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Dr. Jan Karel van den Broek as Teacher of Photography¹

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Introduction

On 1 August 1853 dr. Jan Karel van den Broek stepped on land at Dejima in the harbour of Nagasaki. To his great surprise he found there many people with interest in physics and chemistry and engaged in the construction of instruments. With the aid of imported magazines and books and translations into Japanese they wrestled with problems which were hard to solve for them. Van den Broek proved to be the right man in the right place at the right moment.

Who was this Jan Karel van den Broek? Jan Karel van den Broek was born at Herwijnen in the Netherlands on 4 April 1814. Van den Broek's father, a Minister in the Dutch Reformed Church, had much interest in science and he had passed on this interest to his son. At an early age, Jan Karel van den Broek was able to make platinum wire when he needed it for his experiments. Van den Broek's parents died in 1826. Where the boy went is not clear, but in 1829 Van den Broek followed lessons in several medical disciplines at the Medical School of Rotterdam which at that time had just been established. At that time the study of medicine also meant studying physics, chemistry, pharmacy, botany and mineralogy. This school had, for that time, a very modern laboratory where the young Van den Broek experimented with physics and chemistry.² Besides this, he had teachers who would become famous in their own professions. His teacher of botany was W.H. de Vriese who would later become professor of botany at Leiden University. The man who has influenced Van den Broek most was dr. G.L. Mulder, who became a famous professor of chemistry at Utrecht University. One of Mulder's philosophies, which was followed by Van den Broek, was the elevation of the population through education, a philosophy that Van den Broek would follow his whole life.³

After finishing Medical School, Van den Broek visited hospitals in Paris, France, where he started his collection of sketches of sick eyes. In these sketches he showed already his extraordinary ability in sketching and drawing. He started to work as a Municipal Physician in the city of Arnhem in 1837. He became close friends with the chemist Christiaan Theodorus Marius, and on 16 July 1840 the two



Fig.1 Portrait of Dr. J.K. Van den Broek, engraving by A. Groebel. Signature of Van den Broek and dedication to his friend B. Miedema, dated Arnhem, 14 May 1852. (Rijksmuseum, Amsterdam, Obj.nr. RP-P-1903-A-23790)

men married two sisters from Vlaardingen.

In Arnhem Van den Broek became a member of the Physical Society *Tot nut en Vergenoegen* (For benefit and pleasure). He was an active member, giving lectures and demonstrations. He built a large electrical machine and was a member of the board of editors of the *Natuurkundig Schoolboek* (A schoolbook of physics) and the magazine *Natuurkunde* (Physics), published by the society. He did not neglect his medical research. During many years he

tried to find out how sound was passed from the ear to the brain. This research resulted in articles on the interior of the human ear and the design of a better otoscope which he published in a magazine. In all these fields Van den Broek combined his extraordinary abilities in drawing, research and skill with tools.⁴

In his personal life he was less fortunate. His wife and youngest daughter died in 1844 and this may have led to Van den Broek's decision to leave Arnhem. He applied for a post in The Dutch Indies in January 1852, for which he was accepted at once. Before leaving The Netherlands, Van den Broek received a honourable doctorate from the University of Groningen for his research on the human ear. (Fig.1) He published a book entitled *Ontleedkundige en Physiologische beschrijving van het werktuig des gehoors* (Anatomical and physiological description of the ear), which he illustrated with lithographs of his drawings. Unnecessary to say: Van den Broek made the lithographs himself. In the introduction of the book he declared to have used more than three hundred human heads. Some of his preparations are still kept in the Anatomical Museum of the University of Groningen.

After arriving in the Dutch Indies, Van den Broek was sent to Cheribon, a problem-area with bad public health and rebellion of the local population. After a short time Van den Broek clashed with the local Dutch governor. In his characteristic outspoken way, Van den Broek seems to have criticised the Dutch government and the governor for his treatment of the population. Officially, Van den Broek was not supported by the government in Batavia, but the local governor was recalled to the capital and Van den Broek was asked to apply for the post of physician at Dejima, a post which had become available by the departure of the physician O.G.J. Mohnicke.

Dr. Van den Broek in Japan

After his arrival on Dejima, Van den Broek met Jan Hendrik Donker Curtius, the Director of the island, and the other Dutch civil servants working there. (Fig.2) Soon he was busy treating sick Japanese and making meteorological observations which had been continued since the time of Von Siebold. Donker Curtius wrote in his official report about Van den Broek:

‘Dr. Van den Broek is daily treating numerous patients and besides this, his work consists mainly in giving lessons to many Japanese in medical science, surgery, obstetrics and pharmacy, but also in physics, chemistry and mechanics and in all these disciplines of science he is the general reference of the Japanese who leave him little rest.’⁵

Donker Curtius added that Van den Broek did all this without pay and asked the government in Batavia for a better payment of the physician. Van den Broek wrote

letters to his friends in The Netherlands and in one of them he gives his opinion on the Japanese and shows how much he liked being in Japan:

