leadership of Ino Tadataka in 1804, and then on the compilation of world maps in 1806.¹⁸

As the Dutch translation work became increasingly important year after year, the government decided to set up a translation office and opened the Bansho Wage Goyo (Barbarian Book Translation Bureau) in 1811 upon the proposal of Takahashi Kageyoshi.¹⁹ It was this time when the influential warrior scholars in Dutch learning, now completely separated from their commoner counterparts, were summoned or willing to serve for the government's projects.²⁰

The main project at the new Bureau was to translate the Dutch version of the French priest M. Noel Chomel's *Encyclopedia*²¹ under the Japanese title of *Kosei shimpun* (New Work on the Public Welfare). The selection of the articles to be translated was made strictly on a practical basis, faithfully reflecting the government's new attitudes toward Western learning. For example, out of three hundred and fifty-nine articles which were translated, one hundred and fifty-two of them dealt with plant reproduction; and eighty-three dealt with medical topics, thirty-nine with animals, thirty-six with minerals, twenty-eight with industries and techniques, eighteen with astronomy and geography, and seven with food.²² It is not clear how long this translation work took but might have continued from eleven to forty-five years. Yet it was never been published, and so never been used openly, contrary to the

govenment's intentions. But as far as the quality of the translation was concerned, it was believed to be the highest of the time. And all the translators were deemed as authoritative figures on Dutch learning.²³ In 1855, two years after the termination of the seclusion policy, the Translation Bureau was founded as an independent organ. And then it was reorganized under the new name of the Yogakusho, the School for Western Learning.²⁴

In the meantime, Matsudaira's conservative policies became increasingly clear in the scene of external affairs as the years passed into the 1820's and 1830's. But in as early as 1791 the government decreed that all foreign ships visiting Japanese shores without permits be expelled. And in 1802, secret trade with foreigners was strictly prohibited. In 1806, the government issued regulations specifically against Russian ships, but in 1810 they were directed against all foreign ships. A series of tightening expulsion policies reached its climax in 1825 when the government issued the famous Expulsion Decree declaring the expulsion of all foreign ships by force.²⁵ And pro-government scholars in Dutch learning such as Otsuki Gentaku²⁶ and Takahashi Kageyoshi,²⁷ and also even the neutralist scholars such as Shizuki Tadao and Takano Choei²⁸ more or less supported the expulsion policies. But Shiba Kokan²⁹ and Honda Toshiaki,³⁰ scholars in Dutch learning with no connection with the government, were in favor of opening the country.

Then came the two notable suppressions of scholars by the government; one on the occasion of the well-publicized Siebold Incident in 1829³¹ and the other on the occasion of arrest of the members of the Barbarian Society in 1839.

Around the mid 1830's in Edo, there were a group of warrior scholars with progressive views who tried to utilize Western knowledge to strengthen the coastal defence and to increase agricultural production in their domains or in the land directly supervised by the central government. The group was called the Bansha or the Barbarian Society and was gathered under the guidance and leadership of Watanabe Kazan, one of the Chief Councillors of the Tahara domain. Watanabe was also a noted painter and scholar. Kazan obtained information with regard to geography, history, and coastal defence from Takano Choei, Koseki Sanei, and Hatazaki Kanae, all well-known scholars in Dutch learning.³²

In the meantime, Endo Shosuke, one of the Bansha members, organized a meeting called the Shoshi Kai or the Old Men's Association to search a means to alleviate farmers' repeated plight in famines. The main members of this meeting

were also the members of the Barbarian Society. In the meetings, they studied the cultivation of potatoes and other crops by reading Takano's publications. But their interest was soon extended to cover current political issues.³³

At this very point, the Morrison, an American merchant vessel, arrived at Uraga off Edo in 1837 to seek trade with Japan. On board were, among others, seven Japanese castaways whom the Americans wanted to send back to their homeland. But the government drove them away by force in accordance with the Expulsion Decree.³⁴ In the following year, however, the government learned from a Dutch Factory Director about the castaways, though the Director said by mistake that it was a British vessel. Dismayed, the government, under the leadership of Elder Councillor Mizuno Tadakuni, consulted with several higher officials regarding the proper treatment of the Morrison in case she came back with the castaways. Mizuno reported their opinions to the Supreme Court, which was placed under the shogun, for further deliberation. The Court was in favor of the immediate expulsion of the ship. Mizuno was dissatisfied with this decision because he was aware of the increasing aggressiveness of the British in the Far East. So he brought the issue to judges at the law court and to government treasurers. They insisted that the castaways be sent back by a Dutch vessel but not by the Morrison. Mizuno took this advice and in no time started building coastal defence to fight the British. He assigned Torii Takuzo and Egawa Tarozaemon, one of the Bansha members, for the task.³⁵

But it happened that a report prepared by the Supreme Court for Mizuno concerning the treatment of the Morrison was presented at the regular meeting of the Shoshi Kai. Mistaking that the report was the government's final decision, Takano Choei criticized the government measures on the humanitarian ground. Watanabe Kazan expressed his fears for Japan's future relationship with the British. Both of them wrote books and thus made their views public.³⁶ But Torii and other conservative officials had long been unhappy with the progressive Bansha group. So when the books appeared, they promptly and artfully took issues from the books and cunningly maneuvered the situation in such a way as to send Takano to jail and to force Watanabe and Koseki to commit suicide.³⁷ When the incident was over, the conservatives were in full control of the suppression of Western learning.³⁸

But conservatives' triumph was short-lived. The central government, feudal domains, and people in general more or less sensed imminent danger of foreign approach. The demand and need for the coastal defence laid out in Dutch books grew

stronger and stronger. And it was during this time of popular restlessness that the Japanese learned that the British attacked China from 1840 to 1842. Now the government gave the highest priority to the study of Western firearms. They also realized that political knowledge of Western countries would equipped them better to cope with any drastic political change.³⁹ In 1841, the regime ordered the Translation Bureau to translate Dutch works on political as well as military sciences, thus finally changing an entire picture of the areas of study in Western learning.⁴⁰ And this trend continued to be dominant during the rest of the Tokugawa era and, to some extent, during the Meiji period which followed.

Footnotes:

¹Also see pp. 9-11 of this thesis in the previous issue.

