

Mohnike and Vaccination: Deshima-doctor in the Wake of Von Siebold

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The expulsion of Philip Franz von Siebold in 1828 put an end to the long tradition of medical care by European doctors at Deshima. The Regulations on Japanese Trade issued by the Dutch Government in 1826 had still ordered the presence of an army surgeon for the medical care of the European inhabitants of the island.¹⁾ It would take nineteen years before a successor of von Siebold was appointed. That does not mean that there was no medical care at all. During the three or four months' trade-period the surgeon of the merchant vessel was available and after his departure the so-called Japanese doctor of Deshima could be called in.

Joseph Henrij Levijssohn, chief of Deshima from 1845-1850, expressed many times his strong wish to the Dutch East Indies Government to appoint a physician for the medical care of the Dutch at Deshima. The urgency of the wish was also dictated by Levijssohn's own condition. He wrote, in March 1847, in the register:

Since months suffering from fevers, I had a severe fever this night again and I feel that my health becomes day by day more delicate. I feel now very much the lack of proper medical care.²⁾

Levijssohn proposed, in 1847, to withdraw the position of warehouse servant and use that salary as additional payment to an army surgeon to be appointed.³⁾ With the decree dated March 28th, 1848, the army surgeon 2nd class Otto Gottlieb Johann Mohnike was

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appointed for Deshima. His task was twofold:

1. As army surgeon he was responsible for the medical care of the Dutch civil servants at Deshima and the Japanese, who asked his help,
2. As official for natural sciences he was in charge of the researches and collection of materials in the field of natural sciences.

That was not much different from Siebold's instruction. However, Mohnike's instruction included the strict recommendation to refrain from any actions which could give offence to the Japanese authorities: "however important acquiring more knowledge may be, it remains at all times inferior to good relations with the Japanese authorities."⁴⁾ The Dutch authorities had not forgotten the Siebold-incident (1828), when the famous doctor was expelled from Japan after the authorities discovered that he possessed illegal goods. The Dutch authorities still feared a too broad interpretation of the task to acquire information concerning Japan.

Early career

Mohnike was born in Stralsund (in Prussian Pommeren) on June 27, 1814. Nineteen years later he matriculated at the Royal Prussian Rhine University in Bonn. It is not clear what determined his choice, but it was a good one. The University of Bonn was rather recently founded, *viz.* in October 1818 by the King of Prussia, after the model of the university of Berlin.⁵⁾ Following that Humboldt-inspired example the young university combined higher education with research. The latter was supported by the large natural history collections and the two learned societies, the eminent *Leopoldinische Academie der Naturforscher* and the *Niederrheinische Gesellschaft für Natur- und Heilkunde*. But even more important was the fact that eminent scholars were appointed as professor. The famous botanist C.G. Nees von Esenbeck developed a natural science course, a course fundamental to the study of medicine. J.C.F. Harless, a man with a

broad education and close friend of Hufeland and father and son Siebold, designed the medical curriculum and clinical institutes for the new university. His antipathy to speculation and metaphysics left a clear mark upon the medical faculty. That is evident in the appointment of the renowned clinician C.F. Nasse for practical medicine in 1819. He was the first German clinician who practised physical diagnostics and who used the microscope in clinical courses. His chief merit was that he cultivated the 'physiological school' in early nineteenth century German medicine, together with his Bonner colleagues of surgery, Ph.F. von Walther, and physiology, J. Müller. Von Walther was responsible for bringing the course of surgery not only to a higher level but also in accordance with the progress in basic medical sciences. He left Bonn in 1830, when he was appointed in München. Unfortunately, Mohnike missed also the teachings of Müller, the founding father of German physiology, who just in 1833 changed the chair in Bonn for that in Berlin. Anyhow, Mohnike received an excellent medical education, characteristic for German medicine in these days, i.e. the application of natural sciences in medicine, first of all in physiology and pharmacology, but also in physical diagnostics and public health. Mohnike finished his students' career after defending a thesis about "the nature and causes of sexual instinct" (*De instinctu sexuali eiusque natura atque causi*) in 1837.

Like many other German physicians, Mohnike joined the medical corps of the Dutch East Indian Army. He was appointed army surgeon 3rd class in March 1844. Three months later he embarked the ship "Admiraal Jan Evertsen" and in November of the same year he arrived in Batavia. Almost one year later arrived the new chief of the army medical corps in the East Indies, Dr Willem Bosch, a person who probably was crucial to Mohnike's early career. Bosch left such a strong mark upon medicine and health-care of the East Indies, that the period 1845-1854 (when he was chief) is known as the "Bosch-period." His approach to the problems of indigenous

health care was strongly influenced by experiences gained during the severe fever epidemic of 1846 and 1847 in Central Java. The nature of the disease was not clear, but most physicians considered it to be an abdominal typhus. It caused a great number of victims among the indigenous population. Mortality was high, in one district it reached even 90%. Bosch thought it was impossible that the disease alone could cause such a high mortality. From his own observations and the reports of his officers he concluded that poor food, clothing and housing conditions of the Javanese were responsible for the extremely high mortality. For that reason Bosch proposed to the Government to improve the living conditions of the indigenous population. Mohnike, then residing at Temanggung, was one of the eight army surgeons, whose report supported Bosch' idea about the role of poverty and the poor nutrition.⁶⁾ In 1849, Mohnike was decorated knight in the Order of the 'Nederlandsche Leeuw' for his extraordinary efforts during the epidemics in Java.

