Kawakatsu's Web Library on Planarians: October 31, 2010.

Philipp Franz Balthasar von Siebold, the author of Fauna Japonica (1833-1850) and Flora Japonica (1835-1870), a cousin of Carl Theodor Ernst von Siebold, a famous German Zoologist who founded in 1848 the Journal Zeitschrift für wissenschaftliche Zoologie

--- With Notes on Four Western Naturalists (W. Stimpson, P. B. W. Heine, F. M. Hilgendorf and H. N. Moseley) Who Visited Japan in the Nineteenth Century ---

By

Masaharu KAWAKATSU, Ronald SLUYS, Anno FAUBEL, Hugh D. JONES and Kiyohiko YAMAMOTO

Prologue

When Kawakatsu was a biology professor of the Fuji Women's College (now University) from 1961 to 1999 (and a part-time professor until the end of March 2002), one of the topics of his general biology lectures for students of Literary, Domestic Sciences and Nursing Courses was 'Historical Review of Biological Studies in Japan'. During that period Kawakatsu gathered up various copies and examples of those topics from related articles, books, catalogues, etc.

Since that material contained old records on planarians, especially so-called Materia Medica of China and Japan, three papers were published on that topic (Kawakatsu, 1969; Kawakatsu & Lue, 1984; Lue & Kawakatsu, 1986). For the records of planarians found in various copies of Materia Medica as well as in several old Western publications, explanatory articles were published by Sasaki (2001a, b) with the full support of Kawakatsu. (Five references cited here are shown in the section on H. N. Moseley in the present web article.)

Among Kawakatsu's material mentioned above, various biographies of the Western naturalists who visited Japan during from the 17th to 19th Centuries are included. Some of them are directly or indirectly concerned with turbellariology. In the present web article, a collection of natural history essays will be given about six Western naturalists.

For the correct understanding of those essays, or sections, in this web article, the full knowledge of the '400 Years Relationship between Japan and The Netherlands' and on the 'Dejima in Nagasaki' (now Nagasaki City) is necessary. The cooperation of Sluys (Amsterdam), Faubel (Hamburg), Jones (Manchester) and Yamamoto (Nagasaki) as coauthors is most opportune for this web article, I believe (Kawakatsu).

Note. References will be shown separately at the end of each topic. Many URLs are also shown for each section. When they are opened, various information with related topics, figures and photographs (including portraits of naturalists) can be seen.

From the 'Tokugawa Shôgunate' to the 'Meiji Restriction'

A Brief Explanation of the Edo Period, or the Tokugwa Period (17th C-19th C)

For the understanding of changes in conditions of public life in the middle and recent ages in Japan, the contents of the following web articles are recommended.

Key titles: Edo Period; Tokugawa Shôgunate; Hatamoto; Daimyô; Sankin Kôtai; Imperial Court in Kyôto; Kuge.

http://en.wikipedia.org/wiki/Edo_period
http://en.wikipedia.org/wiki/Tokugawa_shogunate
http://en.wikipedia.org/wiki/Hatamoto
http://en.wikipedia.org/wiki/Daimyo
http://en.wikipedia.org/wiki/Sankin_k%C5%8Dtai
http://en.wikipedia.org/wiki/Imperial_Court_in_Kyoto
http://en.wikipedia.org/wiki/Kuge

Under the political system in the Edo Period (i.e., the period of the Tokugawa Shôgunate), Japan was divided into 80 or more local domains except for Ezo (Hokkaidô) and Ryûkyû (Okinawa in the Southwest Islands of Japan). Cf. Kawakatsu & Sasaki (2004: 5-9, figs 1 and 2). Each domain was managed by a territorial lord ('Daimyô' in Japanese).

Kawakatsu, M. & Sasaki, G.-Y., 2004. A blank topographical map of Japan, with explanatory maps of the Izu-Ogasawara Islands and the Southwest Islands for the chorological study of planarians. Kawakatsu's Web Library on Planarians. http://victoriver.com . Left Button: planarian.net mirror. No. 43.

Attendance at Edo (Tôkyô) in alternate years was a duty of each territorial Daimyô for most of the duration (1635-1862) of the Tokugawa Shôgunate (1603-1867). This means every Daimyô had a local residence (usually a castle) and a Daimyô's residence in Edo (usually called as an 'Edo Yashiki' in Japanese). Families of each Daimyô should remain at his 'Edo Yashiki' even when he remained in his local residence.

Under this kind of political condition of feudalism that started after the beginning of the 17th Century, Japan had a stable period of over 260 years. The traffic of men and horses accelerated commercial activities in various areas of Japan. On the other hand, chronic financial difficulties of the ruling class (so-called 'Samurai' Class in Japanese) had increased year by year. It must be said that the real economic power was controlled by the prosperous merchant class after the middle of the Edo Period.

De Liefde

On the morning of April 16th in the year 1600, the Dutch ship 'De Liefde' was cast ashore at Sashû, the Domain of Buzen (i.e., Sashû in Usuki City, Ôita Prefecture, Kyûshû)(ca. 39°10'N and 131°50'E). Members of the crew received a good reception from the people of Japan. Pl. I (Fig. 1.)

Two officers, Jan Joosten van Lodensteijn (a Dutchman: 1560-1623) and William Adams (an Englishman: 1543-1616), had traveled to Ôsaka and 'Edo' (Tôkyô) at the invitation of the 'First Shôgunate' (i.e., Ieyasu Tokugawa: 1543-1616). They were utilized by the Shôgunate as key advisers on Western matters and granted houses in Edo. Since the area of Jan Joostein's house was called 'Yayosu Quay' after him – his name was pronounced 'Yan-Yôsuten' in Japanese – it was now called Yaesu, i.e., the Westside of Tôkyô Station. W. Adams was naturalized in Japan as a key adviser on Western matters. His new Japanese name was Anjin Miura ('Anjin' means the pilot in Japanese).

Key titles: Jan Joosten van Lodensteijn; Yaesu; William Adams (sailor); Miura Anjin; Tokugawa Shôgunate.

http://en.wikipedia.org/wiki/Jan_Joosten_van_Lodensteijn
http://en.wikipedia.org/wiki/Yaesu
http://ja.wikipedia.org/wiki%E5%85%AB%E9%87%8D%E6%B4%B2 (In Japanese.)
http://wikipedia.org/wiki/William_Adams_(sailor)
http://homepage2.nifty.com/anjintei/willadams5.html (In Japanese.)
http://www.city.usuki.oita.jp/modules/usukisyoukai/article.php?storyd=7 (In Japanese.)

'Sakoku' or 'Sea Restriction'

In 1616, a diplomatic policy of the 'Tokugawa Shôgunate' was changed as the 'Sakoku', or the 'Sea Restriction'. Only two open ports, Nagasaki and Hirado, located in Hizen (Nagasaki Prefecture in the present) were open and only for the Chinese and Dutch factories. Hirado Port was closed in the year 1641 at the occasion of the opening of the new Dutch trading house in Nagasaki (i.e., The Nagasaki Branch of the Vereenigde Oostindische Compagnie = VOC). This policy continued until the year 1855.

Key titles: Sakoku; Oranda Higashi-Indo-Gaisha; Dutch East India Company.

http://en.wikipedia.org.wiki/Sakoku
http://ja.wikipedia.org/wiki%E9%8E%96%E5%9B%BD (In Japanese.)
http://ja.wikipedia.org/wiki%E3%82%AA%E3%3%A9%E3%83%B3%E3%83%80%E6%9D%B1%E3%82%A4%E3%83%B3%E3%83%89%E4%BC%9A%E7%A4%BE
http://en.wikipedia.org/wiki/Dutch_East_India_Company

During the 240-year-duration of the 'Sea Restriction', Japan was visited by several Western physicians and naturalists - they always said "I am a Dutchman" at the Dejima Guard Box of Japan when landing. The main scholars were: Engelbert Kaempful (German, 1651-1716; stayed in Japan from 1690-92), Carl Peter Thunberg (Swedish, 1743-1828; stayed in Japan from 1775-76), Philipp Franz von Siebold (German,

1796-1866; stayed in Japan from 1823-29 and again from 1859-62); Carl Johann Maximowicz (Russian, 1827-1891; stayed in Japan from 1860 to 61); Wiliam Stimpson (U. S. A., 1832-72; stayed in Japan in 1854); Peter Wilhelm Heine (German and American, 1827-85; stayed in Japan in 1853 and again in 1854).

After they returned to their homelands, each of them published books about Japan and/or special taxonomic papers and books on Japanese plants and animals. Their collections of Japanese samples (dried samples of plants and insects, shells of molluscs, fresh samples kept in fixatives, temporary stuffed birds, dried skins of mammals, etc.) were also studied by European specialists.

Key titles: Engelbert Kaempfer; Carl Thunberg; Carl Maximowicz. For Philipp F. von Siebold, W. Stimpson, and Petr W. Heine, see each Section for them in the text of this web article. The Residents of Dejima.

http://ja.wikipedia.org/wiki%E3%82%A8%E3%83%B3%E3%82%B2%E3%83%AB%E3%83%99%E3%83%AB%E3%83%88%E3%83%BB%E3%82%B1%E3%83%B3%E3%83%9A%E3%83%AB (In Japanese.)
http://www.1b.nagasaki-u.ac.jp/search/ecolleigakushi/Thunberg/Thunberg.html (In Japanese.)
http://en.wikipedia.org/wiki/Carl_Peter_Thunberg
http://www.lib.a.u-tokyo.acjp/tenji/125/38.html (In Japanese.)
http://en.wikipedia.org/wiki/Carl_Maximowicz
http://ja.wikipedia.org/wiki/%E3%82%AB%E3%83%BC%E3%83%AB%E3%83%BB%E3%83%A8%E3%83%8F%E8%83%B3%E3%83%BB%E3%83%9E%E3%82%AD%E3%82%B7%E3%83%A2%E3%83%BB%E3%83%83%E3%83%81 (In Japanese.)
http://www1.city.nagasaki.nagasaki.jp/dejima/en/glass/contents/main_04.html

Ph. F. B. von Siebold's Cousin: Karl Theodor Ernst von Siebold (1804-1885)

February 16, 1804 in Würzburg – April 7, 1885 in Munich (München). His father, Adam Ellias von Siebold (1775-1828), was the younger brother of Johann George Christoph von Siebold (1767-1798), i.e., the father of Philip Franz Balthasar von Siebold (1796-1866). Namely, K. Th. E. von Siebold was a cousin of Ph. F. B. von Siebold (some say erroneously a young brother of Philipp Franz von Siebold).

K. Th. E. von Siebold's father and grandfather were both university professors. He was educated chiefly at the University of Berlin. He became Professor of Zoology, Physiology, Comparative Anatomy, and Veterinary Science at the University of Erlangen in 1840; Professor of Physiology at Freiburg in 1845; Professor of Zoology and Comparative Anatomy of Maximilians-Universtät in Munich in 1853. He founded Zeitschrift für wissenschftliche Zoologie in 1848, a leading zoological journal known as a leading zoological literature for many years.

Key titles: Die Familie von Siebold; Karl Theodor Ernst von Siebold; Adam Elias von Siebold; Johann Georg Christoph von Siebold; Carl Caspar von Siebold; Seybold

Family [sic].

http://www.siebold-gymnasium.de/infos/schule-mit-traditiom/die-famile-von-siebold
http://www.siebold-gymnasium.de/infos/schule-mit-tradition/die-familie-von-siebold/karl-theodor-ernst-von-siebold
http://en.wikipedia.org/wiki/Karl_Theodor_Ernst_von_Siebold
http://www.culturaapicola.com.ar/wiki/index.php/Ernst_von_Siebold
http://onlinelibrary.wiley.com/doi/10.1002/biuz.19850150607/abstract
http://www.siebold-gymnasium.de/infos/schule-mit-tradition/die-familie-von-siebold/adam-elias-von-siebold
http://en.wikipedia.org/wiki/Adam_Eloias_von_Siebold
http://www.siebold-gymnasium.de/infos/schule-mit-tradition/die-familie-von-siebold/johann-georg-christoph-von-siebold
http://www.siebold-gymnasium.de/infos/schule-mit-tradition/die-famile-von-siebold/carl-caspar-von-siebold
http://de.wikipedia.org/wiki/Carl_Caspar_von_Siebold
http://ja.wikipedia.org/wiki/%E3%82%B7%E3%83%BC%E3%83%9C%E3%83%AB%E3%83%88

The Lucky Owner of the Scientific Library of C. Th. E. von Siebold:
Ludwig von Graff (1851-1924)

January 2, 1851 in Pancsova, near Beograd, Servia – February 6, 1924 in Graz. His father, Wilhelm Hermann Graff, was a pharmacist and the Mayor; his mother was Elisabeth de Zold.