‘The Japanese population pleases me very much: they are intelligent and joyful; they want to know much and besiege me the whole morning in my home; sometimes I receive more than twenty Japanese visitors among whom are usually some physicians. You cannot imagine the strange questions they pose to me at such times; sometimes I must act as a chemist, then as a physicist and after that as a gunner. You understand that I know a lot of the last. They wanted to hear from me how to calculate the trajectory of a grenade shot from a gun. I told them that I am not a gunner, but that I could order a book treating this subject, and they were satisfied with that.’⁶

Van den Broek constructed a clock telegraph and he



Fig.2 Photographic portrait of Jan Hendrik Donker Curtius. (R. Severin, Carte de visite, 1862) (Royal Collection, The Hague, The Netherlands)

possessed an electric rotation machine, bought in Batavia. Several times Japanese visitors had asked Van den Broek to sell this machine to them and every day people came to see the machine work. One Japanese physician had received a drawing of such a machine from doctor Mohnicke and he was very glad to see the machine in reality. An electric battery, Van den Broek had received from friend Schäfer when he departed for the Indies, was used in all kind of experiments. An other of Van den Broek's activities, watched with much interest by the Japanese, was the making of soap. Van den Broek had brought soap from Batavia but that soap was not suitable to wash his clothes. By using Japanese oil and the ash from the stoves on Dejima from which he made potash, he made enough soap for a year. After this he tried to make soda from sea-plants in order to obtain hard soap.

About his lessons to the Japanese he wrote:

'Yesterday I acted as a manufacturer and I explained to the physician from Hizen how to make niter, and how it is refined. A few days ago I gave a lecture on coal, coke, iron foundry and all connected with that.'⁷

Donker Curtius was proud of Van den Broek's talents and he liked to show of his scientific activities to his Japanese visitors of rank. On 12 and 13 February 1854 the Nagasaki *Bugyō* and his successor visited dr. Van den Broek who demonstrated his finished telegraph. During an other visit he showed a wooden model of a steam engine, showing the working of the pistons, made by Japanese under his supervision.

In the end of 1854, to be exact on 17 December, Van den Broek started work on a Japanese-Dutch and Dutch-Japanese dictionary. He did not know then that he would work the rest of his life on this great project, without finishing it.

In 1855 the *Soembing*, commanded by G.C.C. Pels Rijcken, returned to Nagasaki, this time as a present to the *Shōgun* accompanied by the Dutch war steamer *Gedeh*, commanded by G.Fabius. A detachment of the Dutch Navy stayed in Nagasaki to teach the Japanese officers and men who were appointed to sail the ship. Besides the ship, a painted portrait of the Dutch King was brought as a personal present from one ruler to the other. The portrait was handed over by the Count of Lynden as representative of the King. Count Johan Maurits van Lynden became a friend of Van den Broek and from him we have a description of the house of the physician:

'The physician is the most busy man in the island. He is occupied by almost everything, mechanics, chemistry, botany and natural history, astronomy and

geology. His house is one large working place where a perfect disorder reigns. Only the eye of the master is able to find its way through the masses of books, instruments and bottles of all sorts. With his telescope, which is magnificent, we saw the moons of Jupiter and the ring of Saturn, and through his microscope I could assure myself that the Japanese leeches can bite as well as ours. The rest I leave to your imagination.'⁸

Fabius detested the Count and this attitude had its consequences for Van den Broek too. But not only dr. Van den Broek suffered the bad humours of Fabius and Donker Curtius. In the course of time all the civil servants at Dejima were sent back to Batavia, Donker Curtius' secretary Basslé excepted.⁹

In 1855 Van den Broek noted an increase in Japanese students. In his annual report he wrote that physicians from Satsuma, Omura and Chikuzen were often attending his lessons and explanations. The number of physicians visiting him on a regular basis had grown to eight while the number of other visitors grew to 72, not counting the interpreters who often came to pose questions ordered or asked by persons who had no access to Dejima. The groups of visitors were often large as Van den Broek explained:

'For example, two physicians of the same Lord are not allowed to visit me at the same time or they have to be accompanied by a guard, a metsuke a warden and an interpreter. For one physician only an interpreter and a warden are enough. If a group of visitors comes in the name of a Lord the number of persons involved grows with the rank of the visitors. Sometimes they will bring, disguised as slipper bearers, mechanics, blacksmiths or persons who are trained in other disciplines, people who sit first in the corridor, then they are asked something by the physician and sit behind him, and then through the interpreter pose their questions to me.'¹⁰

For many visitors one day at Dejima was not enough. Van den Broek reported that most groups stayed eight days in Nagasaki, but there were groups from Satsuma staying for three weeks and from Mito staying even thirty days. Four visitors sent to Van den Broek by the *Bakufu* asked questions on iron foundry. He had wooden models of a furnace and a reveratory furnace made for them and explained the working by showing them drawings he made himself. It may well be true that many of the furnaces built in Japan at that time benefited from Van den Broek's teaching. Reveratory furnaces were built at Kagoshima in Satsuma, and Nirayama in Shizuoka. In Saga a reveratory

furnace had already been built in 1850.