Bosch maintained the requirements for promotion to a higher rank, issued by his predecessor Peitsch in 1827. Fundamental to that system was that competence prevailed over seniority. Scientific knowledge and attainment were considered primarily decisive for promotion. Therefore promotion to a higher rank could only occur after successfully passing an examination. Seniority was only taken in consideration when candidates ended at the same level. Already three years after his arrival Mohnike passed the examination for army surgeon 2nd class.⁷⁾ Mohnike probably passed the examination with distinction since he was ranked, by decree of 6th August, 1846, before colleagues who passed the examination one year earlier.

Mohnike was transferred—as army surgeon 2nd class—to Muara Kompeh, the most northern garrison-town at the east coast of Sumatra. In the words of Mohnike: “one of the very worst among the many bad and from all pleasure of life deprived, so-called outposts at the east coast of Sumatra.”⁸⁾ Since there was no regular mail boat between Batavia and Singapore, Mohnike had to use accidentally in

that direction sailing Dutch warships. So he sailed with his Javanese servant Jello, who accompanied him later to Japan, on the war-steamer *Batavia* to Muntok, capital of the island Banka. He stayed there a month before he could sail to Palembang. The residency Palembang had a bad reputation. Transportation from the capital to the hinterland was only over water. Commercially the residency was rather unimportant, therefore the number of civil servants and merchants was low. More important was the military, since the area was riotous. There were military posts deep in the inland with an infirmary at Lahat, Tebing Tinggi, Muara Rupit and Muara Kompeh.⁹⁾ The latter was Mohnike's destination. This isolated post was not a challenge. As far as official documents show, its infirmary was classified fourth class with an average of four patients a day (Table 1).¹⁰⁾

The post at Muara Kompeh gave Mohnike a possibility to concentrate on other interests. His remarks on Sumatra, published in 1874 under the title *Banka und Palembang*, demonstrate his deep interest in natural history, e.g. in the description of the flora of East Sumatra or the geological conditions of Banka. Fortunately the stay at Muara Kompeh was not long. Early 1848 he received orders to return to Batavia. March 5th, 1848 he left Sumatra for Batavia, where he arrived almost two weeks later. March 28th, he was officially posted to Japan. The transfer to the next post brought a great change. Although *Deshima*, in terms of scientific contacts with colleagues, was an out-post, it lacked the busy medical practice of other posts and thus gave Mohnike again plenty of time for study

Table 1. Military hospitals Sumatra-Palembang residency (1867)

	class	location	pat./day
garrison hospital	1st	Padang	155
garrison hospital	2nd	Palembang	67
garrison hospital	3rd	Tebing Tinggi	30
infirmary	1st	Lahat	18
infirmary	4th	Muara Kompeh	4

and research on natural history.

Doctor at Deshima

However, Mohnike's primary task was the medical care of the small Dutch staff : the chief and his three assistants, their Indonesian servants, and during the trade period the warehouse master and civil servants, who spent their sick-leave at Deshima (Table 2). As far as the medical care was concerned, the Deshima register referred now and then to the chief's indispositions, making it impossible for him to receive Japanese visitors, or to visit the American corvette Preble (March 1849). The entry on 21st February, 1849 is a good example:

Suffering for some time of pain in the back and the loins, I was physically and chemically examined by Doctor Mohnike in my apartment today. That physician declared that I had a kidney-disease and he recommended me strict rest and to avoid all emotions. He applied sixty leeches on both sides above the hips and prescribed me drugs.

Mohnike suggested the chief physical exercises for health-reasons and frequently the Deshima register mentioned walks of Levijssohn in the surroundings of Nagasaki, to Urakami or Inassa, accompanied by Mohnike and the assistants Lange, Basslé and Lucas. These walks were also useful in the treatment of P.J. Lange, the assistant first class.

In March 1849, health problems manifested with Lange, who

Table 2. Dutchmen at Deshima during Mohnike's stay

position	1848-1849	1849-1850	1850-1851
chief	Levyssohn	Levyssohn	Rose
warehouse master	Swerver	Swerver	Lange
assistant 1st class	Lange	Lange	Basslé
assistant 2nd class	Basslé	Basslé	Lucas
assistant 3rd class	Lucas	Lucas	Kalfsterman
sick-leave	de Veen	de Chauvigny de Blot	van Harpen

served already seven years at Deshima. The disease was described as “a severe neurosis, accompanied with insomnia, congestion of blood to the head, trembling of the extremities and heavy palpitations.”¹¹⁾ In those days the term ‘neurosis’ was used to describe all unnatural activities of sensibility, motion and thinking. A familiar handbook like C.W. Hufeland’s *Enchiridion Medcum* advised in such cases *nervina* (drugs with specific action on het nervous system), exercises and baths. Baths would restore the “organic equilibrium in the activity of the nerves”, i.e. the balance between irritability and sensitivity. Most potent and general tonic was a daily watering of the head with cold water.¹²⁾ After three months treatment there was no improvement in Lange’s condition and, in order to prevent a nerve stroke, Mohnike suggested continual and daily sea-baths in the bay of Nagasaki. After a serious attack at the end of June, Mohnike suggested that Lange should be “exposed to the wash of the waves.” Levijssohn asked permission of the governor of Nagasaki for daily sea-baths outside the water-gate of Deshima. Permission was given at first for a period of three weeks, but the cure continued at least until early October and continued during the presence of the trading-vessel.¹³⁾