Von Graff got his doctorate (PhD) in 1873 at the University of Strasburg (today Strasbourg in France). The adviser of his PhD thesis on Rhabdocoelen was Oskar Schmidt (1823-86), a specialist of marine Rhabdocoela. Von Graff was an assistant of Carl. Th. E. von Siebold in Munich. In 1874, von Graff habilitated with his work, 'Zur Kenntnis der Turbellarien' and was promoted to Professor in 1876 at the Königlich Bayerrsche Forstle hranstalt in Aschffenburg. In 1884 he got a professorship at the Kael-Fraanzens Universität in Graz, Austria.

In 1882 Von Graff became the lucky owner of a fine scientific library, which was formed mainly by C. Th. E. von Siebold and his (von Siebold's) father. He was a contributor to the Challenger Report. He is also known as an active turbellariologist by his numerous publications.

His main publications:

Von Graff, L., 1873. Zur feineren Anatomie der Rhabdocoelen. PhD Thesis.

-----, 1877-1887. The "Challenger Voyage Reports on Myzotomid". The Voyage of H.M.S. Challenger (1872-1876) was founded by the British Government for scientific purpose.

-----, 1882. Monographie der Turbellarien. I. Rhabdocoelida. Bearbeitet und herausgegeben mit der KGL. Academie der Wissenschaften zu Berlin. 1-442 pp.

-----, 1891. Die Organisation der Turbellaria Acoela. Mit einem Anhange über den Bau und die Bedeutung der Chlorophyllzellen von *Convoluta roscofensis*, von G. Haberlandt. 1-90 pp. Leiptig, 1891.

-----, 1892. Pelagische Polycladen. Zeitschr. Wiss. Zool., LV: 189-220 + Taf. VII-X.

-----, 1896. Über das System und die geographische Verbreitung der Landplanarien. Verhandl. Deutsch. Zool., Geseltschaft, 66: 61-75; 75-93.

-----, 1899. Monographie der Turbellarien. II. Tricladida Terricola (Landplanarien). Pp. i-ixv + 1-574; Atlas von Achtundfünfzig Tafeln zur Monographie der Turbellarien. II. Tricladida Terricola (Landplanarien), Pls. I-LVIII. Verlag von Wilhelm Engelmann, Leiptig. Pl. I (Figs 2 and 3.)

-----, 1903. Die Turbellarien als Parasiten und Wirte. Leuschner & Lubensky's Universitäts Buchhandlung, 1903.

-----, 1904-1908. Acoela und Rhabdocoelida. In: Dr. H. G. Bronn's Klassen und Ordnungen des Tier-Reichs, Bd. 4 (Vermes), Antheilung Ic (Turbellaria). "Abtheilung" I. Pp. i-xii + 1733-2599, Taf. I-XXX. Winter Verlags, Leiptig.

-----, 1905a. Das Tierreich. Turbellaria, I. Acoela. Pp. i-viii + 1-34. Verlag von R. Friedländer und Shon, Berlin.

-----, 1905b. Marine Turbellarian *Orotavas* und der Küsten Europas. Zeitschr. Wiss. Zool., 83: 190-244 + Taf. XI-XIII.

-----, 1911. Acoela, Rhabdocoela und Alloeocoela des Ostens der Vereinigten Staaten von Amerika. Zeitschr. Wiss. Zool., 99: 1-108 + Taf. I-VII.

-----, 1912-1917. Turbellaria. In: Dr. H. G. Bronn's Klassen und Ordnungen des tierr-Reichs, Bd. 4 (Würmer: Vermes), Abteilung Ic (Turbellaria). "Abteilung" II. Pp. i-xxxvii + 2601-3369, Taf. XXXI-LXIV. C. F. Winter Verlags, Leiptig.

Key titles: von Graff; Turbellaria; Acoela; Rhabdocoela; Alloeocoela; Tricladida; Landplanarian Monograph; Oskar Schmidt (zoologist).

http://piclib.nhm.ac.uk/piclib/www/image.php?img=98156&search=von
http://www.uni-graz.at/uarclwww/uarclwww_geschichte/uarclwww_gr_wissenschaft/uarclwww_graff/uarclwww_graff_wiss_leistunger
http://www.nature.com/nature/journal/v46/n1177/abs/046054c0.html or doi:10.1938/046054c0
http://www.rrz.uni-hamburg.de/benthos This is Dr. Anno Faubel's website. A photograph showing Dr. von Graff and his 5 team members is found on the first page. This homepage can also be open from Kawakatsu's website:

http://victoriver.com . Link: The Homepage of PD Dr. Anno Faubel.
http://en.wikipedia.org/wiki/Oskar_Schmidt_(zoologist)

Philipp Franz Balthasar von Siebold (1796-1866)

February 17, 1796 in Würzburg – October 18, 1866 in Munich. He was from a Würzburg noble family of scholars. He studied medicine and natural history at the University of Würzburg. He got his doctorate in 1820.

Be Full of the Hope

In 1822 he went to Batavia (now Djakarta in Java, Indonesia) as a Dutch medical officer and in 1823 to Japan (Nagasaki in Kyûshû, Southern Japan). His official title was "De Chirungijn Majoor, belast met het Natuurkundig onderzoek te Japan. Dr. von Siebold".

At that time, Japan was under the policy of seclusionism by the Tokugawa Shogunate; Nagasaki was an open port only for China and Holland. Foreigners should remain in 'Dejima' – an artificial island constructed in Nagasaki Port in 1634 (ca. 0.5 ha). Von Siebold put patients on German medical treatments. He also established the 'Narutaki-Juku' (his private medical school for Japanese young students) in the town of Nagasaki (out of 'Dejima'). (Pls. II, Figs 4-6.) This was a very special privilege for a Dutch doctor at that time. He was the first European to teach Western medicine in Japan. This school was also the only window open to the Western studies at that Tokugawa Period in Japan.

Von Siebold married a Japanese lady, Taki Kusumoto (1807-1869), a daughter of a rich merchant of Nagasaki and his partner. She was 17 years old when they married. They had a daughter, Ine Kusumoto (1827-1901).

> **Kawakatsu's Note**. Authors of some articles wrote that 'Taki' was an ex-*geisha* (the *nom de guerre*: Sonogi). However, the following article pointed out that she was a lady as cited above.

Nakano, M., 1973. [A young Dr. von Siebold in Nagasaki]. Ôtsuka-Yakuhô (Tôkyô), (260): 1-16. (In Japanese.)

Key titles: Die Familie von Siebold; Philipp Franz von Siebold; Shiboruto; Nagasaki-Dejima; Narutaki-Juku; Research History of Nagasaki Pharmacology; Taki Kusumoto; Ine Kusumoto.

http://www.siebold-gymnasium.de/infos/schule-mittradiation/die-familie-von-siebold
http://www.siebold-gymnasium.de/infos/schule-mit-tradition/die-familie-von-siebold/philipp-franz-von-siebold
http://en.wikipedia.org/wiki/Philipp_Franz_von_Siebold
http://www.philipp-franz-von-siebold.com/
mhtml:file:///Philipp Franz von Siebold – Wikipedia, the free encyclopedia.mht

http://www.ph.nagasaki-u.ac.jp/history/research/material/material14.html (In Japanese.)
http://www.ph.nagasaki-u.ac.jp/history/research/cp1/chapter1-2.html (In Japanese.)
http://www.ph.nagasaki-u.ac.jp/history/research/material/material2.html (In Japanese.)
http://www.shiboruto.de/index2.html
http://www.city.oshu.iwate.jp/syuzou01/jinsei/jishou/ran2.html (In Japanese.)
http://www.shiboruto.de/index2.html
http://www.siebold-gymnasium.de/infos/schule-mit-tradition/die-famile-von-siebold/ine-kusumoto
http://en.wikipedia.org/wiki/Kusumoto_Ine
http://de.wikipedia.org/wiki/Kusumoto_Ine
http://ja.wikipedia.org/wiki/%E6%A5%A0%E6%9C%AC%E3%82%A4%E3%83%8D (In Japanese.)

As a Naturalist

Von Siebold was also a naturalist on a scientific expedition into Japan sent by the Dutch East India Company (= Vereenigde Oostindische Compagnie, VOC). In the 'Narutaki-Juku', he obtained various samples of Japanese plants and animals by the effort of many Japanese students and supporters (including herbalists and naturalists). He also bought various animals from huntsmen for the preparation of stuffed specimens.

Von Siebold planted various Japanese plants in the garden of the 'Narutaki-Juku' for actual observation. The following two persons made the largest contribution to von Siebold's natural history work at 'Dejima' in Nagasaki. One was Heinrich Bürger (1804-1858), a German physicist and biologist. The other was a Japanese painter, Keiga Kawahara (1786-1860?). He painted landscapes as well as numerous sketch figures of Japanese plants and animals. Those figures (6000-7000 in number) were sent to The Netherlands. Von Siebold used them when he prepared manuscripts of 'Nippon', 'Fauna Japonica' and 'Flora Japonica'. See the end section of this web article.

Key titles: Heinrich Bürger; Kawahara Keiga. (1786-1860?).

http://en.wikipedia.org/wiki/Dutch_East_India_Company
http://en.wikipedia.org/wiki/Heinrich_B%C3%BCrger
http://ja.wikipedia.org/wiki/%E5%B7%9D%E5%8E%9F%E6%85%B6%E8%B3%80 (In Japanese.)

Prepare a Dutch Report on Japanese Nature

Von Siebold's students were told to report in Dutch language at the 'Narutaki Juku'. This is his 'How to become proficient in Dutch for the study of Western medicine.' These many reports on Japanese all things in nature were useful for von Siebold when his writing the book 'NIPPON' in the Netherlands. (Pl. III, Fig. 7.)

The Court Journey to Edo (de Hoofreis naar Jedo)

'De Hoofreis naar Jedo' by the Nagasaki Branch of the Dutch East India Company was a custom in Japan of the 17thC-19thC. It was made 166 times between 1633 and

1850. Since the distance between Nagasaki (in Kyûshû) to Jedo (Tôkyô in the Kantô Region in Honshû) is about 960 km, this journey could take over 30 days by land and partly by sea.

The Dutch Representative of the delegation in the year 1826 was Captain Johan William de Sturler (?-?). Von Siebold was also nominated as a senior member of that delegation. The delegation was about 60 persons, of which von Siebold's group was H. Bürger (a scientist), K. Kawahara (a painter) and two servants. They departed Nagasaki on February 15th. At that time, a person of high standing should go by a palanquin. However, von Siebold frequently walked in order to observe and collect plants and animals. This was unexpected by Japanese officers. The Dutch Delegation arrived in Edo on April 10th. Their general route (including the return circuit) is shown on the map of Pls III and IV, Figs (8-10).

Note. Engelbert Kaempfer (1651-1716), a German physician and naturalist, stayed in Nagasaki during from 1690 (August 21) to 1692 (September 22). He visited Edo twice in 1691 and 1692. Carl Peter Thunberg (1743-1828), a Swedish physician and naturalist, also stayed in Nagasaki from 1775 (August 3) to 1776 (December 3). He visited Edo in 1776 (April 4-June 25). Their route was nearly the same as that of von Siebold shown in Pl. IV, Fig. (9).

Key titles: Engelbert Kaempfer; Carl Peter Thunberg.

http://en.wikipedia.org/wiki/Engelhert_Kaempfer
http://www.xs4all.nl/~kwanten/kaempfer.htm
http://www.lib.a.u-tokyo.ac.jp/tenji/125/34.html (In Japanese.)
http://en.wikipedia.org/wiki/Carl_Peter_Thunberg
http://www.lb.nagasaki-u.ac.jp/search/ecolle/igakushi/Thunberg/Thunberg.html

Reise nach dem Hofe des Sjogun im Jahre 1826

'Sjogun' means 'Shôgun' in correct Japanese pronunciation. This is Chapter II of von Siebold's book entitled 'NIPPON'. Archiv zur Beschreibung von Japan und dessen Leben, etc. (1832-52). Two kinds of Japanese translations of this book based upon the Edition published in 1897)(Pl. III, Fig. 8; Pl. IV, Figs 9 and 10) are published (Kure, 1931, 1966; Saitô, 1967). For three books cited here, see 'Selected References' shown at the end of this web article.

Key title: Philip Franz von Siebold.

http://www.philipp-franz-von-siebold.com/works.shtml
http://orlabs.oclc.org/identities/lccn-n50-58839

We can find many interesting stories of von Siebold's experience in his book. Some of them will be introduced below.

Salt making

Since von Siebold had an ethnological interest there are many descriptions about

various works he observed in Japan. For example, he described in detail about natural sun-dried salt making at the beach of the Inland Sea of Japan. Probably, it may be of interest to a north European person.