²This was a dramatic change in attitude toward Western sciences on the part of the government. Numata, "Acceptance and Rejection," p. 237. Arai himself wrote: "In general, this man (Sidotti) is a man of vast knowledge and of good memory. He seems to have been trained in many fields; his knowledge in astronomy and geography is particularly profound and looks unparalled to ours...As for preaching (Christianity), even a word does not point to the Way; his sagacity suddenly turned into foolishness. I felt as though I had been talking to two entirely different persons. Now I realize that learning in Western countries is advanced only in external aspects and in practical things. In other words, it deals exclusively with things physical but never with the metaphysical." Quoted from: Hakuseki Arai, *Seiyo kibun* (Memoirs of Western Things), edited by Tsunetsugu Muraoka, (Tokyo, 1942), pp. 22-24. This *Memoirs* was written in 1708 but was not published.

According to Sato's careful study, Arai's realization of the superiority of Western sciences was by no means the first among the Japanese. Mukai Gensho in 1659, Kaibara Ekken in 1706, Nishikawa Joken in 1712 all made a similar observation, though their arguments have a Neo-Confucian touch. Sato, *op. cit.*, pp. 24-34.

³Keene, *op. cit.*, p. 17.

⁴Sato, *op. cit.*, p. 70.

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⁶See p. 52 of this thesis for further reference.

⁷Akira Otsuki, "Yogaku shi ni kansuru ichi kosatsu-Watanabe Kazan o chushin to shite (A Study of the History of Western Learning-With Particular Emphasis on

Watanabe Kazan), *The Shirin*, XL (November, 1957), pp. 93-95.

⁸For example, a group of translators of *Kaitai shinsho* and their successors were physicians attached to feudal lords, but their various interests in Dutch learning went almost unchecked. Sato, *ibid.*, pp. 80-86. Also see pp. 44-45 of this thesis.

⁹Sansom, *History of Japan*, p. 193.

¹⁰The materials used in the Table were gathered exclusively, except the item g, from: Agu Saito, "Tokugawa Yoshimune to seiyo bunka (Tokugawa Yoshimune and Western Culture)," *Shigaku Zasshi*, XLVII (November, 1936), pp. 80-101.

¹¹Matsudaira's typical views of Dutch learning, which were considerably influential, can be seen in the following passage taken from his autobiography, *Uge no hitogoto* (Rumors of the State):

"I began to collect Dutch books from 1792 or 1793. The barbarian countries were well-versed in reason. Their astronomy and geography, or firearms, or internal or surgical medical treatment are particularly useful in no small ways. But their useful learning might become an object of outright curiosity, and some readers would pick up inimical things. For this reason, we think it advisable for us to prohibit their learning. But even if we do, now it can hardly be stopped. Besides that, it is still useful. Therefore, we had better try to keep Dutch books from passing to thoughtless people. To put them into archives is probably one solution. But, without a reader, they would only become a nest of bugs. And if I keep them, I will be able to prevent them from circulating in the society. In addition, if the government summons me for urgent matters, I can deal with them promptly and properly. This was how I reasoned. I then talked with the Nagasaki Magistrate, and started buying barbarian books." Quoted from: Itazawa, *op. cit.*, p. 311.

¹²Sato, *op. cit.*, p. 104.

¹³and.¹⁵ The argument laid out in this passage and in the next leading up to footnote¹⁵ is based on Sato's study. See Sato, *ibid.*, pp. 104-114.

¹⁴One of their friends, Hayashi Shihei, who was affiliated with the Lord of Sendai but held no office and therefore was considered a commoner had been punished for publishing his views in 1792. Some of these physicians, especially Otsuki Gentaku and Katsuragawa Hoshu, actively helped Hayashi finish his works. *Ibid.*, pp. 82-83. Also see pp. 45-46, 77-78 of this thesis for further reference.

¹⁵See footnote.¹³ An intensive case study on the change of the attitudes of Otsuki Gentaku from his initial friendliness to subsequent rejection of commoner

scholars is made in: Sato, *op. cit.*, pp. 117-122.

¹⁶Keene, *op. cit.*, p. 100. The Observatory was established by Yosnimune in Edo in 1744 for the compilation of an accurate calendar and for the surveying work of the country; but it was soon abolished. The year 1765 witnessed the reopening of the Observatory, which after four years made a ten-volume report to revise a calendar. Its staffs around this time included former Osaka merchants such as Takahashi Shigetoki and Hazama Taigo, both working on the translation of Western works on chronometry. With other Dutch scholars, the office soon became the center of astronomical study in Japan. Itazawa, *op. cit.*, p. 272; Numata, *Acceptance and Rejection*, p. 242; Otsuki, *op. cit.*, pp. 94-95.

¹⁷*Astronomica of Sterrekunde vertaald door A. B. Strabbe, bewerkt onder toezicht van C. Douwes, 1773-1780. See Boxer, Jan Compagnie*, p. 55.

¹⁸Itazawa, *op. cit.*, pp. 46-47.

¹⁹*Ibid.*, pp. 272-273; Keene, *ibid.*, p. 100; see of this thesis for further information about Takahashi.

²⁰Sato, *ibid.*, pp. 120-122.

²¹The title of the French original is: *Agronome franais dictionnaire conomique*, 2 volumes, Lyon, 1709; 3 volumes, 1763. Itazawa, *ibid.*, p. 264.

²²*Ibid.*, pp. 275-287.

²³*Ibid.*, pp. 47, 294-295.

²⁴*Ibid.*, p. 48.

²⁵Akagi, *op. cit.*, pp. 11-12.

²⁶Inobe, *op. cit.*, pp. 270-272.

²⁷*Ibid.*, pp. 321-324, 328-330.

²⁸*Ibid.*, pp. 178-180; 410-412; 415-416.

²⁹Sato, *ibid.*, pp. 95-96.

³⁰Inobe, *ibid.*, pp. 170-176.

³¹See pp. 20-21 of this thesis in the previous issue for the full account of the Incident.

³²Sato, *ibid.*, pp. 131-213; Otsuki, *ibid.*, p. 105.

³³Otsuki, *ibid.*, pp. 131-135; Takano, *ibid.*, pp. 282-324.

³⁴Inobe, *ibid.*, pp. 395-399.

³⁵Sato, *ibid.*, pp. 237-238.

³⁶*Ibid.*, pp. 240-245.

³⁷*Ibid.*, pp. 275-292.