The trading period ushered also for the physician a period of greater activity. The number of Europeans under his supervision increased. The captain, who arrived with the vessel Joan in August 1851, noted nine Europeans among whom an artillery major on sick-leave, at Deshima. Mohnike took care of the major. Their first acquaintance was not so pleasant; Mohnike did not realize that the new guest was a higher ranked officer. Their relation improved soon when Mohnike—unlike colleagues in Batavia—did not object to an ample use of port-wine by this patient.¹⁴⁾

According to his instruction, Mohnike was obliged to treat Japanese patients free of charge, including the drugs from his official stock. Little is officially known about Mohnike’s Japanese patients. The Deshima register gives only one example: in June 1849, he went

to Urakami to treat the wife of the village-headman.¹⁵⁾ Levijssohn thought that Japanese distrusted the European doctor. He had discovered that, during the court-journey, even the chief-interpreter Keimon consulted a Japanese doctor, when he fell ill, and not Mohnike.¹⁶⁾ This is however in contrast with Mohnike's reports. In 1849 he treated 25 Europeans, 5 Javanese and 66 Japanese; in 1851 he treated in total 274 patients.¹⁷⁾ The latter is more in agreement with the observation of the captain visiting Deshima in 1851, that almost every day men of standing visited the doctor, either to ask questions or to consult him about their diseases.¹⁸⁾ A great number of these patients suffered, as Mohnike wrote in his review on Japanese medicine, from inveterate, badly healed eye complaints. Next to this, he noted four contagious diseases as endemic: leprosy, smallpox, syphilis and scabies. Leprosy occurred, as Mohnike observed along the Tōkaidō, particularly among the needy class, the beggars. He saw a few cases "who lost almost all human shape", but he considered the disease as less generally occurring than in Java and Sumatra. The other contagious diseases were common among all classes. Scabies occurred especially during the spring. Mohnike attributed it to the daily hot baths and the use of sharp, salted food eaten during the winter-season.¹⁹⁾

In the context of Japanese patients, Mohnike came into contact with medicine in Japan, an area which interested him. When the former Governor of Nagasaki wanted to keep Mohnike's copy of Kämpfer's book on Japan, he suggested the Governor to compensate him for the book (which was a present from friends) with Japanese medical and botanical works. He made a serious study of the subject, published as "Notes on Japanese Medicine" after his return from Deshima.²⁰⁾ That study gave a nice review of the concepts of medicine and the levels of the different medical branches in mid-eighteenth century Japan. About obstetrics he was informed by Mizuhara Sansetsu, who had send his illustrated *Saniku zensho*. With the help of local doctors and interpreters Mohnike was able to

understand the traditional concepts, which were, for instance, described in *So-to-kei-ken-senshō*.²¹⁾ Mohnike's review included an comprehensive survey of the *materia medica*, in an attempt to analyse similarities between European and East-Asian drugs. In that respect the study resembled Kō Ryōsai's *Yakubin ōshuroku*, the booklet based on Siebold's lessons and showing which European herbal remedies could be found in Japan.

Official of natural sciences

Mohnike was like his predecessor Von Siebold in charge of natural scientific investigations in Japan. That activity was supervised by the Dutch East Indian Committee of Natural Sciences (*Natuurkundige Commissie voor Nederlandsch-Indië*). The Committee supported, from 1820-1859, the scientific exploration of the Archipelago, in particular in the fields of botany, zoology, geology, mineralogy, palaeontology and ethnology. Mohnike received an extra allowance for this purpose. Mohnike did also the daily meteorological observations, which were in yearly reports communicated to the Batavia Society of Arts and Sciences and to the Royal Netherlands Institute of Sciences in Amsterdam. The latter institution was very interested in the "the Japanese tables, because they probably are the first regular meteorological observations which reach us from this mysterious Country as well as because the geographical position of Deshima is important for meteorology."²²⁾ For an accurate analysis of the observations the Institute asked specifications of the measuring-methods. At the same time the Institute did suggestions to improve and extend the observations, including e.g. observations of the tides. Mohnike's data were among the first of a series of instrumental meteorological observations, which continued till the departure of Pompe van Meerdervoort in 1862, and which were done prior to the establishment of the official Japanese observatories since 1872.²³⁾

That Mohnike had a keen interest in natural history is evident. In

a letter to Von Siebold, in which he asked to be informed about lacunae in the Leiden collections, Mohnike wrote that he had set himself more than other students to the study of natural history.²⁴⁾ In Mohnike's later publications one finds references to researches on natural history in Japan. The book on the Malayan flora and fauna, *Blicke auf das Pflanzen- und Thierleben in den Niederländischen Malaienländern* (1883), is a good example. Now and then he compared observations in Dutch East India with those at Deshima. Writing for instance about Crustacea, he remembered "... all other Crustaceae, even the largest, surpassing the giant size of *Macrocheira Kämpferi de Haan*, of which I frequently measured individuals Concerning Nagasaki Bay I learned to experience and admire its portion to that wealth [of Japan's marine fauna] and the almost unbelievable quantity of Crustaceae."²⁵⁾ Moreover, the National Museum of Natural History "Naturalis" in Leiden, still keeps many specimens collected by Mohnike.