Japanese Garden and Bonsai

Von Siebold had a deep interest about Japanese gardens. He visited a few famous Japanese Gardens in Kyôto; there are many Buddhist temples with gardens in this old city. Since typical Japanese Gardens are prevalent in Central Japan under a hot and very humid climate from June to August and cool from September to November, their reproduction in other parts of the world is very difficult.

He was also interested in so-called 'Bonsai', or tray cultivation of big trees.

Key titles: Japanese garden; Traditional Japanese Garden Styles; Bonsai.

http://en.wikipedia.org/wiki/Japanese_garden
http://www.geocities.jp/sankyo_niwashi/ (Both in Japanese and English.)
http://ja.wikipedia.org/wiki/%E7%9B%86%E6%AO%BD (In Japanese.)
http://en.wikipedia.org/wiki/Bonsai

Three Herbalists in Owari

Von Siebold was visited by three Japanese herbalists in Owari (now Atsuta in Nagoya City, Aichi Prefectur, Chûbu Region, Honshû). They are: Hôbun Mizutani (1779-1833), Keisuke Itô (1803-1901) and Sonshin Ôkochi (1796-1883: Itô's elder brother). Mizutani was the leader of the Herbalists Group in Owari; he wrote several Japanese illustrated books of insects, birds, etc. He also donated herbal manuscripts, such as the 'Hôbun-Chûfu'. Mizutani made a present of many dried samples of plants and insects to von Siebold. They met when von Siebold was on his return journey.

Note. Sketches of two land planarian specimens are found in the 'Hôbun-Chûfu' (ms., ca. 1800). An identification of the family of his samples is impossible. Cf. Sasaki (2001a and b, figures).

Sasaki, G.-Y., 2001a and b. Bipaliid land planarians recorded in Chinese and Japanese Materia Medica.
http://www2u.biglobe.ne.jp/~gen-yu/kougai.html (In Japanese.)
http://www2u.biglobe.ne.jp/~gen-yu/kougai_e.html

After von Siebold's return to Nagasaki, Keisuke Itô, a young Japanese naturalist, was invited to the 'Narutaki-Juku'. Von Siebold gave him the book, 'Flora Japonica', published by Thunberg in 1784.

Dr. Keisuke Itô was the first Professor of Botany, The Imperial University of Japan (now the University of Tôkyô). A Japanese 'lily of the valley', *Convallaria keiskei* Miquel, 1865, has been named after him. Its author, Friedrich Anton Wilhelm Miquel (1811-1871), was a Dutch physician and botanist. He published 'Prolusio Florae Japonicae' (1865-67). He is also the author of the last volume (1870) of von Siebold's

'Flora Japonica'.

Key titles: Ito Keisuke; Ito Keisuke Collection; Carl Peter Thunberg; Siebold in 21st Century; F. A. W. Miquel.

http://www.nul.nagoya-u.ac.jp/db/keisuke/keisuk_e.html
http://en.wikipedia.org/wiki/Keisuke_Ito
http://www.lb.nagasaki-u.ac.jp/search/ecolle/igakushi/Thunberg/Thunberg.html
http:////en.wikipedia.org/wiki/Carl_Peter_Thunberg
http://en.wikipedia.org/wiki/Carl_Peter_Thunberg
http://www.lib.a.u-tokyo.ac.jp/tenji/125/38.hyml (In Japanese.)
http://www.um.u-tokyo.ac.jp/publish_db/2003Siebold21/index.html (Both in English and Japanese.) This publication (Siebold in 21st Century) contains messages, 9 web articles, Literature, and List of Exhibits.
http://www.um.u-tokyo.ac.jp/publish_db/2003Siebold21/06/060100.html (In Japanese.)

A Meeting with Shigehide Shimazu, His Son and the Great-grandchild in Edo

Von Siebold was met at the Station of Ômori (the southern part of Edo; near the present Haneda International Airport) by three persons: Shigehide Shimazu (1745-1833: the 8th Lord of the Satsuma Domain), Masataka Okudaira (1781-1855: the second son of S. Shimazu; the Lord of the Nakatsu Domain at that time) and Nariakira Shimazu (1809-1858: the great-grandchild of S. Shimazu). They were persons of high rank at that time in Japan. Shigehide Shimazu was known as a 'Rangaku-zuki', or 'Ranpeki Daimyô (Lord)', who had some understanding of Western Sciences. He could read, write and speak Dutch to some extent.

They met with von Siebold several times in Edo. Von Siebold demonstrated 'how to make' a stuffed bird according to the request of S. Shimazu (he was 82 years old at that time). The Shimazu family gave a send-off in Shinagawa (at the southwestern edge of Edo) upon von Siebold's departure from Edo (May 18, 1826).

Kawakatsu's Note. Shigehide Shimzu was the father-in-law of the 11th Shôgun Ienari Tokugawa (1773-1841). Nariakira Shimazu was the 11th Lord of the Satsuma Domain and was the father-in-law of the 13th Shôgun Iesada Tokugawa (1824-1858). Additionally, they were convinced and life-long supporters of the work of von Siebold in Japan.

Key titles: Rangaku; Shimazu Shigehide; Shimazu Nariakira; Shimazu clan.

http://ja.wikipedia.org/wiki/%E8%98%AD%E5%AD%A6 (In Japanese.)
http://en.wikipedia.org/wiki/Rangaku
http://ja.wikipedia.org/wiki/%E5%B3%B6%E6%B4%A5%Ep%87%8D%E8%B1%AA
http://ja.wikipedia.org/wiki%E5%B3%B6%E6%B4%A5%E696%89%E5%BD%AC
(In Japanese.)
http://en.wikipeddia.org/wiki/Shimazu_Nariakira
http://en.wikipedia.org/wiki/Shimazu_clan

Japanese Herbalists in Edo

The Delegation arrived Edo on April 11th. Captain Sturler, von Siebold and Bürger had an audience of the Shôgun (the 11th, Ienari Tokugawa) in the Edo Castle on May 1, 1826.

In Edo, von Siebold was visited by many Japanese physicians and herbalists. Among the most important was Yôan Udagawa (1798-1846), one of the most excellent Japanese naturalist of the time. He published several epochal biology books, such as 'Botanika-kyô' (1822), 'Shokugaku-Keigen (1835), etc.

The 'Botanika-kyô' is an essential introduction of 'Botanica' from Dutch books. It was written in Kanji (or Chinese characters) of the Sutra style (Pl. V, Figs 11 and 12). This book was printed when Y. Udagawa was 25 years old. The 'Shokugaku-Keigen' is an outline of Western botany translated from Dutch books. Udagawa's translated books (3 volumes in Kanji) contain 21 plates in color (Pl. V, Fig. 12; Pl. VI, Figs 14-17; Pl. VII, Fig. 18).

Von Siebold received many dried samples of Japanese plants from Udagawa. Since Udagawa could read Dutch language talent, von Siebold gave him several Dutch botanical books. He also gave to Udagawa a microscope.

Fukushima, Teiô (=Fukushima, H.), 1989. [Yôan Udagawa's 'Botanika-Kyô' (1822)]. Recutting Edition (10 pages) and the Explanatory Book (13 pages). Shimizu City. Daibunsha Insatsu-sho. (In Japanese.)

Fukushima, Teiô (=Fukushima, H.), 1991. [Yôan Udagawa's 'Rigaku-Nyûmon / Shokugaku Keigen (1834)]. Recutting Edition (132 pages) and Explanatory Books (30 pages; 162 pages). Shimizu City. Daibunsha Insatsu-sho. (In Japanese.)

Key titles: Edo Castle (Edo-jô); Udagawa Yōan; Waseda University Library Rear Material Collection.

http://en.wikipedia.org/wiki/Edo_Castle
http://www.evri.com/media/article?title=Udagawa+Yoan&page=http://en..wikipedia.org/wiki/
http://www.wul.waseda.ac.jp/collect/b8/c1425.html (In Japanese.)
http://www.wul.waseda.ac.jp/collect/b8/c1425-e.html

Von Siebold returned to 'Dejima' in Nagasaki on July 7, 1826.

Interesting Japanese Animals Observed and Obtained

Von Siebold observed, collected and obtained (by gift and by purchase) various Japanese animals during about 140 days round trip between Nagasaki and Edo. He had a deep interest about the following animals.

Akoya-gai (Japanese name). Pearl oyster. *Pinctada fucata* (Gould, 1850).

Key title: Pearl oyster.
http://en.wikipedia.org/wiki/Pearl_oyster

Heike-gani (Japanese name). *Heikea japonica* (von Siebold, 1834). This middle-sized marine crab is common in the Inland Sea of Japan. Von Siebold mentioned about the legend that has been woven around 'Heike-gani'; The Samurai crab..

Key titles: Heikegani; The Samurai crab.
http://en.wikipedia.org/wiki/Heikegani
http://de.wikipedia.org/wiki/Heikegsani
http://crustacea.nhm.org/people/martin/publicatioms/pdf/103.pdf

Taka'ashi-gani (Japanese name). Japanese spider crab. *Macrocheira kaempferi* (Temminck, 1836). This is a very large crab inhabiting mainly the deep bottom of the Suruga Bay (Suruga, i.e., Shizioka Prefecture, Chûbu Region, Honshû).

Key title: Japanese spider crab.
http://em.wikipedia.org/wiki/Japanese_spider_crab

Ôsanshô-uo (Japanese name). Japanese giant salamander. *Megalobatrachus japonicus* (Temminck, 1837) Von Siebold obtained living samples of this amphibian in Kusatsu (Ohomi, i.e., Ômi, near Lake Biwa-ko in Shiga Prefecture, Kinki Region, Honshû) and Edo. This animal is now a special natural monument of Japan.

Key titles: Ôsanshô-uo; Japanese giant salamander.
http://ja.wikipedia.org/wiki/%E3%82%AA%E3%82%AA%E3%82%B5%E3%83%B3%E3%82%B7%E3%83%A7%E3%82%A6%E3%82%A6%E3%82%AA
(In Japanese.)
http://big_game.at.infoseek.co.jp/amphibians/hanzaki.html (In Japanese.)
http://en.wikipedia.org/wiki/Japanese_giant_salamander

Kawakatsu's Note. In the 1930-1940's, this animal was not rare in the vicinity of his country residence located in the northeastern part of Kyôto Prefecture, Kinki Region, Honshû. In his childhood Kawakatsu had an experience of its culture in a pond fed by underground water located in his residence.

Toki (Japanese name). Crested ibis. *Nipponia nippon* (Temminck, 1835). This middle-sized bird was not rare in Central Japan until the end of the 19th C. The Japanese population of this bird became extinct in the 1990's. Birds from the Chinese population are now breeding artificially in Sado Island, Nîgata Prefecture, Chûbu Region, Honshû. Their reintroduction to the wild is now in progress.

Key titles: Toki; Crested ibis.
http://ja.wikipedia.org/wiki%E3%83%88%E3%82%AD (In Japanese.)
http://en.wikipedia.org/wiki/Crested_Ibis

Kawauso (Japanese name). Japanese river otter. *Lutra lutra whiteleyi* Gray, 1867. Von Siebold observed this animal in Hizen (i.e., Nagasaki Prefecture, Kyûshû). At that time, 'Kawauso' was not a rare animal in Southern Japan. In August of 1973, a photograph of a living animal of 'Kawauso' was taken by T. Imaizumi at the southwestern part of Kôchi Prefecture, Shikoku (The Asahi Newspaper. August 20, 2010)(Pl. VIII, Fig. 19). This animal seems to be now extinct.

Key titles: Kawauso: Japanese river otter.
http://ja.wikipedia.org/wiki%E3%82%AB%E3%83%AF%E3%82%A6%E3%82%BD (In Japanese.)
http://en.wikipedia.org/wiki/Japanese_River_Otter

Nihon-ôkami (=Yama-inu) (Japanese name). Honshû wolf. *Canis lupus hodophilax* (Temminck, 1844). Although von Siebold obtained samples of this middle-sized carnivore (probably from hunters), this animal may have been rare even at that time (i.e., the first half of the 19th C).

Kawakatsu's Note. The last live specimen of the Honshû wolf was killed by a hunter in the vicinity of Washikaguchi (near Owase City in Mie Prefecture), Nara Prefecture, Kinki Region, Honshû (in January, 1905). Its body (a young male) was bought by M. P. Anderson (on January 23); its abdomen was partly decomposed. Only the cranium and dried skin of this specimen are now preserved in the Natural History Museum, London. Cf. Sugino (1975, including a copy of Braun's figure published in 1881)(Pl. IX, Fig. 21); Uéno (1984, 1989a); Kawai (2003). See also Sugino, Kawakatsu, Lue, Katayama & Corrêa (1986: 1). For Anderson, see Ogren & Kawakatsu (1987: 93, Note).