³⁸For example, in 1849 the study of Dutch medicine was prohibited by the pressure of the government's doctors specialized in Chinese medicine; and the prohibition lasted for the next five years. Mitsukuni Yoshida, *Nippon kagaku shi* (History of Science in Japan), (Tokyo, 1955), p. 206.

³⁹Sato, *op. cit.*, pp. 303-319.

⁴⁰Kyuzo Fukui, *Sho daimyo no gakujutsu to bungei no kenkyu* (A Study of Arts and Learning of Feudal Domain Lords), (Tokyo, 1937), p. 328.

CHANNEL VIII: FEUDAL DOMAIN LORDS

In the same sense that the central government had served as one channel of Western learning in isolated Japan, feudal domain lords throughout the country also provided a channel, though generally on a smaller and less influential scale than the former. The personal interests and preferences of domain lords undoubtedly stimulated or discouraged or directed, as the central government did, certain areas of study in their respective domains. Like Shogun Yoshimune, some lords were so absorbed in foreign things that they studied eagerly under the tutelage of the Dutch and Japanese scholars. Like the shogun, many feudal lords hired physicians well-versed in Western medicine or translators specialized in Dutch books. And like the shogun again, some feudal lords had a fairly good collection of Dutch publications either at their temporary residence in Edo or at their domain.

But unlike the central government, the systematic pursuit of Western learning at feudal domains was developed fairly late due primarily to the difficulty in finding proper channels of Western learning and also to the absence of urgent need for the learning. And those cities where there were a great number of scholars in Dutch learning, such as Nagasaki, Edo, Osaka, and Kyoto, were the territories governed directly by the central government. Therefore, we are not concerned with Western learning in these cities in this chapter. But rather we will examine what domains sent who to which city and see how Western learning was developed in domains. Sometimes we will simply point out that there was a certain scholar in a certain domain, not knowing how and why he happened to be there.¹

When a feudal lord wanted a man of Western knowledge, he had only two choices most of the time: either to send his men to the cities where such people

were found or to employ outsiders who had their training there.² Since he was the man who could make this choice, it is safe to conclude that he, the domain lord, was the source of Western learning. In other words, what made Western learning in his domain differ from that in another domain depended on his insight, initiative, need, and sense of responsibility as a ruler. In consequence, the amount of Western learning varied from domain to domain, some with no Western learning at all but some with full-fledged enterprises. In short, Western learning in feudal domains in isolated Japan was characterized by belatedness, backwardness, single patronage by the lord, and variety of practices.

Western learning undertaken by domain lords at various domains³ can be divided into three different levels according to the scope of their interest: first, to satisfy their own personal curiosity, needs or interests; secondly, to try to impart Western knowledge to a relatively large number of people either through organized instruction or through their own writings; and thirdly, to actively apply what they learned from Dutch books for making things for the benefit of the domain. In this third level, some lords were ahead of time and their projects often antedated those of the central government.

But almost all of the feudal lords, if they were affiliated with Western learning at all, pursued it at the first level. For example, it was out of sheer curiosity that Lord Tamura of the Ichinoseki domain sent his physicians Takebe Kyosaku and Otsuki Gentaku to Edo to study Dutch learning in 1778; Otsuki was later sent to Nagasaki by the help of Lord Kuchiki of the Fukuchiyama domain.⁴ Lord Okudaira of the Nakatsu domain permitted Maeno Ryotaku to go and study at Nagasaki in 1771 and then ordered him to translate Dutch works on the theory of motion and on surveying instruments; he had a good collection of Dutch books and appliances and even built a Dutch-style room in his residence in Edo with glazed sliding doors; he adopted a Dutch name and used Dutch name cards; and in 1810 he had one of his retainers compile a Dutch-Japanese dictionary in two volumes.⁵ The Lord of the Shirakawa domain employed Ishii Shosuke as a translator in 1786 to translate Dutch books dealing with natural history and firearms.⁶ In the early 1830's, Lord Yoshikawa of the Sasayama domain hired Ashidachi Chosen and Minato Choan as a physician-translator.⁷ Lord Noto of the Ono domain displayed much wider interest than most of his fellow lords; he employed such famous Dutch scholars as Koseki Sanei and Sugita Genkyo; he used his new knowledge for the increase of agricultural production

and for the cultivation of Hokkaido; he even published translations of Dutch works on military sciences.⁸ Lord Maeda of the Toyama domain, unlike other lords, organized a Dutch natural history study group, or Shabenkai, in Edo around 1850 with a membership of about ten, all of whom were either domain lords or retainers of the shogun; they held a seminar once a month.⁹

However, some lords tried to disseminate Western knowledge by writing books themselves or by introducing Western learning as part of curriculum at their domain school. Lord Kuchiki Masatsuna of the Fukuchiyama domain, for example, wrote a book on the history of Western coins and another on world geography with excellent academic quality; he was assisted by Titsingh.¹⁰ Kuchiki published these books in 1788 and became a leading numismatist in Japan; he was also an outstanding scholar in the area of world geography.¹¹ Miyake Motonobu, brother to the Lord of the Tahara domain, published two influential books on military sciences, one in 1851 and the other in 1853.¹²

Organized instruction in Western sciences, mostly in the fields of medical and military sciences, was given in some domains. The earliest of this type was the opening of a medical class attached to the domain school, Yokendo by name, in the Sendai domain in 1821; later a school of medicine was built separately.¹³ The 1840's witnessed the establishment of similar institutions in other domains. In 1843, for example, Lord Hotta of the Sakura domain opened a medical school, or Juntendo, in his domain with two teachers of Dutch medicine; for this purpose, he had already sent a medical man to Nagasaki five years before.¹⁴ Around the year 1855, the medical school had more than one hundred students from all over the country.¹⁵ Lord Mori of the Choshu domain also prepared the way for opening a medical school by appointing a small group of students to study Western medicine around 1840; he also instituted the position of An Official in Charge of Western Books in 1847; later two officials were appointed for this position and they conducted translations on Western medicine, geography, and the military arts. Several years afterwards, a school of Western medicine, or Koseikan, was opened with an enrollment of sixteen students.¹⁶ In the Fukui domain, Western medicine was so popular among doctors in town that it won a respectable place in the regular curriculum at the domain school.¹⁷ Lord Doi of the Ono domain gave instruction in Western military science at his domain school when it was opened in 1844.¹⁸ But in general, the number of domain schools¹⁹ which offered Western learning courses as part of their regular

school curriculum does not seem to be great. Even approximately fifteen years after the opening of the country, there were only thirty-eight, out of a total number of two hundred and seventy-two feudal domains, which owned a school and gave some courses related to Western learning.²⁰