The court journey was a good opportunity to observe the natural history in other parts of Japan and to collect specimens. To the latter purpose he requested extra *Arak*, the colourless, alcoholic beverage from Java, for the conservation of specimens. Mohnike saw a great number of extremely large seals, but even the promise of money could not persuade local inhabitants to catch such an animal. Superstition forbade them, wrote Levijssohn, to catch or kill these seals.²⁶⁾

Mohnike noted that the interest of Japanese scholars in the fauna was in great contrast with that of the flora. He highly praised their knowledge of botany. He frequently received packages of plants to check the names given by Japanese botanists:

... in most cases the *genus* was correct according to the Linnean system, only in the determination of species I found insignificant and excusable mistakes. The Japanese botanists had not seldom taken indigenous plants identical with analogues to species described by Linnaeus. However, such mistakes can be found in

the Flora of each country and even in the famous and to certain extant classical *Flora Japonica* by Thunberg.²⁷⁾

Mohnike's own botanical activities were related to those of the botanical garden at Buitenzorg, near Batavia. That garden was the oldest research institution of Java, founded in 1817. Specimens from various parts of the archipelago were brought here together. It was also an important intermediary for collections to be transported to institutes in the Netherlands. Its conservator, J.E. Teijsman, was eager to enrich the garden with plants from Japan and he asked Mohnike to collect plants and ship them to Batavia.²⁸⁾ That turned out to be problematic. The shipment from Deshima contained many incorrect or wrongly named specimens. The same problem occurred in 1851 with the plants and seeds for Von Siebold.²⁹⁾ Such mistakes were no surprise to Mohnike. The Japanese suppliers delivered the plants, for the greater part from North Japan, three or four days before departure of the ship to Batavia. They had neither flowers nor buds, thus making verification impossible. Moreover, names on the list from Batavia were Japanese scientific names from the works of Kaempfer, Thunberg and Siebold, which sometimes differed considerably from popular names. Mohnike suggested that the local botanist 'Motowski' should be involved in the purchase of herbs, bulbous plants and seeds, and that other botanical material should be kept one year in the botanical garden of Deshima before shipment to Batavia.³⁰⁾ Whatever problems Mohnike experienced, a great number of species were sent to the National Herbarium in Leiden, where they are still kept.³¹⁾

Small pox and vaccination

Until the mid twentieth century, smallpox was an important cause of death everywhere in the world. Tokugawa Japan was no exception: smallpox was responsible for 10-12% of all deaths. The main impact was on child mortality. For children under ten it accounted for 26% of all death. Among smallpox death 95% occurred before

the age of 10.³²⁾ The disease was extremely important since it repeatedly decimated the very young part of the population and was therefore a threat to the family survival. Many patients died already in the first few days, particularly if the smallpox occurred in the haemorrhagic form. Depending on the virulence of the pathogenic agent and the resistance of the victim, between 10 and 30% of the patients died.

The inoculation with human lymph, the so-called variolation, was known in Japan since the 17th century through Chinese sources,³³⁾ but was not generally used. Without preventive measures smallpox was an inevitable disease in premodern Japan. It affected every member of society at some moment in life. "Japanese generally believe, wrote Mohnike, that everyone once must be attacked by smallpox and remained free for the rest of their life.³⁴⁾ Jenner's vaccination differs from variolation in the sense that material from cowpox was used, instead of human pox. It produced lifelong protection against smallpox and was safer than variolation. On the European continent, Jenner's innovation superseded variolation within one decade, strongly supported as it was by various governments. The Netherlands East Indies government was also convinced of the necessity of vaccination. The first attempt to obtain vaccine from the French colony Ile de France (now Mauritius) in 1803, failed. A second attempt, one year later, was more successful. Ten or twelve children on board on a fast sailing vessel preserved the vaccine alive by vaccinating it from child to child during the voyage. In June 1804, the lymph reached Batavia. In September of the same year, already 450 vaccinations were reported to be effective.³⁵⁾ Local dissemination of the vaccine was from arm to arm. The vaccinated persons were told to return on the seventh day so that the lymph of the clear vesicles could be transferred to the arms of the next group to be vaccinated.

The first attempt to bring vaccine to Batavia demonstrate the main problem in further dissemination of the technique to other

parts of the Dutch East Indies and to Japan. The prolonged voyage under the prevailing climatological conditions was detrimental to the protective power of the vaccine. Pox viruses can only survive under conditions of low humidity and temperature. Tropical heat certainly was an unfavourable condition. Usually the vaccine was kept between glass plates or as dried matter on lancets. On the 4-6 weeks' trip to Japan in August, the vaccine certainly lost its viability.