Ezo-ôkami (Japanese name), another subspecies of Japanese wolf found only in Hokkaidô, became extinct in the beginning of the 1900s (Pl. IX, fig. 22). Its scientific name is *Canis lupus hattai* Kishida, 1931. According to the recent opinion, our domestic dog is reclassified as *Canis lupus familiaris* Linneaeus, 1758.

Key titles: Honshû Wolf; Nihon-ôkami; Ezo-ôkami; Inu.
http://en.wikipedia.org/wiki/Honsh%C5%AB_Wolf
http://www.panoramio.com/photo/17415656 (In Japanese.)
http://www.sizenken.biodic.go.jp/rdb/content/001.html (In Japanese.)
http://ja.wikipedia.org/wiki%E3%82%A8%E3%82%A8%E3%82%BE%E3%82%BE%E3%82%AA%E3%82%AA%E3%82%AB%E3%83%9F (In Japanese.)
http://en.wikipedia.org/wiki/Hokkaido%C5%8D_Wolf
http://ja.wikipedia.org/wiki/%E3%82%A4%E3%83%8C (In Japanese.)
http://en.wikipedia.org/wiki/Dog

Brauns, D., 1881. Canis Hodophylax, or Japanese wolf. Chrysanthemum, A Monthly Magazine for Japan and the Far East, 1 (January to December, 1881): 66-67, plate before page 66. Kelly & Co., Yokohama.
http://www.baxleystamps.com/litho/meiji/chry_1_2.shtml

Kawai, T., 2003. Nihon no Ôkami. [On Japanese wolfs]. In: Kawai's Book: Konchû-Shônen no Hakubutsu-shi - Suisei Konchû to Tomo ni -. [My Natural History Essays], pp. 47-72. Tôkai-Daigaku Shuppan-Kai, Tôkyô. (In Japanese.)

Ogren, R. E. & Kawakatsu, M., 1987. Index to the species of the genus *Bipalium* (Turbellaria, Tricladida,Terricola). Bull. Fuji Women's College, (25), II: 79-119.

Sugino, H., 1975. [Ôkami: Ezo-ôkami, Nihon-ôkami and Kuro-ôkami]. Ashi-no-Hazue, (10): 1-3 (with 8 sketch figures). Published by Y. Tsutsui. Suita, Ôsaka Pref. (In Japanese.)

Sugino, H., Kawakatsu, M., Lue, K-Y., Katayama, A. & Corrêa, D. D., 1986. The evolution theory of an ancient Chinese thinker, Zhuāng-Zĭ (Zhou Zhuāng). Occ. Publ., Biol. Lab. Fuji Women's College, Sapporo (Hokkaidô), Japan, (16): 1-8.

Uéno, M., 1984. [Three essays on Nihon-ôkami: Washikaguchi – The last live animal of Nihon-ôkami was captured here in 1905; Records of Nihon-ôkami cultured in the Zoo of London and preserved samples in the Natural History Museum, London; Four samples of Nihon-ôkami kept in Europe (Leiden, Berlin and London)]. In: Dr. Uéno's Hakubutsu-gaku-Ronshû, 2, color photos on the prefatory page; pp. 379-393. (In Japanese.)

Uéno, M., 1989a. [Additional notes on Nihon-ôkami]. In: Dr Uéno's Hakubutsu-gaku no Tanoshimi. Pp. 129-139. (In Japanese.)

Note. For the list of Dr. Uéno's Natural History Essays, see 'Selected References' shown at the end of this web article.

Zoological Society of London, 1880. Illustrations of new or rare animals in the Zoological Society's living collection. Nature, 23: 35-38. 11 November 1880. http://www.nature.com/nature/journal/v23/n576/abs/023035e0.html doi:10.1038/o23035e0

For the mitochondrial DNA analysis of the Japanese wolf, see the following article.

Ishiguro, N., Inoshima, Y. & Shigehara, N., 2009. Mitochondrial DNA analysis of the Japanese wolf (*Canis lupus hodophilax* Temminck, 1839) and comparison with representative wolf and domestic dog haplotypes. Zool. Sci., 26: 765-770. See also the cover picture (a cranium) and the explanation on the bottom of the back cover page.
http://www.zoology.or.jp/news/index.asp?patten_cd=12&page_no=297
(In Japanese.)

Collection of Japanese Mammals

Von Siebold obtained many samples of Japanese mammals at 'Dejima'. Most of them were obtained by purchase. His collection includes typical mammalian species of Japan. They were described in Fauna Japonica (1833-1850). See the later chapter 'Nippon' and the Study of Japanese Biological Samples, etc.' in the present web article.

Five typical Japanese species of mammals in the von Siebold's Collection are as follows.

No-usagi (Japanese name). *Lupus branchyurus* Temminck, 1845.
http://en.wikipedia.org/wiki/Japanese_Hare

Nihon-jika (Japanese name). C*ervus nippon* Temminck, 1838.
http://en.wikipedia.org/wiki/Sika_Dear

Note. Five subspecies are known in Japan. The other subspecies are found in Taiwan, China, Vietnam, and Russian Far East.

Nihon-kamoshica (Japanese name). *Capricornis crispus crispus* Temminck, 1836.
http://en.wikipedia.org/wiki/Japanese_Serow

Ko-kikugashira-kômori (Japanese name). *Rhinolophus cornutus* Temminck, 1835.
http://en.wikipedia.org/wiki/Little_Horseshoe_Bat

Hondo-tanuki (Japanese name). *Nyctereutes procyonoides viverrinus* (Temminck, 1834).
http://en.wikipedia.org/wiki/Raccoon_Dog

'Ranpeki Daimyô', or Federal Lords Known as Naturalists

'Ranpeki' means a Dutch enthusiast in Japanese. Namely, a person who closely followed Western science with a progressive spirit at that age in Japan. They learned the Dutch language; most of them were living creature enthusiasts. There were several Lords who liked plants, insects, fishes, birds, and beasts.

Shigekata Hosokawa (1720-1785) was the 4th Lord of the Higo-Kumamoto Domain (i.e., Kumamoto Prefecture, the western part of Kyûshû), many sketches of plants and animals and his many dried samples of plants remain. His clear culture records of a cabbage butterfly (*Pieris rapae crucivola* Boisduval, 1832) with many sketches are excellent (completion, ca. 1760). Articles left by the Hosokawa Clan are in the Eisei Bunko Museum, Tôkyô.

Key titles: Ranpeki; Hosokawa Shigekata; Eiseibunko Museum.

http://ja.wikipedia.org/wiki/%E8%98%AD%E7%99%96 (In Japanese.)
http://ja.wikipedia.org/wiki%E7%B4%BO%E5%B7%9D%E9%87%8D%E8%B3%A2 (In Japanese.)
http://en.wikipedia.org/wiki/Eisei_Bunko_Museum

Toshiyasu Maeda (1799-1859) was the 10th Lord of the Toyama Domain (i.e., Toyama Prefecture, the north-central part of the Chûbu Region, Honshû). He learned the Dutch language fairly well and discussed the contents of Linnaeus' 'Species Plantarum' (1753).

Key title: Maeda Toshiyasu.

http://en.wikipedia.org/wiki/Maeda_Toshiyasu

Narikiyo Kuroda (1795-1851). He was the 10th Lord of the Fukuoka Domain (i.e., Fukuoka Prefecture, the northeastern part of Kyûshû). He cultured ducks in his childhood and published the book 'Ga-kyô' in 1825. It is a detailed guidebook of ducks about the history of their introduction (probably from China), culture, breeding, etc.

Officially, he was the Guardian of the Nagasaki Battery and stayed in Nagasaki many times. As always, the Lord N. Kuroda visited von Siebold at the 'Narutaki-Juku' and learned many Western things from him. His son-in-law, Nagahiro Kuroda (1811-1887), the 11th Lord, was the 9th son of Shigehide Shimazu (see the foregoing item, 'A Meeting with Shighide Shimazu, etc.' He also received von Siebold's natural history instruction.

Nagahiro Kuroda (1811-1851) created an artificial marsh for wild duck hunting in the garden of the Kuroda's Edo Residence (Akasaka in southwestern part of Tôkyô-to). He also created a second marsh in the southwestern part of Edo; now a runway of the Haneda International Airport covered that place.

The Kuroda Clan produced ornithologists: **Nagatomo Kuroda** (1839-1902), **Nagashige Kuroda** (1867-1939), Dr. **Nagamichi Kuroda** (1889-1978), and Dr. **Nagahisa Kuroda** (1916-2009).

Key titles: Kuroda clan; Kuroda Narikiyo; Kuroda Nagahiro.

http://en.wikipedia.org/wiki/Kuroda_clan
http://museum.city.fukuoka.jp/jf/2007/narikiyo/html/narikiyo,html (In Japanese.)
http://www.worldlingo.com/ma/enwiki/en/Kuroda_Nagahiro

Unwilling Return to Europe

In December 1828, the so-called 'Siebold Affair', or 'Siebold Incident', occurred because several contraband goods were found in von Siebold's private collection (i.e., copies of maps of Japan, a Japanese coat with the Tokugawa Crest of the Hollyhock of three leaves, etc.). Those were prohibited articles to take abroad at that time. Thus, von Siebold was banished from Japan.

He departed from Nagasaki on December 5, 1829, back to Holland. He carried back his large collection of Japanese plants, animals and various other collections (art objects, industrial art works, folklore samples, etc.) without any problem.

Key title: A Siebold Affair; Philip Franz von Siebold.

http://ja.wikipedia.org/wiki/%E3%82%B7%E3%63%BC%E3%83%9C%E3%83%AB%E3%83%88%E4%BA%8B%E4%BB%B6 (In Japanese.)
http://en.wikipedia.org/wiki/Philippe Franz von Siebold. Cf. Siebold Incident

Mrs. Taki (=Otaki-san) placed an order with a delicate handworker for a special incense, or a small snuff container, of a Japanese lacquer ware with portraits of herself and the daughter (i.e., Miss Ine) by an inlaid mother-of-peal work (Pl. X, Figs 23 and 24). This case, with a lock of their hair of both mother and child was sent to von Siebold in

1830. When he returned to Nagasaki at the end of the 1850's, von Siebold gave this case to his daughter. This is now on exhibition at the Siebold Memorial Museum in Nagasaki.

By the way, Mrs. Taki remarried a master of a shipping agent in Nagasaki.

Kawakatsu's Note. There are some different explanations about the container mentioned above. For example, that the container was ordered by von Siebold himself. Cf. Nakano (1973); some other literature are listed in the 'Selected References' at the end of this web article.

When he stayed in Japan in the 1820's, von Siebold carried a lock of the hair of the late Dr. Ignaz Döllinger (1770-1841), who was the most familiar person of his youth because he lost his father at the age of only one. It is supposed that Mrs. Taki followed von Siebold's custom - 'always keep on one a lock of the hair of his beloved person' -.

Aditionally, a lock of von Siebold's hair is now preserved in the Siebold Memorial Museum in Nagasaki. It was a gift of von Siebold's 5th generation descendant (Dr. Constantin von Brandenstein-Zeppelin) who visited Nagasaki in 1996 (The Asahi Newspaper, February 24, 1996) (Pl. X, Figs 25 and 26).

Key titles: Ignaz Döllinger; Siebold Memorial Museum (Nagasaki): Brandenstein Castle.

http://en.wikipedia.org/wiki/Ignaz_D%C3%B6llinger
http://www1.city.nagasaki.nagasaki.jp/siebold/ (In Japanese.)
http://deutsche-maerchenstrasse.com/en/members/schluechtern.html

As a Horticulturist

Von Siebold was an excellent horticulturist. He cultivated many Japanese plants (including some Chinese origin) in his garden of the 'Narutaki-juku'. According to Dr. Ohba's (2001) book, he sent the fresh roots and bulbs of 137 species of Japanese plants into Europe by a Dutch ship in the beginning of 1829. About 40 species of them arrived safely at the Leiden Botanical Garden in the living condition.

Von Siebold himself left Nagasaki in December of 1829 (see 'Unwilling Return to Europe' in the previous chapter of this web article). In addition to his enormous collection of biological samples of Japan, he also shipped fresh roots, bulbs and seeds of samples of 485 Japanese species of plants. 260 species arrived in good condition at the Botanical Garden of Antwerp in Belgium (July 8, 1830). Finally, von Siebold received all his remaining Japanese collections (including living plants) in Leiden in October, 1830.

The following is a part list of Japanese plants introduced into Europe in living condition by von Siebold. Their Japanese names, scientific names and URLs are shown in the followings.