Feudal lords, such as Lord Tokugawa of the Mito domain, Kuroda of Chikuzen, Nabeshima of Saga, and Shimazu of Satsuma, were the most ardent disseminator of Western learning in the country. But the types of enterprises they embarked upon were not necessarily the same. Lords Tokugawa and Kuroda developed their projects on a relatively shorter and smaller scale, while Lords Nabeshima and Shimazu, on a larger scale. Despite their differences in the scope, however, all of them shared one thing in common: they all pursued military sciences.²¹

Projects formulated in line with Western learning in the Mito domain were initiated under the leadership of its ninth Lord, Tokugawa Nariaki (1800-1860). In the late 1820's, he cast a Western-style mortar as part of his defence programs; he also built a glass manufactory; in addition, he produced Chian turpentine. He also collected Dutch works on shipbuilding, and proposed unsuccessfully to the shogun that the laws prohibiting the building of a large ship be abolished. He invited Aochi Rinso from the Observatory in Edo as a teacher at his domain school and a translator for him; he organized a language instruction as early as 1830's. After the death of Aochi one year later, he employed Hatazaki Kanae, another outstanding instructor in Dutch learning.²² In 1853, the domain set out to build a reverberatory furnace.²³

Lord Kuroda of Chikuzen was also a man of various interests. At the time of Siebold's stay at Deshima, he, taking advantage of his assignment of guarding Nagasaki in alternate years, became on friendly terms with Siebold. He also sent some of his retainers to Nagasaki to study Western cavalry, infantry, gunnery, literature, mathematics, astronomy, surveying, chemistry, medicine, and many other fields of Western learning. Furthermore, he tried to build a refinery and reverberatory furnace in his domain in the late 1840's.²⁴

Like Lord Kuroda of Chikuzen, Lord Nabeshima of the Saga domain had been assigned to protect the port of Nagasaki in the alternate years since the seventeenth century. As a consequence he had enjoyed exceptional opportunities to have direct contact with the Dutch in Deshima. Unfortunately, however, his serious attempts at acquiring Dutch learning did not start before the eighteenth century. In 1804, the Lord sent students to Nagasaki to study Dutch medicine. He then employed Ito

Gemboku in 1831 for the instruction of Dutch learning to his retainers. Shortly afterwards, one of his pupils wrote, upon the order of the Lord, a text-book on Dutch-Japanese translations. Nabeshima's initial efforts of introducing Western learning to his domain culminated in 1834 when a medical school was finally opened.²⁵

But as the foreign ships began to frequent Japanese shores from the early nineteenth century, Nabeshima became aware of the inadequacy of the defence at the port of Nagasaki. And from the 1840's on, Nabeshima had shifted his emphasis on Dutch learning from the language and medical study to military sciences. In 1840, instruction in Western gunnery was given in his domain. After a decade, the domain drew a plan to install on the coast lines a total of fifty-three guns, varying in size from twelve to one hundred fifty pounds. For this purpose, Nabeshima built the first reverberatory furnace in Japan under the direction of Sugitani Yosuke, who used a Dutch work as a source. In the following year, the Bureau of Dutch Studies was established for instruction in the Dutch language and military sciences; many of the graduates of the school were sent to Nagasaki to study shipbuilding, mechanics, and electricity under Dutch instructors. In 1852, Lord Nabeshima also built a refinery (or laboratory), by consulting a Dutch book; in this refinery, an experimental study in the field of applied sciences, such as photography, telegraphy, spinning, and sugar refining was conducted. Two years after the opening of the country, the refinery was capable of building models of the telegraph and steamship for experimental purposs.²⁶

Like Saga, the introduction of Western sciences in the Satsuma domain was done on a wider and intensive scale, but unlike Saga, over a long period of time. The attempts at Westernization in Satsuma can be said to have commenced around the early 1770's when Lord Shimazu Shigehide showed a strong interest in Western things. As early as 1771, Shimazu obtained a permission from the central government to visit Nagasaki; and once in Nagasaki he inspected a Dutch ship, conversed with interpreter Inamura Meisei about Europe, and collected information from various sources. Later he studied the Dutch alphabet and expressed his views in Romanized letters in his secret correspondence.²⁷ But his interest went far beyond his personal attachment to Western culture. Being a lord of one of the biggest domains in the feudal Japan, Shigehide felt a personal sense of responsibility for encouraging his retainers to pursue learning in various fields at the domain shcool; but of course he did not forget to emphasize the study of the Chinese language, and the geography

of Satsuma and of the Ryukyu Islands. At the domain school, he introduced the study of botany, medicine, taxidermy, and others. In 1773, he founded colleges for the training of military and literary arts and then built a medical college in the following year. In 1779, he opened an institute, or Meiji kan, for the study of astronomy and mathematics. He put all his information concerning Western sciences together and published a book titled *Seikei zusetsu* in thirty volumes in 1804.²⁸

The Satsuma domain, located in the southernmost part of Japan and having a secret trade with Europeans in the Ryukyu Islands, had more chances to face Europeans than any other domain in the country, except Nagasaki. Exposure to Westerners made them feel vulnerable and uneasy and they paid a particular attention to the study of the arms of the West. And in 1848, the translation of a Dutch work on steamship was completed; four years later, Lord Shimazu built three model steamships by using the translation. In the following year a plan for the construction of twelve sailing ships and three steamers was formulated and the actual construction started.²⁹ In addition to military sciences, Shimazu tried to introduce other practical sciences as well. In 1851, he built a refinery and used it as a laboratory for experiments on plating of metals, bleaching of silk and cotton cloth, and manufacture of acids, alcohol, and glass, all based on Dutch works. A model of reverberatory furnace was also built, and experiments on smelting of iron ore were conducted.³⁰

Footnotes:

¹For example, in the Saga domain there were several Dutch scholars among the town doctors long before Dutch medicine was taught at the domain school in 1834. Dore, *op. cit.*, pp. 164-165.