Early nineteenth century it was supposed that "contagious properties of the air" caused the loss of viability. To keep the vaccine alive so-called 'thermometrical tubes' were introduced. These were capillary tubes ending in a small globe; after insertion of the lymph they were sealed hermetically.³⁶⁾ It is reasonable to assume that Siebold brought such capillaries from Batavia in 1823. The lymph he used turned out to be ineffective. The next despatch of vaccine in 1824 was also unsuccessful.³⁷⁾

In the 1840s one considered desiccation as an important detrimental factor. From then on the lymph was dispatched suspended in glycerol solutions. The tenability certainly improved, but even then the effectiveness of the vaccine was not always hundred percent. Much depended on the number of passages, i.e. how many persons were successively, arm to arm vaccinated from one strain. Usually so-called humane lymph was used, i.e. cowpox transferred from one human being to another. After a certain number of passages the lymph showed signs of weakening and new lymph had to be introduced derived from natural cowpox. For that reason the aforementioned chief of the army medical corps Dr W. Bosch wrote to his superior in the Netherlands, in 1846, to sent vaccine regularly to Batavia. Fortunately he received two capillary tubes from Vienna with lymph "direct from the cow". Inoculations with this vaccine were remarkably successful.³⁸⁾ Under W. Bosch vaccination of the native population at Java was an important issue. Together with his Inspector of vaccinations, the army surgeon A.E. Waszkiewicz, he

developed a systematic and efficient system of vaccination and revaccination, usually referred to as the “radial system of Waszklewicz.”

Mohnike could certainly profit from the impetus given by W. Bosch to the fight against smallpox in the Netherlands East Indies. Particularly so, since smallpox ravaged through Japan in 1846. Itō Genboku, former student of von Siebold and founder of the famous Rangaku-school Shōsendō, informed his lord Nabeshima Kansō, daimyō of Saga, about the superiority of vaccination. The feudal lord ordered, in 1847, his physician Narabayashi Sōken to urge the chief of Deshima the import of vaccine. The former patron of von Siebold, Narabayashi, in Dutch sources called ‘So-king’ was the official ‘Japanese doctor of Deshima’ and stood as such on the pay-roll of the Dutch.

Vaccination by Mohnike

At his arrival in August 1848, Mohnike brought the ‘new vaccine from Vienna.’³⁹⁾ Unfortunately the vaccine did not take at all, or the pocks developed so badly that the lymph could not be used for further vaccination. That was all the worse, since smallpox struck a greater part of Honshū, mainly Echizen and neighbouring *han*, in the winter of 1848/49 and threatened other parts of the country.⁴⁰⁾

The next dispatch, arriving in August 1849, yielded the desired result. Bosch sent it in two different forms: as dry scabs and as lymph in air-tight capillary tubes. On August 14th Levijssohn wrote in the Deshima register: “Today doctor Mohnike inoculated three Japanese children with vaccine recently received from Batavia” The next day the chief reported that the vaccination was successful.⁴¹⁾ According to the *Javasche Courant* of January 5th, 1850, the scabs collected by Bosch from a well-developed vaccine-pock of one of his children were able to produce a nice pock on one of the vaccinated Japanese children. The other vaccines turned out to be inactive.⁴²⁾ Mohnike tried to establish a regular vaccination service.

To that purpose he requested privately by the junior rapporteur (*nemban*) 'Sadagero' [Gotō Sadajūrō?] a suitable place for weekly vaccinations. The Governor of Nagasaki granted the request and allotted the house of the 'Tolken-Collegie' at Nagasaki as vaccination hall. August 28th, already the third generation of the vaccine was given to thirteen children. To work more efficiently, Mohnike wanted that he was no longer subject to the inspection at the gate of Deshima when he made his weekly visit to the vaccination hall.⁴³⁾

An important aspect in the propagation of vaccination was the instruction of vaccinators. That point was already immediately realized; the entry of the register on August 14th continued:

According to a communication by the junior rapporteur, the Governor of Nagasaki gave permission to a young Japanese doctor, to be instructed by Mohnike and consequently to visit Deshima daily.⁴⁴⁾

The young doctor was Yoshiō Keisai. Mohnike proposed him and Narabayashi Sōken as the persons to be charged with the vaccination when Mohnike was absent during the court-journey.⁴⁵⁾ In order to propagate the vaccination wider, Mohnike suggested that the Governor of Nagasaki would invite, from the other *han* of Kyūshū, a doctor and a few children who had not yet suffered from small pox. In this way Mohnike could instruct the Japanese doctors in the different aspects of vaccination, and at the same time safely transfer the vaccine via arm to arm inoculation to other areas.⁴⁶⁾ November 11th, Mohnike expressed his thanks to Levijssohn for the strong support in establishing the vaccination institution. The method was already so deeply rooted in Kyūshū that he expected that it would not be lost again:

At Nagasaki the vaccine-pocks are already in the 13th generation with the 19 children vaccinated by me, while the total number of the weekly vaccinated children from August 14 till now is 176. Moreover, Japanese physicians vaccinate children in the vicinity of Nagasaki following my instruction. Cowpox are

already transferred via the arms of here vaccinated children to the provinces Fizen [Hizen] and Simabara [Shimabara], where the feudal lords took measures to spread it among the population.⁴⁷⁾