Yamayuri (Japanese name). *Lilium auratum* Lindley.
http://en.wikipedia.org/wiki/Hydrangea

Gaku-ajisai (Japanese name). *Hydrangea macrophylla* (Thunberg) Seringe f. *normalis* (Wilson) Hara.

Ajisai (Japanese name). *Hydrangea macrophylla* (Thunberg) f. *macrophylla*. A variety of the former.
http://en.wikipedia.org/wiki/Hydrangea

Note. 'Seiyô-ajisai' is a garden form of *Ajisai*. *Hydrangea macrophylla* f. *hortensis* (Lamarck).
http://aoki2.si.gunma-u.ac.jp/BotanicalGarden/HTMLs/seiyou_ajisai.html

Botan (Japanese name). *Paeonia suffruticosa* Andrews.
http://en.wikipedia.org/wiki/Paeonia_suffruticosa

Tsubaki (Japanese name). *Camellia japonica* Linnaeus.
http://en.wikipedia.org/wiki/Camellia

Sazanka (Japanese name). *Camellia sasanqua* Thunberg.
http://en.wikipedia.org/wiki/Camellia_sasanqua

Ume (Japanese name). *Prumus mume* Siebold et Zuccarini.
http://en.wikipedia.org/wiki/Prunus_mume

Rengyô (Japanese name). *Forsythia suspense* (Thunberg)
http://en.wikipedia.org/wiki/Forsythia

Kiri (Japanese name). *Paulownia tomentosa* Steudel.
http://en.wikipedia.org/wiki/Paulownia_Tomentosa

Shikimi (Japanese name). *Illicium religiosum* Siebold et Zuccarini
http://en.wikipedia.org/eiki/Illicium_anisatum

Kôya-maki (Japanese name). *Sciadopitys verticillata* Siebold et Zuccarini
http://en.wikipedia.org/wiki/Scadopitvs

Inu-maki (Japanese name). *Podocarpus macrophyllus* (Thunberg)
http://en.wikipedia.org/wiki/Podocarpus_macrophyllus
See Pl. XI (Fig. 27). Cf. Kameoka City (1996); Miyazaki & Kawakatsu (1980).

Some species were contrary to what von Siebold's expected. Japanese knotweed is now a troublesome invasive plant in Europe.

Itadori (Japanese name). *Fallowpia japonica* Siebold et Zuccarini
http://en.wikipedia.org/wiki/Japanese_knotweed

Kameoka City, 1996. Kameoka no Meiboku – Midori to Bunka wo Tazunete-. [An old tree of Inu-maki (*Podocarpus macrophyllus*) planted in the garden of Kawakatsu's country residence, Asahi-chô in Kameoka City, Kyôto Prefecture]. In: Historical Trees of Kameoka], pp. 118-119 (with 2 photos). Nihon-Shashin-Insatsu Co., Kyôto. (In Japanese.)

Miyazaki, T. & Kawakatsu, M., 1980. Planarian regeneration: American doughnut-type monsters in *Dugesia japonica japonica*. Occ. Publ., Biol. Lab., Fuji Women's College, Sapporo (Hokkaidô), Japan, (3): 1-12. (In Japanese, with Eng. Simm.) Note: See the photo on the first page and its explanation on p. 2.

'Nippon' and the Study of Japanese Biological Samples

-- I will Return Nagasaki --

Von Siebold studied mainly in Holland after he returned to Europe. Among his publications, the followings books are most important.

1832-1859. Nippon. Archiv zur Beschreibung von Japan und desen Neben- und Schutzländern: Jedo mit den südlichen Kurelen, Sachlin, Korea und den Liukiu-Inseln. (22 Separate Volumes.) See the foregoing section 'Reise nach dem Hofe des Sjogun in Jahre 1826' in the present web article.

1838. Journal während meiner 4 Reisen nach dem Kaiserlichen Hofe Jedo im Jahre 1826.

1833-1850. Fauna Japonica. (43 Separate Volumes.)

http://en.wikipedia.org/wiki/Fauna_Japonica
http://edb.kulib.kyoto-u.ac.jp/exhibit/b05/b05cont.html (In Japanese.)

1835-1841 (-1870). Flora Japonica. (30 Separate Volumes.)

http://ja.wikipedia.org/wiki/%E3%83%95%E3%82%A1%E3%82%A4%E3%83%AB:Flora_Japonica_cover.jpg
http://edb.kulib.kyoto-u.ac.jp/hxhibit/b01/b01cont.html (In Japanese.)

Note. For the publications of von Siebold and related articles and books, open the following URL.

http://catalogue.nla.gov.au/Search/Home?lookfor=author:%22Siebold,%20Philipp%20Franz%20von.%201796-1866%22&ikonowwwhatinean=1

Von Siebold had a special interest in Japanese hydrangea plants. One of Japanese species of this group was named as *Hydrangea otakusa* Siebold et Zuccarini, 1835. The present scientific name of this plant is now shown as *Hydrangea macrophylla* (Thunberg) Seringe f. *macrophylla*. It is believed that an old specific name 'Otakusa' is originated from the name of von Siebold's first wife 'Mrs. Taki' (a term of endearment in Japanese is 'O-Taki-San'). Kawakatsu supposed that this Japanese pronunciation may be very difficult for von Siebold himself.

Key titles: Ajisai; *Hydrangea Otakusa*; *Hydrangea macrophylla*.

http://ja.wikipedia.prg/wiki/%E3%82%A2%E3%82%B8%E3%82%B5%E3%82%A4
(In Japanese.)
http://www.bio.sci.toho-u.ac.jp/column/015079.html (In Japanese.)

In 1845, von Siebold remarried with Karoline Ida von Gagern (1820-1877). They had three sons and two daughters.

Return to Nagasaki

In the middle of the 1850's, Japan entered into friendly relations with the United States of America, United Kingdom, Germany, The Netherlands, France, and Russia. This mean that reentry into Japan was possible for von Siebold. He (and his oldest son Alexander G. G. von Siebold) arrived Nagasaki on August 14, 1859. He and his Japanese family met again after an interval of thirty years.

Miss Ine Kusumoto, his daughter, was 33 years old at that time. She had already learned Dutch and medicine from her Japanese teachers (i.e., von Siebold's previous students). She also learned the newest Western medicine from his father at the reconstructed 'Narutaki-Juku'. Later, she was the first female doctor of Western medicine (obstetrics and gynecology) in Japan. She had a daughter, Miss Taka Kusumoto (1852-1938).

Key titles: Kusumoto Taki; Kusumoto Ine; Kusumoto Takako; Yamawaki Taka.

http://www2.ocn.ne.jp/~oine/kinenhi/index.html (In Japanese.)
http://en.wikipedia.org/wiki/Kusumoto_Ine
http://www.cc.matsuyama-u.ac.jp/~tamura/ine.htm (In Japanese.)
http://ja.wikipedia.org/wiki%E6%A5%A0%E6%9C%AC%E3%82&A4%E3%83%8D
(In Japanese.)
http://www.lib.jwu.ac.jp/kanpo98-1.html (In Japanese.)
http://ja.wikipedia.org/wiki/%E6%A5%A0%E6%9C%AC%E9%AB%98%E5%AD%90
(In Japanese.)
http://www2.ocn.ne.jp/~oine/kinenhi/metaka.html (In Japanese.)
http://www2.ocn.ne.jp/~oine/kinenhi/motherine.html (In Japanese.)

Return to Germany with a Disappointment

Von Siebold's second life as a physical teacher and a naturalist at the 'Narutaki-Juku' ended after a short time. At the beginning of 1861, he was invited as a medical-and-diplomatic adviser of the Shôgunate in Edo. However, this new task did not suit him and he returned to Nagasaki in December, 1861. He left Nagasaki in March 1862 on a final trip to Europe. He died in München (October 18, 1866).

Most of the von Siebold's Collections of Japan will be preserved in the Netherlands.

Sluys' Note. They will be preserved in the former Herbarium of the University of Leiden and in the former Rijksmuseum voor Natuurlijke Historie (later Naturalis). Both of these institutions have recently merged into a new big museum and institute called the National Center for Biodiversity Naturalis.

Key title: National Herbarium of the Netherlands.
http://www.nhn.leidenuniv.nl/index.php/nhn/institute.nhn_l

His Collections are also preserved separately in the Natural History Museum, London, the Saint Petersburg Botanical Institute, etc. For the Russian Collections, see Carl Maximowiz (1827-1891). A part of the von Siebold Collection is now kept in the Makino Herbarium, Tôkyô Metropolitan University, Hachiôji City, Tôkyô-to (Gift of the Komarov Botanical Institute).

Key titles: Carl Johann Maximowicz; Carl Ivanovich Maximowicz.

http://en.wikipedia.org/wiki/carl_Maximowicz
http://ameba.i.hosei.ac.jp/sbweb/doc/index.html (In Japanese.)
http://en.wikipedia.org/wiki/Komarov_Botanical_Institute
http://www.binran.ru/botmus/english/english.htm
http://www.encspb.ru/en/article.php?kod=2804010613

On the occasion of the 200th birthday of Philipp F. von Siebold, commemorative postage stamps were issued both in Germany and Japan (February 16, 1996) (Pl. XII, Fig. 28).

Alexander George Gustav von Siebold (1846-1911), von Siebold's oldest son, stayed in Japan as an interpreter for the British Legation in Japan. Then, he worked as a member of diplomatic circles of Japan. In 1910 he was decorated with the First Order of the Sacred Treasure of Japan. Heinrich von Siebold (1852-1908), von Siebold's second son, is known as a German anthropologist, archaeologist and an antiquarian of Japanese art articles.

Key titles: Alexander George Gustav von Siebold; Heinrich Jonkheer von Siebold.

http://www.siebold-gymnasium.de/infos/schile-mit-tradition/die-famile-von-siebold/alexander-von-siebold
http://www.mofa.go.jp/mofaj/annai/honsho/shiryo/qa/meiji_01.html (In Japanese.)
http://en.wikipedia.org/wiki/Heinrich_von_Siebold
http://uploader.wuerzburg.de/siebold-museum/gesellschaft/heinrichvonsiebold.html

Kawakatsu's Note. Sir Ernest Mason Satow (1843-1929), a well-known British diplomat and Japanologist, worked in Japan twice (1862-1883 and 1895-1900). Both Satow and A. G. G. von Siebold worked in the British Legation in Japan. They started their diplomatic task as young Supernumerary Interpreters (cf. Hagiwara, 1980). Satow married a Japanese lady (Kane Takeda: 1853-1932). Their second son, Hisayoshi Takeda (1883-1972), educated in England, was a well-known botanist and alpinist in Japan (studies of alpine plants). He was also known for a long campaign to preserve the highland at Lake Oze-numa in Gunma and Tochigi Prefectures (now the western part of the Nikkô

National Park, Kantô Region, Honshû).

Key titles: Ernest Masson Satow; Hisayoshi Takeda; Henry Smith Parkes.
http://en.wikipedia.org/wiki/Ernest_Mason_Satow
http://en.wikipedia.org/wiki/Takeda_Hisayoshi
http://en.wikipedia.org/wiki/Harry_Smith_Perkes

Hagiwara, S., 1980. Tôi-Gake. Ernest Satow Nikki-Shô. 1. [From Sir Satow's Daily about the Diplomatic relationship between The Great Britain and Japan in the late 19th Century, No. 1]. 1-277 pp. The Asahi-Shinbun-Sha, Tôkyô. (In Japanese.)

Evaluation of von Siebold in the Present Day

Philipp F. von Siebold was a person who contributed to the modernization of Japan under the policy of seclusionism – especially in the field of natural sciences – about 185 years ago. He was also an eminent pioneer of the Japanology in Europe in the early 19th Century. In Japan, there are many publications about von Siebold. After the recent three memorial events on him held in Japan – 'The 200th Birthday Meeting' (1996), The 400th Anniversary of Japanese-Dutch Relations (2000) and 'Siebold in 21st Century (2003) at the occasion of 'Friendship between Japan and The Netherlands' (2000) --, publications are on the increase (Pl. XII, Figs 29-33)..

Key titles: Philipp Franz von Siebold; Siebold, Philipp Franz von 1796-1866; Siebold in 21st Century.

http://ja.wikipedia.org/wiki%E3%83%95%E3%82%A3%E3%83%AA%E3%83%83%E3%83%97%E3%83%BB%E3%83%95%E3%83%A9%E3%83%B3%E3%83%84%E3%83%BB%E3%83%95%E3%82%A9%E3%83%B3%E3%83%BB%E3%82%B7%E3%83%BC%E3%83%9C%E3%83%AB%E3%83%88 (In Japanese.)
http://orlabs.oclc.org/identities/lccn-n50-58839
http://www.um.u-tokyo.ac.jp/publish_db/2003Siebold21/index.html

Memorial Museum / Siebold Huis / Siebold-Museum

Key titles: Siebold Museum (Nagasaki in Japan); Siebold Huis (Leiden in The Netherland); Siebold-Museum (Würzburg in Germany).

http://www1.city.nagasaki.nagasaki.jp/siebold/ (In Japanese.)
http://www.sieboldhiis.org/
http://uploader.wuerzburg.de/siebold-museum/en/museum_info.html

Scientific Names Dedicated to von Siebold

There are 15 (or more) scientific names of Japanese plants (8 in number) and animals (7 in number) dedicated to von Siebold. Among them 2 species and a single genus are shown below with short explanations.