²The scholars gained their livelihood in domains in exchange of their new techniques. Jansen, *op. cit.*, p. 18.

³Fukui includes only twenty-one feudal domains throughout the country which were connected with Western learning in one way or another. Fukui, *op. cit.*, pp. 320-333. The number might suggest, to some extent, the scope of the interest which the lords had in Western learning during the isolation.

⁴*Ibid.*, pp. 322-323. See also pp. 45-46 of this thesis.

⁵*Ibid.*, pp. 321-323, 236-237; Kasai, *op. cit.*, pp. 511-512, 659.

⁶Fukui, *ibid.*, p. 324.

⁷Fukui, *op. cit.*, p. 328.

⁸*Ibid.*, p. 291.

⁹Masuzo Ueno, "The Western Influence on Natural History in Japan," *Monumenta Nipponica*, XIX (Nos. 3-4, 1964), p. 96.

¹⁰For the association of Kuchiki with Titsingh, see pp. 18-19 of this thesis in the previous issue.

¹¹Kaikoku hyakunen, *op. cit.*, pp. 88-91; Kasai, *op. cit.*, 353-357; *Who's who*, p. 717.

¹²Fukui, *ibid.*, p. 291.

¹³Itazawa, *op. cit.*, pp. 61-62.

¹⁴Dore, *op. cit.*, p. 165.

¹⁵Sato, *op. cit.*, p. 24.

¹⁶Craig, *op. cit.*, p. 132.

¹⁷Dore, *ibid.*, p. 164.

¹⁸Fukui, *ibid.*, p. 329.

¹⁹During the Tokugawa era, almost all the feudal domains throughout the country operated at least one domain school to train the ruling class in the domain. For a detailed discussion, see Passin, *op. cit.*, pp. 18-23.

²⁰Kasai, *ibid.*, p. 656. The areas of courses in Western learning in these schools became extensive as years went by. By 1859, for example, the domain school at Hagi in the Choshu domain offered the following courses under the category of Western learning: (Dutch) reading and pronunciation, translation, military sciences, physical sciences, analytics, measurement, astronomy, and geography. *Ibid.*, pp. 660-661.

²¹Craig, *ibid.*, p. 131.

²²Fukui, *ibid.*, pp. 329-331.

²³Tanaami, *op. cit.*, p. 307.

²⁴Fukui, *ibid.*, pp. 331-332.

²⁵*Ibid.*, p. 328; Thomas C. Smith, "Introduction of Western Industry to Japan During the Last Years of the Tokugawa Period," *Harvard Journal of Asiatic Studies*, II (1948), p. 134.

²⁶Arima, *op. cit.*, pp. 128-129; Fukui, *ibid.*, pp. 289-290; Smith, *op. cit.*, pp. 134-135, 137.

²⁷Fukui, *ibid.*, pp. 322, 326; Titsingh, *op. cit.*, p. 182. He wrote at least one diary in Romanized letters. Fukui, *ibid.*, 326.

²⁸Hall, *Tanuma Okitsugu*, p. 92.

²⁹Smith, *op. cit.*, pp. 133, 147-148. A portion of the shipbuilding plan was put into practice immediately. In the next year, in 1854, a Western-style warship, the Shoheimaru, was completed. Fukui, *op. cit.*, p. 290.

³⁰Smith. *ibid.*, p. 134.

CHANNEL IX: UNIFICATION OF ALL CHANNELS
IN
INTERACTIONS OF SCHOLARS
IN
DUTCH LEARNING

As we have seen, there had been various channels available to the Japanese in the study of Western learning in isolated Japan. All of these channels had contributed to create situations in which new learning had been initiated, developed, and propagated. However, it is obvious that no single channel can represent all and every activity connected to Western learning. Evidently the presence of the Dutch on Deshima alone could not bring about the ultimate propagation of Dutch knowledge in Japan. Neither could the efforts of enthusiastic interpreters at Nagasaki alone push Western learning in the favorable direction and to the further development. Rather, their main role as an interpreter and often as a doctor prevented them, with a few exceptions, from devoting themselves to scholarly work. But of course we should not fail to point out that these interpreters and the Dutch in Deshima were undoubtedly figures indispensable to the appearance of scholars in Dutch learning who wanted to pursue the learning on their own. But again, the presence of such scholars alone did not cause the subsequent spread of Western learning; rather their knowledge was conveyed to every part of the country by books they wrote and by disciples they taught. Furthermore, it goes without saying that all of these channels are functionable only within the feudal framework of the Tokugawa society. Restrictions on the activities of Dutch merchants on Deshima, regulations governing the conducts of interpreters and of government officials, censorship on the importation and circulation of certain books, and governmental policies regarding Western sciences all played their part in determining the goal and the scope of Western learning.

Yet, again, the government attitudes alone did not spread Western learning automatically in the feudal society. In short, no single channel can function all by itself, totally independent of the rest of the channels. Rather, the areas and scope of learning in one particular channel depend in part or wholly on those of other channels. Therefore in active interactions of each channel alone can the complete picture of the spread of Western learning be found.

However, because no single channel can act an omnipotent propagator of Western learning, there must be someone or something which unify all the channels. Without it, Western learning in isolated Japan would have lost a greater part of its depth, strength and variety. But the careful analysis of all channels reveals that Western learning acquired through various channels, whether they are persons like the Dutch and interpreters on Deshima or inanimate objects like books and schools, was accumulated, exchanged, developed, and disseminated by active interactions among the Japanese. One who met the Dutch merchants probably shared his experience with others; books he read would probably be used to widen the scope of knowledge others had. In the similar manner, Western knowledge he acquired at one channel would probably serve to enrich that of others, whose channels might be different from his. Consequently it is only through endless interactions of each informant that all the activities connected to Western learning in all the channels can be integrated.

Association among Japanese scholars was in general very active, chiefly due to a limited number of the scholars, to their concentration in certain areas, to limited availability of channels for Western learning, and to the brief history of Dutch learning. No single Dutch scholar in isolated Japan seemed to work alone without being deeply associated with at least a small group of fellow scholars. But some of the scholars in one group might contact others in another group of scholars. In this way, every Japanese scholar in Western learning seemed to be connected each other through the activities in one or two or more groups in which he was a part.