The government at Batavia was very satisfied with the success of Mohnike's intervention and the strong support of Levijssohn. It expressed its acknowledgement in a letter dated January 1850.⁴⁸⁾ Mohnike wrote an extensive report of his activities concerning the vaccination.⁴⁹⁾ He reported that the vaccine had already been transferred to Osaka, Kyoto and Edo at the end of December 1849. During the court-journey he could convince himself of the results. The number of vaccinated children was 870 in Osaka and 2460 in Kyoto. The latter was due to the activities of two doctors, Hino Teisai and Shingō Ryōtei:

One of them, named *Seking*, experimented already with the inoculation of vaccine-exantheme on cows. The fact that these experiments successful, has contributed much to his belief as well as of others in the purity and good qualities of the lymph dispatched by the chief of the army medical corps [Dr W. Bosch].

In Edo, Itō Gemboku had informed Mohnike that over 500 children were vaccinated daily; Itō and Ōtsuki Shunsai alone vaccinated already about 200 children weekly. Mohnike mentioned in his report an attempt to send vaccine to Korea, but he had no further information about this subject.

Mohnike with his interest in public health was surprised that the *bakufu* did not issue general measures to promote vaccination. He noted that it only "encourages and favours the further propagation secretly." Official measures were left to the fiefs, with permission of the *bakufu*. Thus the feudal lords of Nagato, Echizen, Mito, Kaga, Sendai, Satsuma, Hizen, Chikuzen, Ōmura, Shimabara, Higo, etc. issued strict orders to vaccinate all children. To that end they appointed physicians who vaccinated free of charge at set times.^{50,51)}

Levijssohn thought that the lack of open, official support was caused by the fear for a substantial increase in the population or even over-population, since the stability of Japan's population-figure was mainly attributed to infant mortality resulting from smallpox.⁵²⁾ Yet Mohnike held the view that it was based on the *bakufu*'s principle to exclude new and foreign ideas and customs.⁵³⁾ Indeed, the Shogun's advisor Abe Masahiro accomplished the proclamation, in 1849, to prohibit the use of western medicine by shogunate physicians. Anyhow, a number of able Japanese vaccinators was trained and continued their practice. Levijssohn was convinced that, during his stay in Deshima, he witnessed for Japan important events such as the demonstrations of foreign naval power and ... the introduction of vaccination!⁵⁴⁾ Among feudal lords, Mohnike remained not unnoticed. The daimyō of Satsuma and Chikuzen asked and received permission to have their physicians—in Dutch sources 'Maeda Sinske' and Kawano Juliu'—instructed by Mohnike at Deshima.

After Deshima

In September 1849 Mohnike had expressed in a letter to Levijssohn the idea that he "probably will remain for some years at Deshima."⁵⁵⁾ And when he was ordered, in 1851, to Batavia for the examination for a higher rank, he had informed Levijssohn's successor F.C. Rose, that he intended to return to Japan after the examination. An incompatibility of temper made Rose's advice negative in spite of the need of a doctor at Deshima.⁵⁶⁾ Rose had a high esteem of Mohnike as physician and scientist, but considered the doctor's personality not suited for life at Deshima:

The monotonous life at this place, lack of occupations and diversions brings the mind frequently in an unpleasant mood; the manifold contacts in this confined space increase the occasions to dispute and quarrels; the shortcomings of Mr. Mohnike produce—under these circumstances—effects which he—under different circumstances—would have known to evade.⁵⁷⁾

It is interesting to note that a contemporary visitor of Deshima described the psychological tensions between the five European inhabitants of the island—the chief, three assistants and the doctor—living nine months in isolation. Mr. Van Assendelft de Coningh, captain of the trading-vessel Joan arrived in the bay of Nagasaki in August 1851. On a superficial view, he wrote, one would think that the Dutch would make their care-free life to a heaven on earth, confined on their small, but charming island in a beautiful bay surrounded by evergreen mountains, where—through its isolation from the world—the worldly troubles could not penetrate.⁵⁸⁾

That was evidently the case with the three assistants who were used to lead their lives close together more or less separate from the others. They disliked the encroachment on their quiet and peaceful daily routine by the arrival of the vessel from Batavia. Van Assendelft described them as “a kind of inhabitants of the moon who kept their own world.” They could continue such a way of living, since the chief had

probably soon after his arrival perceived that he was little understood and had decided that it was better to be silent and to keep himself to himself, than to meddle with all sorts of local bickerings and ideas on which the him surrounding miniature world lived.⁵⁹⁾

The position of chief of Deshima was usually given to “a high official from Java, who was granted some years of rest combined with a high salary.”⁶⁰⁾ Van Assendelft described chief Rose as oldish, shy of contact and not very communicative, cool and stiff, a man leading a modest and dignified live. Mohnike was on the other hand pictured as an energetic, corpulent and rosy thirty-years-old man, cheerful and talkative, “a devout admirer of the new [i.e. liberal] ideas, which brought him in an excited mood.”⁶¹⁾ One can imagine that Rose looked out for a calmer company.