Asiasarus sieboldii Miquel, 1865 (?). Japanese name: Usuba-saishin.

http://ja.wikipedia.org/wiki/%E3%82%A6%E3%82%B9%E3%83%90%E3%82%B5%E3%82%A4%E3%82%B7%E3%83%B3 (In Japanese.)

Note. *A. sieboldii* is closely related to *Asarum caulescens* Maximowicz. Japanese name: Futaba-aoi or Kamo-aoi.

http://aoki2.si.gunma-u.ac.jp/BotanicalGarden/HTMLs/futaba-aoihtml
(In Japanese.)

Note. The Tokugawa Crest of the Hollyhock of three leaves is based on this plant, as is Kawakatsu's Family Crest is also designed by the same pl;ant. See the following web article.

Kawakatsu, M., 2008. Short reminiscences of a turbellariologist. Kawakatsu's Web Library on Planarians, January 20, 2008. http://victoriver.com . Left Button: Reminiscences. See Pl. Fig. 2.

Anotogaster sieboldii Sélys, 1854. Japanese name: Oni-yanma. This is the largest Japanese species of dragonfly in the family Cordulegastridae.
http://ja.wikipedia.org/wiki%E3%82%AA%E3%83%8B%E3%83%A4%E3%83%B3%E3%83%9E (In Japanese.)
http://en.wikipedia.org/wiki/Anotogaster_sieboldii

Sieboldius albardae Séleys, 1866. Japanese name: Ko-oni-yanma. This is a Japanese species of dragonfly of the family Gomphidae.
http://www.morioka.ac/specimen/files/Gompjidae/Sieboldius/albardae.html
(In Japanese.)

Wilhelm Stimpson (1832-1872)

February 14, 1832 in Boston, Mass., U.S.A. – May 26, 1873 in Ilchester, Maryland, U.S.A. He was a student of Jean Louis Rodolphe Agassiz (1807-1873) at Harvard University. He collected various samples of marine invertebrates.

On November 1852, he was appointed a naturalist to the United States North Pacific Expedition under Commodore Ringgold (later commanded by Captain John Rodgers). Thus, he visited Japan, Bering Straits, and other regions of the North Pacific. He collected various samples of invertebrate animals. He was appointed the Director of the Chicago Academy of Sciences in 1866. Unfortunately, the Academy building burned in the great Chicago fire in 1871, and almost all of Stimpson's Collections were lost.

His publications on planarians are as follows.

Stimpson, W., 1855. Descriptions of some new marine invertebrates. Proc. Acad. Nat. Sci. Philadelphia, VII (X): 365-394.

Stimpson, W., 1857. Prodromus descriptions animalium evertebratorum quae in Expeditione ad Oceanum, Pacificum Septentrionalem a Republica Federata missa, Johanne Rodgers Duce, observavit et descripsit. Pars. I. TURBELLARIA DENDROCOELA. Proc. Acad Nat. Sci. Philadelphia, 9: 19-31.

Stimpson, W., 1861a. On the genus *Bipaliura*. Amer. Jour. Sci. Arts, 2, Ser. 31 (=Sillman's Jour. Sci.): 134-135.

Stimpson, W., 1861b. On the genus *Bipalium*. Ann. Mag. Nat. Hist., Ser. 3, VII: 231-232.

Key title: Wilhelm Stimpson.

http://en.wikipedia.org/wiki/William_Stimpson
http://www.si.edu/oahp/ScientificIllustrators/WSimpson.html
http://go.microsoft.com/fwlink/?LinkId=69157

Key title: Louis Agassiz.

http://en.wikipedia.org/wiki/Louis_Agassiz
http://www.ucmp.berkeley.edu/history/agassiz.html

Note. Louis Agassiz was a former student of Ignaz Döllinger. See 'Unwilling Return to Europe' in the Section of Ph. F. B. Siebold in the present web article.

Peter Bernhard Wilhelm Heine (1827-1885)

January 30, 1827 in Dresden – October 5, 1885 in Lößnitz (near Dresden). He was a German (and American) artistic traveler. He was attached to the Commodore Perry's Expedition as a painter and visited Okinawa (a main island of the Southwest Islands of Japan), the Bonin Islands (i.e., the Ogasawara Islands of Japan), Yokohama and Shimoda (Honshû in Central Japan), and "Hakotade" (i.e., Hakodate in Hokkaidô, Northern Japan)(1853-1854). He visited Japan once again in 1860.

He published the following books.

Heine, W., 1858-1859. Die Expedition in die Seen von China, Japan und Ochotsk unter Commando von Commodore Calin Ringgold und Commodole John Rodgers, im Auftrag Regierung der Vereinigten Staaten unternommen in den Jahren 1853 bis 1856, unter Zuziehung der offiziellen Autoritäten und Quellen. Bd. I-III und Suppl. Hermann Gostenoble, Leipzig. (Pl. XIII, Fig. 34.) See also Pl. XIII (Figs 35 and 36).

The following Schilderung description is found in his book (Bd. 1, Chapt. VII: Die Binicennes in den Bonin=Inseln, Lew=Chew. Kiusiu und Ou-Sima. (P. 110, top.)

"Die folgenden Schilderungen sind aus dem Tagebuche des Herrn W. Stimpson, des Naturforschers der Expedition, der mir dasselbe mit der freundlichsten Bereitwilligkeit zur Verfügung gestellt hat". (December 27, 1854.)

> **Note**. The correct place names in Japan for Germanized local names used by Heine's Book cited above are: The Ogasawara Islands for "Bonin=Inseln"; Ryûkyû Island (i.e., Okinawa Island in the Southwest Islands of Japan) for "Riukiu"; Kyûshû for "Kiusiu"; Amami-Ôshima Island (in the SW Islands of Japan) for "Ou-Sima." Cf. Kawakatsu's Website, http://victoriver.com . Left button: planarian.net mirror, No. 43.

Heine (op. cit.) also recorded his location at the date of Dec. 27 was 31°18'N and 129°39'E. This station is about 70 km west of the top of the Satsuma Peninsula, Kyûshû (i.e., the Uji Islands of Kagoshima Prefecture, Kyûshû). This location seems to be his mistake. Stimpson's collecting site mentioned above may be a beach of Okinawa Island.

Short notes of Stimpson's collections (marine invertebrate animals) are also found several times in the Heine's Book. (Kawakatsu)

Key titles: Wilhelm Heine; Peter Bernhard Wilhelm Heine; Narrative of the Expedition of an American Squadron; Reise um die Erde nach Japan; Net Pinus 60.

http://en.wikipedia.org/wiki/Wilhelm_Heine
http://www.yokosuka-lib.jp/licsxp-opac/contents/jinbutsu/WilhelmHeine/heine_top.htm (In Japanese.)
http://opac.u-air.ac.jp/seiyou_nihon/nippon-enseiki.html (In Japanese.)
http://www.yushodo.co.jp/pinus/60/door/index.html (In Japanese.)

Key titles: Matthew C. Perry; A brief summary of the Perry Expedition to Japan 1853; Commodore Perry's Expedition to Japan..

http://en.wikipedia.org/wiki/Matthew_C._Perry
http://www.ibiblio.org/hyperwar/PTO/Dip/Perry
http://www.ibiblio.org/hyperwar/PTO/Dip/Perry/index.html
http://www.grifworld.com/pereyhome.html

Franz Martin Hilgendorf (1839-1904)

December 5, 1839 in Neudamm (Mark Brandenburg, Germany) – October 19, 1880 in Berlin. He was employed as curator in the Museum for Natural Science in Berlin, Dept. Vermes and Crustacea, and later also in the Dept. Pisces in addition. He was a German zoologist and paleontologist and specialized on the fossil gastropod *Planorbis multiformis* found in the Steinheimer crater.

Hilgendorf was a professor of the Tôkyô Medical School (the predecessor of the present Tôkyô University) from March 1873 to October 1876. He collected various samples of fishes, shells, snails, and marine invertebrate animals in the vicinity of Tôkyô. One of his samples was a land planarian sample (loc. "Yeddo", i.e., Tôkyô). This species was described as "*Perocephalus hilgendorfi*" in the Monograph of von Graff (1899). The correct scientific name of this species is *Bipalium hilgendorfi* (von Graff, 1899). See the following article.

Kawakatsu, M. & Kawakatsu, T., 1991. Redescription of *Bipalium hilgendorfi* (von Graff, 1899) (Turbellaria: Tricladida: Terricola), a land planarian from Sapporo, Hokkaidô, Japan. Proc. Jap. Soc. Syst. Zool., (45): 7-23.

After he returned to Germany, Hilgendorf worked at the Museum für Naturkunde in Berlin.

In 1998, the Special Exhibition of Dr. F. M. Hilgendorf opened in four museums of Japan. A Special Catalogue was published for that occasion: Franz Hilgendorf – the Father of Japanese Ichthyology and Fishery Sciences. Pp. 1-72. The Organization Committee for the Hilgendorf Expedition (a representative by Michiko Yajima). That's Corporation, Tokyo. (Mainly in Japanese.) See Pl. XIV (Fig. 39).

Key titles: Franz Hilgendorf; Biografie Franz Hilgendorf.

http://de.wikipedia.org/wiki/Franz_Hilgendorf
http://en.wikipedia.org/wiki/Franz_Martin_Hilgendorf
http://www.sammlungen.hu-berlin.de/dokumente/211/
http://sp.lyellcollection.org/cgi/content/abstract/2871/789 Doi:10.1144/SP287.28
http://nh.kanagawa-museum.jp/event/tokuten/tokuten/hilgen.html (In Japanese.)

Henry Nottidge Moseley (1844-1891)

November 14, 1844 in Wandsworth, England, U.K. – November 10, 1891 in Oxford. He was a British naturalist and zoologist.

Moseley was a member of the Expedition to Ceylon (now Sri Lanka) in 1871. He also participated as a naturalist in the Challenger Expedition of 1872-76. Moseley visited Japan (Yokohama, Tôkyô and Kyôto) from April 11 to June 16, 1875. He met with Hilgendorf in Tôkyô. He also met with Alexander von Siebold in Yokohama.

For the Challenger Expedition and Dr. Moseley (and his holydays in Japan), Nishimura's book (1992) was useful for Kawakatsu. See 'Selected References'.

Key titles: Henry Nottidge Moseley; Challenger Expedition 1872-1876; The voyage of the Challenger.

http://en.wikipedia.org/wiki/Henry_Nottidge_Moseley
http://en.wikipedia.org/wiki/Challenger_expedition

http://hercules.kgs.ku.edu/hexacoral/expedition/challenger_1872-1876/challenger.html
http://life.bio.sunysb.edu/marinebio/challenger.html

A Naturalist on the "Challenger"

Moseley published the following book in 1879: A Naturalist on the "Challenger" Being an Account of Various Observations Made During the Voyage of H.M.S. "Challenger" Round the World, in the Years 1872-1876, Under the Commands of Capt. Sir G. S. Nares, R. N., K. C. B., E. R. S. and Capt. F. T. Thomson, R. N. Pp. i-xvi + 1-540 + 2 Maps. MacMillan and Co., London.

The Revised Edition of this book was published in 1892: Notes by a Naturalist. An Account of Observations Made During the Voyage of H. M. S. "Challenger" Round the World in the Years 1872-1876, Under the Command of Capt. Sir G. S. Nares, R. N., K. C. B., F. R. S., and Capt. F. T. Thomson, R. N. Pp. i-xxiv + 1-540 (+ 5 pages without pagination). John Murray, Albemarle Street, London.

Key title: A Naturalist on the Challenger.

http://lloydlibrary.com/exhibits/woodcuts/moseley.html
http://www.19thcenturyscience.org/HMSC/HMSC-Reports/1892-Moseley/htm/doc.html

Two sections are added in the Revised Edition (1892); i.e., The late Moseley's Portrait, Memoirs of Henry Nottidge Moseley (iv—xvi); "Books, Scientific papers, and Monographs. Published by the late Professor H. N. Moseley" (4 last page without pagination).