One of the best examples of the active interpersonal relationship among scholars in Dutch learning can be seen in the association of Katsuragawa Hoshu (1754-1809), who, having access to almost all the channels of Western learning in isolated Japan, was one of the best qualified scholars for imparting the knowledge of the West to other Japanese.

Born in a family of a hereditary Dutch-oriented physician to the shogun, he

must have began his study at quite an early age. His first training in Western things might have been given, of course, by his own family members, particularly by his grandfather and father; his father was one of those visitors who met the Dutch frequently during their stay in Edo for the shogunate audience; he also studied elementary Dutch language under Aoki Konyo.¹ Furthermore, if we are to assume that the learning in his family was faithfully handed down from generation to generation, his great-grandfather's experiences might also have had some impact on him. Katsuragawa Hochiku (1661-1745), one of his ancestors, began to study Dutch under Arashiyama Hoan, who pioneered the introduction of Western medicine to Japan; Hochiku continued his study under three Dutch doctors assigned to the Factory in Deshima; and he probably had some connections with Arai Kakuseki, an advisor to the shogun, later when he served the shogun as his personal physician.²

In addition to the family background congenial to his early access to Western knowledge, Hoshu also had many opportunities to meet and study with such intelligent Dutch factory employees as Arend Willem Feith, Carl Peter Thunberg, and Isaac Titsingh at the time when they were visiting Edo for the audience.³ His new knowledge was also indebted to Japanese castaways, Kodayu and Isokichi, both of whom were taken back home by the Russians.⁴

Hoshu's association with the newly-emerged scholars in Dutch learning might have given his Dutch study new dimension and stimulation. When the translation of *Kaitai shinsho* was conducted, he worked with a group of the first Japanese scholars in Dutch learning, such as Maeno Ryotaku, Sugita Gempaku, and Nakagawa Junan.⁵ And probably through these scholars and through Katsuragawa's association with men of Western knowledge, he came to know other groups of outstanding scholars, such as Hayashi Shihei, Hiraga Gennai, Udagawa Genzui,⁶ and Shiba Kokan.⁷ His connection with other scholars was also made when he taught thirty-one private students, including such distinguished scholars as Totsuka Seisai, Yoshida Chosuke, and Takamori Kanako.⁸ In fact, the residence of the Katsuragawas was a sort of the meeting place of a number of scholars in Dutch learning.⁹ Moreover he seems to have been on friendly terms with several "Dutch crazed" feudal lords such as Shimazu Shigehide and Kuchiki Masatsuna.¹⁰ The recorded name of persons with whom Hoshu had some association ends here.

But it is quite possible to assume that Hoshu had also been associated directly or indirectly with other scholars who took part in the translation of *Kaitai shinsho*

but whose names are not recorded. Sugita Gempaku, a central figure in the translation team and a person close to him, had good relations with the following scholars during Hoshu's lifetime, either through his instruction or his friendship with them: Otsuki Gentaku,¹¹ Udagawa Genzui, Koishi Mototoshi from Kyoto, Sakamoto Sokichi from Osaka, Yamamura Saisuke from Tosa, Inamura Sanpaku from Inshu, Udagawa Genshin, and Baba Sajuro, and a Nagasaki interpreter, all noted scholars;¹² Hoshu must have known almost all of them through Sugita. Also Hoshu's another friend, Hayashi Shihei, knew a number of distinguished scholars; Hoshu must have met some of them.¹³

Hoshu's death in 1809 put an end to his association with his fellow scholars, of course. But apparently his influence on Western learning must have remained among the scholars. A great number of students whom Sugita and Otsuki taught, for example, might have learned something about Hoshu through the instruction of their teachers. Also, Yoshida Chosuke's notable students, such as Takano Choei, Koseki Sanei, and Suzuki Shunrin,¹⁴ must have inherited some of Hoshu's knowledge through their master.

Hoshu's case was indeed exceptional. But it clearly shows how the successful integration of Western learning at all channels was achieved. The similar pattern must have been followed by other scholars, though probably on a smaller scale.

Various channels of Western learning were by no means the "only" channels available to the isolated Japanese. In the strict sense of the term, the number of the channels was infinite. For example, a Nagasaki interpreter, if he was also a doctor, knew his patients, assistants, families, or even the community in which he lived and these people all could help him spread Western learning in one way or another. Even if he was just an interpreter, and not a doctor, he still knew his families, relatives, friends, and others as a propagator. And again, there is no doubt that these obscure disseminators, on their part, formed countless horizontal relations to one another. Yet, however the number of the channels might have been, it is clear that these channels were unified only in the active associations of men, both Japanese and Europeans, who lived in the isolated country.

Footnotes:

- ¹Imaizumi, *op. cit.*, pp. 136-140.
²*Ibid.*, pp. 7-9, 20, 30-31.
³*Ibid.*, pp. 207-212, 215-219, 234-248. See also pp. 17-19 of this thesis in the previous issue.
⁴*Ibid.*, pp. 353-355. Also see pp. 38-40 of this thesis in the last issue.
⁵*Ibid.*, pp. 206-207. Also see pp. 45-46 of this thesis.
⁶*Ibid.*, pp. 232-233, 349-352.
⁷Otsuki, *op. cit.*, p. 105.
⁸Imaizumi, *ibid.*, pp. 232-233, 249-252.
⁹*Ibid.*, pp. 149-150.
¹⁰*Ibid.*, pp. 234-248.
¹¹See pp. 45-46 of this thesis.
¹²Sugita, *op. cit.*, pp. 91, 96-102, 105-113, 118.
¹³Akiyama, *op. cit.*, pp. 21-23.
¹⁴Imaizumi, *ibid.*, pp. 481-484.

BIBLIOGRAPHY

JAPANESE SOURCES

Books

- Akiyama, Goan, *Hayashi Shihei genko roku* (Memoirs of Hayashi Shihei), Tokyo: Naigai Shuppan Sha, 1908.
Arai, Hakuseki, *Seiyo kibun* (Memoir of Western Things), edited by Tsunetsugu Muraoka, Tokyo: Iwanami Shoten, 1942.
Fujita, Mokichi, *Bunmei tozen shi* (History of Gradual Cultural Movement to the East), Tokyo: Shuhokaku, 1884.
Fukui, Kyuzo, *Sho daimyo no gakujutsu to bungei no kenkyu* (A Study of Arts and Learning of Various Feudal Domain Lords), Tokyo: Koseikaku, 1937.
Hanazono, Kanesada, *Yogaku hyakka* (Western Learning in Variety), Tokyo: Herald Zasshi Sha, 1939.
Imaizumi, Genkichi, *Rangaku no ie: Katsuragawa no hitobito* (A Family of Dutch Learning: The House of the Katsuragawas), Vol. I, Tokyo: Shinosaki Shorin, 1965.