Whatever role Rose’s advice had played, the East Indian Army

Medical Corps had a serious shortage of personnel and that may have turned the scales much stronger. Anyhow, Mohnike left Japan definitive on November 10th, 1851 on the ship Joan.⁶²⁾

In Batavia, Mohnike was active in the local scientific societies; demonstrating his collections and communicating about his scientific researches in Japan. In that period he wrote the aforementioned "Notes on Japanese Medicine." But his military career took him soon to other places: first to Sambas (Borneo) and Amboin. In 1855 he was appointed army surgeon first class, again with distinction. Six years later, in 1861, he returned to Java and was in charge of the inspection of the hospitals. The same year Mohnike took the Dutch nationality. After that he was successively promoted to the ranks of directing army surgeon 2nd class (1862) and 1st class (1868). Mohnike was honourably dismissed in October 1869 after a prosperous military career. He returned to Germany where he settled in Bonn. After his retirement Mohnike concentrated on his rich scientific knowledge picked up in the Dutch East Indies and Japan. He had a prolific scientific life, compiled the natural history materials he collected during a twenty-five years' stay in Asia and published about six books before he died on January 25th, 1887. Thus came an end to the life of a physician—as far as Japan is concerned in any respect, except one—in the wake of Von Siebold. The cautiousness of the Dutch and the Japanese made that Mohnike never could take the same position as the eminent predecessor. Nevertheless his name is not forgotten, not as natural historian of the Dutch East Indies, and in particular not as the person who introduced effective vaccination campaign against smallpox for the first time in Japan.

References

- 1) Regulations on Japanese Trade (Resolution 25 May 1826 no. 1). Art. 1: The Japanese trade shall be supervised by a Chief ("Opperhoofd"), who shall be assisted by a warehouse-keeper, a book-keeper and five clerks An army

surgeon will be at their service.

- 2) Algemeen Rijks Archief Den Haag (ARA) 1.04.21 Nederlandse Factorij Japan (NFJ), inv. nr. 1617, Dagregister 1847; 27 maart.
- 3) ARA 1.04.21 NFJ, inv. nr. 1648: uitgaande stukken 1847 nr 29 d.d 31 October.
- 4) ARA 1.04.21 NFJ, inv. nr. 1632: ingekomen stukken 1849 nr. 9.
- 5) H.F. Kilian: *Die Universitäten Deutschlands in medicinisch-naturwissenschaftlicher Hinsicht* (Heidelberg & Leipzig, 1828), 169-189.
- 6) D. Schoute: *De geneeskunde in Nederlandsch-Indië gedurende de negentiende eeuw* (Batavia, 1935) 248-249.
- 7) *Ibid* p. 114-115: The examination took place in the military hospital Weltevreden in Batavia. It started with a written examination about physiology, therapy and forensic medicine, followed by the preparation of some anatomical specimens, the execution of a post-mortem and a few surgical operations on a corpse. If all this was passed successfully, the candidate attended six patients in the hospital under the supervision of a higher ranked army surgeon for a period of two weeks. Finally the candidate had to undergo an oral examination in anatomy, physiology, pathology, materia medica, pharmacy, toxicology, legal medicine and medical policy.
- 8) O.G.J. Mohnike: *Banka und Palembang* p. 1.
- 9) D. Schoute: *De geneeskunde in Nederlandsch-Indië* (Batavia, 1935) 215-216.
- 10) *Ibid* p. 280.
- 11) ARA 1.04.21 NFJ, inv. nr. 1649: uitgaande stukken 1849 nr 20 d.d. 2 March.
- 12) C.W. Hufeland: *Enchiridion Medicum* (Amsterdam, 1841) p. 236-243.
- 13) ARA 1.04.21 NFJ, inv. nr.1632: inkomende stukken 1849 nr 48, and inv. nr. 1649: uitgaande stukken 1849 nr 20, 23 and 28.
- 14) C.T. van Assendelft de Coningh: *Ontmoetingen ter Zee en te Land*, deel 2 (Haarlem, 1879) p. 25-27.
- 15) ARA 1.04.21 NFJ, inv. nr. 1618: dagregister 1849 d.d. 3 June.
- 16) ARA 1.04.21 NFJ, inv. nr 1625: dagregister van de hofreis 1850 d.d. 22 March.
- 17) *Koloniaal Verslag* 1849 p. 90 and 1851 p. 55.
- 18) C.T. van Assendelft de Conigh: *Mijn verblijf in Japan* (Amsterdam, 1856) p. 150.
- 19) O. Mohnike: "Aantekeningen over de geneeskunde der Japanezen," *Tijdschrift voor Geneeskunde in Nederlandsch-Indië* 1, 1852: 221-236.
- 20) *Tijdschrift voor Geneeskunde in Nederlandsch-Indië* 1, 1852: 198-300 and 325-361.
- 21) In a footnote, Mohnike added the following information about this book: it was first published in China in 1693. It was imported to Nagasaki in 1732. A

second edition appeared in Kyoto in 1788.