Moseley's descriptions of Japan are in Chapter XIX of the Book (1879): Japan. The Sandwich Islands (on pp. 481-565). The following sentences are found on p. 494. They are: "The illustrations in many of the Japanese Zoological Books are very interesting to a naturalist and remarkably complete. Even Land Planarians (*Bipalium*) are figured in some of them." The same sentences cited above are found on p. 428 in the Revised Book (1892).

Land Planarians Found in Materia Medica

Moseley's mention of Japanese zoological books cited above undoubtedly indicate figures (or sketches) of land planarians found in some old Japanese books (or manuscripts) so-called 'Materia Medica'. Those books consist of 'woodcut prints' for sale, or 'handmade notebooks' bound by each author. They used thin but very strong Japanese papers thread-bound at the right side (nearly B-5 size in many cases). Sometimes, water-color sketches of plants and animals are found in binding manuscripts. By the way, Japanese papers are made of the bark of trees, like paper mulberry – *Broussonetia kajinoki* Siebold X *Broussonetia papylifera* (Linnaeus) (Japanese name: Kôzo) and *Edgeworthia chrysantha* Lindleyanus (Japanese name: Mitsumata).

Some of the copies of Materia Medica taken from Kawakatsu's Collection are shown in Pls XV and XVI (Figs 40-48). Those books should read from 'the top to bottom' and 'right to left'. For more information on Materia Medica, see the following

literature.

Kawakatsu, M, 1969. A list of publications on Japanese Turbellarians (1968) --- Including titles of publications on foreign Turbellarians written by the Japanese authors ---. Bull. Fuji Women's College, (7), ser. II: 23-43. Its Part II is: On some old records of Turbellarians found in the Japanese books printed in woodblock. Pp. 30-43 (+ pls. I-VIII).

-----, 1991. History of the study of Turbellaria in Japan. Hydrobiologia, 227: 389-398.

----- & Lue, K.-Y., 1984. History of the study of Turbellaria in China. Part II. Age of the study of Turbellaria in China. Part 2. Age of the studies by Japanese and Chinese turbellariologists. Bull. Fuji Women's College, (22), ser. II: 105-117.

Lue, K.-Y. & Kawakatsu, M., 1986. History of the study of Turbellaria in China. Part 1: Ages of Materia Medica and of early expeditions by westerners. Hydrobiologia, 132: 317-322.

Sasaki, G.-Y., 2001a. Bipaliid land planarians recorded in Chinese and Japanese Materia Medica. http://2u.biglobe.ne.jp/~gen-yu/kougai.html (In Japanese, with Kawakatsu's English Note.)

Sasaki, G.-Y., 2001b. Bipaliid land planarians recorded in Chinese and Japanese Materia Medica. http://www2u..biglobe.ne.jp/~gen-yu/kougai_e.html

Sasaki, G.-Y., 2001c. The basic knowledge of Chinese Materia Medica – For the understanding of natural history in the prescientific age in Japan --. http://www2u.biglobe.ne.jp/~gen-yu/chinahonzo.html

Sasaki, G.-Y. & Kawakatsu, M., 2001. "Yûji" (=Kôgai) found in ancient tomb of the Yin Dynasty, China. http://www2u.biglobe,ne.jp/~gen-yu/yuji.html

Moseley's Main Publications on Planarians

Among his many zoology papers, Moseley published the following papers on planarians. They are as follows:

Moseley, N. M., 1872. Land Planarians – *Bipalium Diana*, *B. Proserpina*, *B. Phoebe*, and *Rhynchodemus Nietneri* -. Nature, VI (May 23, 1872): 65.

-----, 1875. On the anatomy and histology of the land-planarians of Ceylon, with some account of their habits, and a description of two new species, and with notes on the amnatomy of some European aquatic species. Philos. Trans. Royal Soc. (1874), 4: 105-171 + pls. X-XV.

-----, 1877a. On the colouring matters of various animals, and especially of deep-see forms dredged by H.M.S. Challenger. Quart. Jour. Micros. Soc., 17. New Ser.: 1-23 + pls. I-II.

-----, 1877b. On *Stylochus pelagicus*, a new species of pelagic planarian, with notes on other pelagic species, on the larval forms of *Thysanozoon*, and of a *Gymnosomatous* Pteropod. Quart. Jour. Micros. Soc., 17, New Ser.: 23-34 + pl. III.

-----, 1877c. Notes on the structure of several forms of land planarians, with a description of two new genera and several new species, and a list of all species at present known. Quart. Jour. Micros. Soc., 17, New Ser.: 273-292 + Description of Plate XX (without pagination) + pl. XX.

-----, 1877d. Urticatig organs of planarian worms. Nature, Oct. 4, 1877: 475.

-----, 1878. Description of a new species of land planarian from the hothouses of Kew Gardens. Ann. Mag. Nat. Hist., (5), 1: 237-239.

Note. *Bipalium kewense* Moseley, 1878, a now cosmopolitan species, was described in the last paper.

Epilogue

The end of the Tokugawa Shognate was 1867. And the start of the New Government of the Meiji Restriction (or Meiji Ishin in Japanese) was 1868. Then, many Western advisers were hired by the New Japanese Government for their specialized knowledge to assist in the modernization of Japan.

F. M. Hilgendorf (see the foregoing section in this web article) was one of the zoology education advisers. Edward S. Morse (1838-1925: he stayed in Tôkyô from 1877 to 79) and Charles Otis Whitman (1842-1910: he stayed in Tôkyô from 1879 to 81) were zoology professors of the University in Tôkyô founded in 1879 (Imperial University, Tôkyô, after 1886; Tôkyô University after 1949). Isao Ijima (1861-1921), a former student of Morse and Whitman, stayed in Leiptig (1882-85) and obtained his PhD degree under the guidance of Rudolf Leuckart (1822-1898). His thesis is as follows:

Ijima, I., 1884. Untersuchungen über Bau und die Entwicklungs geschichte der Süsswasser-Dendrocoelen (Tricladen). Zeitchr. wiss. Zool., 40: 359-464 + Taf. XX-XXIII.

This was the start of the new zoological study by the Japanese zoologist. Dr. Ijima was a professor of the Zoological Institute, Faculty of Science, Tôkyô Imperial University, until his death. See the following web article.

Kawakatsu, M. & Sasaki, G.-Y., 2004. The foundation of turbellariology in Japan was consolidated by papers published in the 1880-1925 Age of the Zoological Magazine, Annotationes Zoologicae Jasponenses, and the Journal of the College of Science, Imperial University of Tôkyô. (In Japanese.) http://victoriver.com . planarian.net mirror, No. 41.

Key titles: Meiji Restration (Meiji Ishin); Oyatoi Gaikokujin (‘hired foreigners’); Edward S. Morse; Charles Otis Whitman; Rudolf Leuckaert

http://en.wikipedia.org/wiki/Meiji_Restoration
http://ja.wikipedia.org/wiki/%E6%98%8E%E6%B2%BB%E7%B6%AD%E6%96%BO (In Japanese.)
http://en.wikipedia.org/wiki/Oyatoi_gaikokujin
http://ja/wikipedia.org/wiki%E3%81%8A%E9%9B%87%E3%81%84%E5%A4%96%E5%9B%BD%E4%BA%BA
http://en.wikipedia.org/wiki/Edward_S._Morse
http://ja.wikipedia.org/wiki%E3%82%A8%E3%83%89%E3%83%AF%E3%83%BC%E3%83%89%E3%83%BBS%E3%83%BB%E3%83%A2%E3%83%BC%E3%82%B9 (In Japanese.)
http://en.wikipedia.org/wiki/Charles_Otis_Whitman
http://de.wikipedia.org/wiki/Rudolf_Leuckart
http://en.wikipedia.org/wiki/Rudolf_Leuckart

Acknowledgements

The authors are indebted to the Nagasaki City Museum and the Siebold Museum (Nagasaki) for the kind permission to use copies of photographs of the Museum Collection (Pl. X, Figs 23 and 24).

Kawakatsu is indebted to Dr. Hisayuki Fukushima (Shimizu City, Shizuoka Pref.) for his kind gift of his faithful handmade reproduction of Yôan Udagawa’s two books of Materia Medica (1822, 1835) those partly shown in Pls V-VII (Figs 11-18). Thanks are also due to the late Mr. Matsutarô Matsui and Dr. Jin Hasegawa for the copies of several interesting books of Materia Medica. He also wishes to thank Dr. Shirô Nosaka (Ebetsu City, Hokkaidô) for his kind check of scientific names of several plants mentioned in the early draft. Finally, Kawakatsu wishes to thank Dr. Yoshinobu Sugino (Hirakata) for his kind agreement to include a copy of the late Dr. Hisao Sugino’s sketches of ‘Nihon-ôkami’ and ‘Ezo-ôkami’ in the present web article.

Selected References

There are many Japanese articles and books concerning the contents of this web article (especially on von Siebold and the study of Western Sciences in the Edo Era by means of the Dutch language). However, Kawakatsu hopes to give a list of ‘selected references’ from his Collection of Literature. To avoid the complexity, those references are not cited directly in the text of this web article. Titles of Japanese publications translated into English are shown in square brackets.

Kreiner, J. (et al.), 1998. Tasogare no Tokugawa Japan --- Siebold Fushi no Mita Nippon. [Collections of 16 articles written by researchers on von Siebold: A

phase of life in Japan of the last days of the Tokugawa Shôgunate observed by von Siebold and his two sons]. Pp. 1-284. Nippon Hôsô-Kyôkai, Tôkyô. (In Japanese.)

Kume, Y., 1989. Siebold to Narutaki-Juku. [Von Siebold and his Medical School 'Narutaki-Juku' in Dejima, Nagasaki]. Prefatory 4 photographic pages + 1-244 pp. Kikurage-Sha, Tôkyô. (In Japanese.)

Kure, S., 1966. [Siebold Edo-Sampu-Kikô: Translated and noted by S. Kure]. Revised and Reprinted Version. 1-604 pp. Yûshô-dô Shoten, Tôkyô. (In Japanese.)

Nakano, M. (ed.), 1977. ITAN (History of Medicine). Journal of the Kansai Branch of the Japan Society of Medical History, no. 49 (April, 1977). The Celebration of the Eightieth Birthday of Dr. Misao Nakano. 1-225 pp. Ôsaka. (In Japanese.)

Note. This publication contains an article entitled "Taking a new look at the Siebold Incident" (by Fukushima, G.). A list of Dr. Nakano's publications and lectures is also given. Fifteen titles on 'von Siebold studies' and several 'Dutch medical studies' are also found. Those Japanese articles (and some stenographic records) by Dr. Nakano were published in local magazines on medicine, pharmacy and traphic journals of pharmaceutical companies, etc.

As far as I know, Dr. Nakano's articles are not listed in the publication list of literature on von Siebold published in Japan. The late Dr. Misao Nakano (1897-1985) was a member of the Japan Society of Medical History (President: 1949-1952). Additionally, he was my mother's cousin. (Kawakatsu)

Nishimura, S., 1992. Chalenger-gô Tanken –Kindai-Kaiyô-gaku no Makuake--. [The Challenger Expedition 1872-1876]. Chûkô Shinsho, No. 1101. i-x + 1-264 pp. Chû-ô-Kôron-Sha, Tôkyô. (In Japanese.)

Ohba, H., 2001. Hana no Otoko – von Siebold. [Philipp Franz von Siebold – He was the best floriculture and/or an earnest planthunter]. Bunshun Shinsho, No. 215. 1-198 + i-viii pp. Bungei-Shunjû-Sha, Tôkyô. (In Japanese.)

Saitô, M., 1986. [Edo-Sampu-Kikô by von Siebold: Translated and noted by M. Saitô]. The 22nd Print. 1-347 + 1-3 pp. + 1 folder. Tôyô Bunko, No. 87. Heibon-sha Publ. Co., Tôkyô. (In Japanese.)

Note. This is a Japanese new translation of the Chapter II of 'NIPPON'. The book published in 1897 (Verlag der K.U.K. Hofbuchhandlung von Leo Woerl, Würzburg und Leipzig) was used. The first print of Dr. Saitô's translation book was published in 1967. Cf. Kure (1966).

Shimonaka. H. (ed.), 1994. Saishiki Edo Hakubutsu-gaku Shûsei. [Collection of Natural History Figures in Color Painting in the Edo Era]. 1-505 pp. Heiobon-Sha, Tôkyô. (In Japanese.)

Takahashi, T., 2002. Siebold to Udagawa Yôan. ['Rangaku' in Edo: A friendship between von Siebold and Yôan Udagawa]. Heibon-sha Shinsho, No. 129. 1-225

pp. Heibon-Sha, Tôkyô. (In Japanese.)