- Inobe, Shigeo, *Shintei ishin zenshi no kenkyu* (Revised Edition of the Study of History of the Pre-Restoration), Tokyo: Chubunkan Shoten, 1942.
- Inoue, Kiyoshi, *Nippon no rekishi* (A History of Japan), Vols. I, II, Tokyo: Iwanami Shoten, 1966.
- Itazawa, Takeo, *Nichiran bunka koshoshi no kenkyu* (A Study of the History of Japanese-Dutch Cultural Interchange), Tokyo: Yoshikawa Kobunkan, 1959.
- Kaikoku Hyakunen Kinen Bunka Jigyokai, ed., *Sakoku jidai nihonjin no kaigai chishiki: sekai chiri seiyoshi ni kansuru bunken kaidai* (Japanese Overseas Knowledge during the Isolation: An Explanatory Bibliography of Japanese Literature on World Geography and European History), Tokyo: Kangensha, 1953.
- Kasai, Sukeji, *Kinsei hanko ni okeru shuppansho no kenkyu* (A Study of Publications at Late Feudal Domain Schools), Tokyo: Yoshikawa Kobunkan, 1962.
- Koga, Jujiro, *Nagasaki yogaku shi* (History of Western Learning in Nagasaki), Vols. I, II, Nagasaki: Nagasaki Bunken Sha, 1966 (Vol. I), and 1967 (Vol. II).
- Mori, Senzo, *Watanabe Kazan*, Tokyo: Sogen Sha, 1941.
- Nichidoku Bunka Kyokai (Japanese-German Cultural Society), ed., *Siebold kenkyu* (A Study of Siebold), 2nd edition, Tokyo: Iwanami Shoten, 1942.
- Okada, Akio, *Nippon yonhyakunen-Gaikokujin no kenbun* (Japan's Four Hundred Years—Foreigners' Experiences), Tokyo: Nippon Hoso Shuppan Kyokai, 1965.
- Okura, Mitsuo, *Nichiran kosho sanbyakunen shi* (History of Three Hundred Years of Japanese-Dutch Relationship), Tokyo: Shinkoa Sha, 1943.
- Sato, Shosuke, *Yogaku shi kenkyu josetsu—yogaku to hoken kenryoku* (Introduction to the Study of the History of Western Learning—Western Learning and Feudal Authority), Tokyo: Iwanami Shoten, 1964.
- Sugita, Gempaku, *Rangaku kotohajime* (Dutch Learning in its Beginning), translated by Tomio Ogata, Tokyo: Gakufu Shoin, 1951.
- Suzuki, Yogo, *Rangaku zensei jidai to Ranchu no shogai* (The Golden Age of Dutch Learning and Life of Ranchu), Tokyo: Tokyo Iji Shinshi Kyoku, 1933.
- Takano, Choun, *Takano Choei den* (Life of Takano Choei), Tokyo: Shishi Shuppan Sha), 1928.
- Yoshida, Mitsukuni, *Nippon kagaku shi* (History of Science in Japan), Tokyo: Asakura Shoten, 1955.

Periodicals

- Iwao, Seiichi, "Dokui Kaempfer no *Nihonshi* to sono nihon shisokai ni oyoboshita eikyo (German Doctor Kaempfer's *History of Japan* and its Impact on the World of Japanese Thought)," *Nihon Gakushiin Kiyo*, XXV (March, 1967), pp. 1-21.
- Ono, Kikuo, "Kinsei nihon chirigaku no seikaku to gendai e no igi (A Character of Geographical Thought in the Late Tokugawa Era and Its Implications to Modern Geography)," *The Shirin*, XLIV (May, 1961), pp. 96-124.
- Otsuki, Akira, "Yogaku shi ni kansuru ichi kosatsu—Watanabe Kazan o chushin to shite (A Study of the History of Western Learning—With Particular Emphasis on Watanabe Kazan)," *The Shirin*, XL (November, 1957), pp. 90-112.
- Saito, Agu, "Tokugawa Yoshimune to seiyo bunka (Tokugawa Yoshimune and Western Culture)," *Shigaku Zasshi*, XLVII (November, 1936), pp. 80-101.
- Takase, Shigeo, "Hyoryuki *Bandan* ni kansuru kosatsu (A Study of the Castaways' Records, *Barbarian Stories*)," *The Shirin*, XL (January, 1957), pp. 45-57.
- Yamamoto, Shiro, "Soseiki no Kyoto no rangaku ni tsuite (The Earliest Stage of Dutch Learning in Kyoto)," *The Shirin*, XXXIX (September, 1956), pp. 113-137.

Others

- Kokugo Gakkai, ed., *Kokugogaku jiten* (Dictionary of Japanese Language Sciences), Tokyo: Tokyo Do, 1963.
- Ohara, Kuniyoshi, ed., *Tamagawa Encyclopaedia*, Tokyo: Seibun Do Shinsei Sha, 1959, VIII: 51, XV: 219, 222-223.
- Shinmura, Izuru, ed., *Kojien* (Japanese Language Dictionary), Tokyo: Iwanami Shoten, 1962.

ENGLISH SOURCES

Books

- Akagi, Roy Hidemichi, *Japan's Foreign Relations, 1542-1936*, Tokyo: Hokuseido Press, 1937.
- Boxer, C. R., *Jan Compagnie in Japan, 1600-1850*, 2nd edition, The Hague: Martinus Nijhoff, 1950.
- Craig, Albert. M., *Choshū in the Meiji Restoration*, Cambridge, Mass.: Harvard University Press, 1961.