- 22) ARA 1.04.21 NFJ, inv. nr 1632 nr 10: W. Vrolijk, secretary of the Royal Netherlands Institute, to the Minister of Colonies (18.10.1948); as appendix to a letter of the governor-general to the chief of Deshima (19.04.1849).
- 23) G.P. Können, M. Zaiki, T. Mikami, P.D. Jones and T. Tsukahara: "Pre-1872 extension of the Japanese instrumental meteorological observation series back to 1819," to be published.
- 24) Collection Von Brandenstein-Zeppelin: letter to Ph.F. von Siebold (Deshima 21 October 1848).
- 25) O. Mohnike: *Blicke auf das Pflanzen- und Thierleben in den Niederländischen Malaienländern* (München, 1883) p. 542.
- 26) ARA 1.04.21 NFJ, inv. nr. 1625: dagregister van de hofreis 1850 d.d. 9 March. According to Levijssohn the seals were called 'Aschka' in Japanese.
- 27) O. Mohnike: "Aantekeningen....," *Tijdschr. Geneesk. Nederlandsch-Indië* 1, 1852: 250-251.
- 28) ARA 1.04.21 NFJ, inv. nr. 1649: uitgaande stukken 1849 nr. 24, d.d. 18 August.
- 29) ARA 1.04.21 NFJ, inv. nr. 1651 II: uitgaande stukken 1851 nr. 52.
- 30) ARA 1.04.21 NFJ, inv. nr. 1633: ingekomen stukken 1850 nr. 50, d.d. 28 August.
- 31) F.A.G. Miquel: *Catalogus Musei Botanici Lugduno-Batavi. I: Flora Japonica* ('s-Gravenhage, 1870).
- 32) A Bowman Jannetta: *Epidemics and mortality in early modern Japan* (Princeton, 1987).
- 33) Variolation was introduced between 1652 and 1654 by a fugitive Chinese Sai Monko. He instructed his pupil Ikeda Masanao whose descendent Ikeda Zōisen published *Tōka benyō* (1821) [Survey of variolation] and the appendix *Zōkou Tōka benyō* (1827).
- 34) O. Mohnike, "Aantekeningen....," *Tijdschr. Geneesk. Nederlandsch-Indië* 1, 1852: 225.
- 35) D. Schoute: *De geneeskunde in Nederlandsch-Indië* (Batavia, 1935) p. 20-26.
- 36) *Ibid.* p. 83-84.
- 37) H. Beukers: "The fight against smallpox in Japan; the value of western medicine proved" in: H. Beukers, A.M. Luyendijk-Elshout, M.E. van Opstall and F. Vos (Eds) *Red-Hair Medicine, Dutch-Japanese medical relations* (Amsterdam, 1991) 59-77.
- 38) *Ibid.* p. 261.
- 39) J.H. Levijssohn: *Bladen over Japan* ('s-Gravenhage, 1852) p. 58-60.
- 40) O. Mohnike: "Aantekeningen," *Tijdschr. Geneesk. Nederlandsch-Indië* 1,

1852: 225

- 41) ARA 1.04.21 NFJ, inv. nr. 1618: dagregister 1849.
- 42) Cf note 33.
- 43) ARA 1.04.21 NFJ, inv. nr. 1632: ingekomen stukken 1849 nr. 34, d.d. 30 August.
- 44) Cf note 35.
- 45) ARA 1.04.21 NFJ, inv. nr. 1633: ingekomen stukken 1850 nr. 4, d.d. 19 January and nr. 12, d.d. 28 January.
- 46) ARA 1.04.21 NFJ, inv. nr. 1632: ingekomen stukken 1849 nr. 36, d.d. 31 August.
- 47) ARA 1.04.21 NFJ, inv. nr. 1632: ingekomen stukken 1849 nr. 41, d.d. 11 November.
- 48) ARA 1.04.21 NFJ, inv. nr. 1633: ingekomen stukken 1850 nr. 5, d.d. 21 January.
- 49) *Koloniaal Verslag 1850*, p. 43-44.
- 50) O. Mohnike: "Aantekeningen", *Tijdschr. Geneesk. Nederlandsch-Indië* 1, 1852: 228
- 51) ARA 1.04.21 NFJ, inv. nr. 1633: ingekomen stukken 1850 nr 62, d.d. 26 September and nr. 71, d.d. 25 October.
- 52) J.H. Levijssohn: *Bladen*, p. 60.
- 53) O. Mohnike: "Aantekeningen", *Tijdschr. Geneesk. Nederlandsch-Indië* 1, 1852: 229.
- 54) J.H. Levijssohn: *Bladen*, preface.
- 55) ARA 1.04.21 NFJ, inv. nr. 1632: ingekomen stukken 1849 nr. 38, d.d. 3 September.
- 56) ARA 1.04.21 NFJ, inv. nr. 1651 II: uitgaande stukken 1851 nr. 45, d.d. 31 October.
- 57) ARA 1.04.21 NFJ, inv. nr. 1697: geheime stukken 1851 nr. 13, d.d. 31 October.
- 58) C.T. van Assendelft de Coningh, *Ontmoetingen*, deel 2 (Haarlem, 1879) p. 6.
- 59) *Ibid.* p. 32.
- 60) *Ibid.* p. 6.
- 61) *Ibid.* p. 25-30.
- 62) C.T. van Assendelft de Coningh, *Mijn verblijf* ... (Amsterdam, 1856) p. 175.