Tsuchiya, T. & Tamaki, H., 1997. Japanese translation: Narrative of the Expedition of an American Squadron to the China and Japan, etc. (1856). Iwanami-Bunko, Blue 422. Four vols. (1: 1-362 pp; 2: 1-252 pp; 3: 1-244 pp; 4: 1-244 + 1-15 pp.). Iwanami-Shoten, Tôkyô. This is the 9th Ed. (1st Ed. in 1948; Rev. Ed. in 1953).

Uéno, M., 1978. Hakubutsu-gaku-shi Sanpo. [A Collection of Dr. Uéno's Natural History Essays: 1978]. Prefatory color pages 1-18 + 1-276 + 1-9 pp. Yasaka-Shobô, Tôkyô. (In Japanese.)

Uéno, M., 1984. Hakubutsu-gaku-shi Ronshû. [A Collection of Dr. Uéno's Natural History Esaays: 1984]. 1-595 + 1-23 pp. Yasaka Shobô, Tôkyô. (In Japanese.)

Uéno, M., 1987. Wasure-rareta Hakubutsu-gaku. [A Collection of Dr. Uéno's Natural History Essaays: 1987]. 1-277 pp. Yasaka Shobô, Tôkyô. (In Japanese.)

Uéno, M., 1989a. Hakubutsu-gaku no Tanoshimi. [A Collection of Dr. Ueno's Natural History Essays: 1989]. 1-7 + 10 prefatory pages + 1-595 + 1-32 pp. Yasaka Shobô, Tôkyô. (In Japanese.)

Uéno, M., 1989b. Nenpyô: Nihon Hakubutsu-gaku Shi. [A Chronological Table of Natural History in Japan, with Dr. Uéno's Essays: 1989]. i-x + 1-470 b+ 1-68 pp. Yasaka-Shobô, Tôkyô. (In Japanese.)

Uéno, M., 1990. Hakubutsu-gaku no Jidai. [A Collection of Dr. Uéno's Natural History Essays: 1990]. Prefatory page + 1-276 pp. Yasaka-Shobô, Tôkyô. (In Japanese.)

Uéno, M., 1991. Hakubutsu-gakusha Retsuden. [Collection of Dr. Uéno's Natural History Essaays: 1991]. i-vi + 1-412 + i-x pp. Yasaka-Shobô, Tôkyô. (In Japanese.)

Explanations of Plates I-XVI

Plate I (Figs 1-3)

Fig. 1. Explanation of commemorative Japanese postal stamps issued at the occasion of 'The 400th Anniversary of Japan-Dutch Relations'. April 19, 2000. The 'Liefde' and the 'Dejima' in Nagasaki are designed.

Figs 2 and 3. Photographs showing the covers of von Graff's 'Monographie der Turbellarien (Land Planarien)' and 'Atlas von Achtundfunfzig Tafeln', etc. (38 cm X 28 cm is size and ca. 8 kg in weight). These books in the Kawakatsu's library are the former 'Ex Libris' of the late Dr. Tokio Kaburaki (1890-1968), a famous turbellariologist of Japan.

Plate II (Figs 4-6)

Figs 4-6. Siebold Memorial Museum (Fig. 6) and the garden (Figs 4 and 5) in Nagasaki City. There is a hydrangea park now where von Siebold's residence once stood (Fig. 4); his bronze stature is there (Fig. 5). The Museum was built on the location of the 'Narutaki Juku' was there.

Plate III (Figs 7 and 8)

Fig. 7. A reduced copy of the title page of von Siebold's book, 'NIPPON, ARCHIV ZUR BESCHREIBUNG von JAPAN, etc.', 1832 (the first volume). After Saitô (1986).

Fig. 8. An explanatory sketch map of Japan for 'The Court Journey to Edo (1826)'. See Pl. IV (Figs 9 and 10).

Plate IV (Figs 9 and 10)

Fig. 9. A sketch map showing the round-trip route of 'The Court Journey from Nagasaki to Edo' in 1826. The direction of small arrows indicates an outward journey (from Nagasaki to Edo) and a return way (from Edo to Nagasaki). A broken line indicates a sea route. After Saitô (1986, a folder; revised sharply by Kawakatsu).

Fig. 10. A part of a map showing the old administrative division of Japan. For their numbers and the present administrive division of Japan, see Kawakatsu & Sasaki (2004, pp. 5-6, figs 1 and 2).

Plate V (Figs 11-13)

Fig. 11. A reduced copy of the cover of 'Botanika-kyô' (1822) reproduced by Fukshima (1989). Size: 175 mm X 240 mm.

Fig. 12. Reduced copy of the text pages of 'Botanika-kyô': the first page (right) and the last page (left). Printed size: 161 mm X 190 mm. 'Botanika-kyô' consists of 10 pages in total.

Fig. 13. A reduced copy of the cover of 'Shokugaku-keigen' (1834) reproduced by Fukushima (1991). Size: 173 mm X 248 mm.

Plate VI (Figs 14-17)

Fig. 14. A reduced copy of 'Shokugaku-keigen' reproduced by Fukushima (1991). Title page. Printed size: 135 mm X 183 mm.

Fig. 15. Ditto. The first page.

Fig. 16. Ditto. Fig. 18 showing the 24 classes of plants according to Linnaeus (1753). See the following URLs.

http://en.wikipedia.org/wiki/Species_Plantarum
http://wikipedia.org/wiki/Carl_Linnaeus

Fig. 17. Ditto. Title page for figures.

Plate VII (Fig 18)

Fig. 18. A copy of Fig. 3 of the 'Shokugaki-keigen' reproduced by Fukushima (1991). Printed size: 135 mm X 183 mm.

Plate VIII (Figs 19 and 20)

Fig. 19. Reduced copy of an article: [Ecology 2: Rear Japanese plants and animals]. The Asahi (August 20, 2010). Top-left: Photo of a living animal of Japanese river otter (see the text).

Fig. 20. Reduced copy of an article: [A stuffed Honshû wolf (a former collection of the Wakayama Univer4sity). Probably a female specimen. This specimen is now preserved in the Wakayama Prefectural Museum. The Asahi (October 1, 2007).

Plate IX (Figs 21 and 22)

Fig. 21. A water-color painting of the Honshû wolf by Sugino (1975). Its basic figure is a copy of Braun's (1881) figure and painted in the light of his color photograph of a dried skin now preserved in the Natural History Museum, London.

Fig. 22. A water color painting of an Ezo- wolf by Sugino (1975) based upon one of the stuffed specimens of the Hokkaidô University Museum, Sapporo.

Note. Figures of wolfs printed in two previous articles by Sugino (1975) and Sugino, Kawakatsu, Lue, Katayama & Corrêa (1986) are black-and-white ones reproduced from color paintings. The original color paintings are kept by Kawakatsu (a gift article of the late Dr. Sugino: 1906-1992). He was a well-known specialist of the study of planarian morphogenesis.

Plates X (Figs 23-26)

Figs 23 and 24. The special incense, or a small container, sent von Siebold from Mrs Taki Kusumoto in 1830 (see the text). Fig. 23 (a cap with a picture of Mrs. Taki); Fig. 24 (a vessel with a picture of Miss Ine Kusumoto). The Siebold Museum collection (Nagasaki City).

Fig. 25. A portrait of Philipp Franz von Siebold (39 years old). The original is a pastel sketch kept in the Weimarer Classicism Foundation, Germany.

Fig. 26. [A lock of the hair of the late Dr. von Sievold will be keeping in the Siebold Museum (Nagasaki)]. The Asahi (February 24, 1996).

Plate XI (Fig. 27)

Fig. 27. An old tree of 'Inu-maki' (*Podocarpus macrophyllus*) planted in the garden of Kawakatsu's country residence, Kameoka City, Kyôto Prefecture. The distance round the trunk, 2.27 m; the height of the tree, ca. 12 m. After Kameoka City (1996); the age of the tree, ca 250 years old (or more).

Plate XII (Figs. 28-33)

Fig. 28. Commemorative postal stamps issued at the occasion of 'The 200th birthday of Philippe Franz von Siebold, 1996'. Top: Four Japanese stamps; bottom: Two German stamps. The plant used for a background of the stamp in 'Nobudô' (Japanese name), i.e., *Anpelopsis brevipedunculata* (Maximowicz).

Figs 29-32. Cover pages of 4 Japanese books on Philippe Franz von Siebold. Fig. 29: Kreiner, J. et al. (1998); Fig. 30: Kume et al. (1989); Fig. 31: Ohba, H. (2001); Fig. 32: Takahashi, T. (2002). See 'Selected References' at the end of of the text.

Fig. 33. A Japanese list of Dr. M. Uéno's Natural History Essays (1978-1991) published by the Yasaka-Shobô, Tôkyô. See 'Selecdted References'.

Plate XIII (Figs 34-38)

Fig. 34. Reduced copy of the title page of Heine's book (1858-1859).

Figs 35 and 36. Reduced copies of sketches printed in the Commodore Perry's official report: Narrative of the Expedition of An American Squadron to the China and Japan, etc. (1856). Fig. 35: A basalt tunnel, 'Port Lloyd, Bonin Islands' (i.e., Chichi-jima Island in the Ogasawara Islands of Japan). Chapter X, p. 201, in the original report. Fig. 36. 'South East Bay, Peal Island' (i.e., Minami-shima Bay in the Chichi-jima Islanmd). Chapter X, p. 208, in the original report.

Figs 37 and 38. Reduced copies of the title page(s) of Moseley's book(s), 'Notes by A Naturalist, etc.' Fig. 37: The first edition (1879); Fig. 38: The second edition (1892).

Plate XIV (Fig. 39)

Fig. 39. Reproduction of the cover page of a 'Special Catalogue' published for the occasion of the Special Exhibition of Dr. Franz M. Hilgendorf held in Japan (1998). Posters of the same design were also used. See the text.

Plate XV (Figs 40-43)

Fig. 40 and 41. Materia Medica. Reduced copies of the 'Zôho-Kashiragaki Kinmô-zui-Taisei', vol. 7 (1789). The author is unknown. Reproduced from the orginal wood-block book collected by the late Mr. M. Matsui (Kyôto). Fig. 40. The cover page. Size: ca. 170 mm X 240 mm. Fig. 41. A single page showing sketches of a spider that weaved a net, silkworm, beetle, springtail, and a bipaliid

planarian.

Fig. 42 and 43. Materia Medica. Reduced copies of 2 pages of the 'Senchû-fu (ca. 1811) by Tanshû Kurimoto (= Masayoshi Krimoto: 1756-1834). Sketches of freshwater leech(s) and bipaliid land ploanarians are shown. Reproduced from the original book of the Dr. J. Hasegawa's Collection (Tôkyô). The location of original sketch figures on each page is retouched by Kawakatsu.

Additionally, T. Kurimoto met with von Siebold in Edo in 1826. He presented his sketches of Japanese crustaceans to von Siebold.

Plate XVI (Figs 44-48)

Fig. 44. Materia Medica. 'Keimô-Chûfu-Zusetsu' (a middle of the 1800s') by Toshiyasu Maeda (1800-1859: the 10th Lord of the Toyama Domain). Reproduced sketches (a spider of an Atypidae sp., tick, water leeches, and a bipaliid land planarian) are shown. Reproduced from the original book of the Dr. J. Hasegawa's Collection (Tôkyô). The location of orginal sketch figures is retouched by Kawakatsu.

Figs 45 and 46. Materia Medica. Reproduced copies of the 'Chûchi-Zufu', vol. 4. This manuscript was written in some early years in the 19th Century; the writter is unknown. Reproduced from the original manuscript collected by the late Mr. M. Matsui (Kyôto). Fig. 45. The cover page. Fig. 46. Sketches of 3 specimens of bipaliid land planarians. According to short explanations added the sketches, the right one is a worm collected in Mito (now Mito City in Ibaraki Prefecture; ca 80km NE of Tôkyô); the left one is a pale reddish worm in coloration).

Figs 47 and 48. Materia Medica. Reproduced copies of the 'Chûfu', vol. 5 (Aquatic and Exotic worms). The manuscript (ca. 1880) seems to be a transcribed from one of the unknown old manuscripts. The name of the transcriber is not known. Reproduced from the original copy of the Dr. J. Hasegawa's Collection (Tôkyô). Fig. 47. The cover page. Fig. 48. Sketches of 2 specimens of bipaliid land planarians. Chinese and Japanese characters shown on the top-right corner mean 'Doko' (an old Japanese name of a land planarian); 'Kaugai-biru' (i.e., Kôgai-biru); 'Kaminari-biru'. 'Kôgai-biru' means a leech with a hummer-shaped head (i.e., bipaliid land planarians). 'Kaminari-biru' means a thunder-leach. This may be named for bipaliid land planarians because they frequently found after a sudden shower in Central and Southern Japan.

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