- Dore, R. P., *Education in Tokugawa Japan*, Berkeley and Los Angeles: University of California Press, 1965.
- Dye, Eva Emery, *McDonald of Oregon: A Tale of Two Shores*, Chicago: A. C. McClurg & Co., 1906.
- Fukuzawa, Yukichi, *The Autobiography of Fukuzawa Yukichi*, translated by Eiichi Kiyooka, Tokyo: The Hokuseido Press, 1960.
- Hall, John Whitney, *Tanuma Okitsugu, 1719-1788: Forerunner of Modern Japan*, Cambridge, Mass.: Harvard University Press, 1955.
- Hildreth, Richard, "Japan As It Was and Is": *A Handbook of Old Japan*, Vol. II, edited by Ernest W. Clement, Chicago: A. C. McClurg & Co., 1906.
- Iwata, Masakazu, *Okubo Toshimichi—the Bismarck of Japan*, Berkeley and Los Angeles: University of California Press, 1964.
- Jansen, Marius B, ed., *Changing Japanese Attitudes Toward Modernization*, Princeton, New Jersey: Princeton University Press, 1965.
- _____, *Sakamoto Ryoma & the Meiji Restoration*, Princeton, New Jersey: Princeton University Press, 1961.
- Kaempfer, Engelbert, *The History of Japan, Together With a Description of the Kingdom of Siam, 1690-92*, Vols. II, III, translated by J. G. Scheuchzer, (Glasgow and) New York: The Macmillan Company, 1906.
- Kaneko, Hisakazu, *Manjiro, the Man Who Discovered America*, Boston: Houghton Mifflin Company, 1956.
- Keene, Donald, *The Japanese Discovery of Europe: Honda Toshiaki and Other Discoverers, 1720-1798*, New York: Grove Press, 1954.
- Lensen, George Alexsander, *The Russian Push Toward Japan: Russo-Japanese Relations, 1697-1875*, Princeton, New Jersey: Princeton University Press, 1959.,
- _____, *Report from Hokkaido; the Remains of Russian Culture in Northern Japan*, Hakodate, Japan: The Municipal Library of Hakodate, 1954.
- Murdoch, James, *A History of Japan*, II, part 2, New York: Frederick Ungar Publishing Co., 1964.
- Paske-Smith, Montagu, *Western Barbarians in Japan and Formosa in Tokugawa Days, 1603-1868*, Kobe, Japan: J. L. Thompson & Co., (Retail) Ltd., 1930.
- Passin, Herbert, *Society and Education in Japan*, New York: Bureau of Publication, Teachers College, Columbia University, 1965.
- Reischauer, Edwin O. *Japan: Past and Present*, 3rd edition, New York: Alfred A.

Knopf, 1965.

Sansom, George, *A History of Japan, 1615-1867*, Stanford, California: Stanford University Press, 1963.

_____, *The Western World and Japan*, New York: Alfred A. Knopf, 1965.

Smith, David Eugene, and Yoshio Mikami, *A History of Japanese Mathematics*, Chicago: The Open Court Publishing Company, 1914.

Titsingh, M. *Illustrations of Japan*, translated by Frederic Shoberl from the French, London: Printed for R. Ackermann, 101, Strand, 1822.

Periodicals

Arima, Seiho, "The Western Influence on Japanese Military Science, Shipbuilding, and Navigation," *Monumenta Nipponica*, XIX (Nos. 3-4, 1964), pp. 118-145.

Ayusawa, Shintaro, "Geography and Japanese Knowledge of World Geography," *Monumenta Nipponica*, XIX (Nos. 3-4, 1964), pp. 41-60.

Boxer, C. R., "Notes on Early European Military Influence in Japan (1543-1853)," *The Transactions of the Asiatic Society of Japan*, Second Series, VIII (December, 1931), pp. 67-93.

Hall, J. Carey, "Japanese Federal Laws III," *The Transactions of the Asiatic Society of Japan*, XXXVIII (part IV, 1911), pp. 286-331.

Hirose, Hideo, "The European Influence on Japanese Astronomy," *Monumenta Nipponica*, XIX (Nos. 3-4, 1964), pp. 61-80.

Ike, Nobutaka, "Western Influence on the Meiji Restoration," *Pacific Historical Review*, XVII (February, 1948), pp. 1-10.

Miki, Tamon, "The Influence of Western Culture on Japanese Art," *Monumenta Nipponica*, XIX (Nos. 3-4, 1964), pp. 146-167.

Numata, Jiro, "The Introduction of Dutch Language," *Monumenta Nipponica*, XIX (Nos. 3-4, 1964), pp. 9-19.

_____, "Acceptance and Rejection of Elements of European Culture in Japan," *Journal of World History*, III (No. 1, 1956), pp. 231-253.

_____, "The Acceptance of Western Culture in Japan," *Monumenta Nipponica*, XIX (Nos. 3-4, 1964), pp. 1-8.

Ōtori, Ranzaburō, "The Acceptance of Western Medicine in Japan," *Monumenta Nipponica*, XIX (Nos. 3-4, 1964), pp. 20-40.

Sakai, Robert. K., "Feudal Society and Modern Leadership in Satsuma-han," *The*

Journal of Asian Studies, XVI (No. 3, 1957), pp. 365-376.

Sakamaki, Shunzo, "Japan and the United States," *The Transactions of the Asiatic Society of Japan*, Second Series, XVIII (1936),

Sakanishi, Shio, "Prohibition of Import of Certain Chinese Books and the Policy of Edo Government," *Journal of the American Oriental Society*, LVII (No. 3, 1937), pp. 290-303.

Smith, Thomas C., "The Introduction of Western Industry to Japan During the Last Years of the Tokugawa Period," *Harvard Journal of Asiatic Studies*, II (1948), pp. 130-52.

Whitney, Willis Norton, "Notes on the History of Medical Progress in Japan," *The Transactions of the Asiatic Society of Japan*, XII (October, 1905), pp. 1-285.

Ueno, Masuzo, "The Western Influence on Natural History in Japan," *Monumenta Nipponica*, XIX (Nos. 3-4, 1964), pp. 81-105.

Yabuuchi, Kiyosi, "The Pre-history of Modern Science in Japan. The Importation of Western Science during the Tokugawa Period," *Journal of World History*, IX (No. 2, 1965), pp. 208-232.

Yajima, Suketoshi, "The European Influence on Physical Sciences in Japan," *Monumenta Nipponica*, XIX (Nos. 3-4, 1964), pp. 106-117.

Others

Togo, Sheba, ed., *The Japan Biographical Encyclopedia & Who's Who*, Tokyo: The Japan Biographical Research Department, THE RENGO PRESS, LTD., 1958.