For his teaching, Van den Broek depended heavily on the library at Dejima. Unfortunately this became one of the sources of difficulties with Donker Curtius. Van den Broek complained that no catalogue existed and a lot of trouble arose when Donker Curtius wanted to have the book of Huguenin on iron foundry, which Van den Broek needed for his explanations. It is not clear for what Donker Curtius needed such a book. It seems that Donker Curtius was jealous of the popularity of Van den Broek with the Japanese and that he was just causing trouble in a childish way.

Van den Broek and Photography

As a result of the interest in Japan in western technology and science, and spurred on by the increasing number of visitors to dr. Van den Broek, Donker Curtius planned to make Dejima into a shop window, showing all the western world had to offer in the shape of books, instruments and the like. In his official letter to the Dutch government of 17 August 1854 Secret, Letter C, he remarked that Von Siebold had taken the wrong course in making Japan known to the world outside. He wanted to make the world outside known to the Japanese. In a long list of more than 60 western instruments, models and tools to be brought to Japan we find in the second place a Daguerreotype-camera with its accessories. His reasons were not altruistic alone: he wrote to the Dutch government:

Now the moment has come, that in order to prevent reproaches from foreigners, we should do something more. To make the western superiority visible to the people of Japan, I think it would be useful to provide the trading post with a collection of instruments and models, suitable to attract the attention of the authorities to the various disciplines, in which we have made such a great advance in the present century.¹¹

Besides this he had the idea to obtain Japanese orders and to stimulate the Japanese desire to be the equal of the other nations. In his way of thinking The Netherlands would become more indispensable to Japan, which would help in the conclusion of a treaty with Japan on which he had been working for two years with little success. The Government in The Hague agreed to his plan and during the following years instruments, models, tools and books started to arrive on Dejima, among which the mentioned Daguerreotype-camera and its accessories.

In June 1856 Van den Broek received a visit of some high placed Japanese officials. He reported on this visit in his letter of 1 July 1856 to Donker Curtius:

‘At the occasion of a visit to my home by His Excellency the Governor of Nagasaki, the Ometsuke and his Excellency the Minister of the Navy of Japan, Mr Nagai, we talked of photography and I was asked if I had photographed myself. I showed some samples of photography made by myself and a few very beautiful photographs of Constantinopel, given to me by the count of Limburg Stirum. I remarked that I could not continue before I had silver and that this had to come from Holland as the comprador were not allowed to deliver silver. The Governor said that he would have silver delivered to me.

Recently the Chief Interpreter Tobei, the interpreter Sjoso and Doctor Kesai have been here to ask in the name of the Governor to teach Mr Keisai the photographic science, for which the Governor will provide silver.

I promised to do so, not thinking of your letter of 22 December 1855 No. 259, in which you have explained that in the release of instruments and models from the collection here no rules are followed and further that I should inform you if one of these instruments or models should be kept for purpose of teaching.

As I do not want to start something which cannot be finished I have the honour to ask Your Honour

1. that the photographic instrument which is partly in my home is not released within the first five months, but will be kept for my use
2. that the apparatus for daguerreotyping belonging to this instrument will be given to me too.
3. that I will be told how many of the silver plates I can use for teaching the Japanese.

I should like to receive an answer as soon as possible in order not to start a useless work.

The description delivered with the instruments is below all criticism, I have to write a new treatise suited to the Japanese, as it will be impossible to teach them. If the instrument contrary to my expectation cannot be put at my disposal for the wished term, I shall have to wait for the instrument I have ordered from Paris for my own use (as no such instruments are made in Holland yet). I cannot squander my time in teaching science which has no practical use, as I can use my time better in teaching other things.¹²

We learn a number of important things from this letter. In the first place that dr. Van den Broek had been taking photographs on Dejima already before being asked by the Japanese. In the second place that he had succeeded doing this as he showed photographs to the Japanese visitors. The photographs of Constantinopel had been given to him by the Count of Limburg Stirum who was an officer

of the Soembing. The Soembing had come directly from Constantinople to Japan by way of Batavia. The brother of this officer was a member of the Physical Society in Arnhem and a friend of dr. Van den Broek. It is clear from the letter that Van den Broek was going to teach daguerreotyping as he asked for silver plates and speaks of a daguerreotype camera. The camera he had ordered from Paris never reached Dejima as the ship in which it was sent was shipwrecked.

The question about lessons in photography did not appear out of the blue. There were Japanese who had seen dr. Van den Broek experimenting with photography like Matsuki Kōan, a physician from Satsuma. When W.J.C. Huijssen van Kattendijke visited Kagoshima with the *Kanrin Maru* in 1858 he met with Matsuki Kōan who declared to have learned to photograph from Van den Broek. He even asked if it were possible to use photography to register barometers. Van den Broek commented on this book in an article in the *Tijdspiegel* in 1861 in which he wrote:

‘During my stay at Dejima I had to make meteorological observations. As I could not always make these observations because of the continuous visits and teaching, I had tried to apply the photography to the barometer. My students had seen this many times and they were convinced that I would succeed, but my departure from Dejima has prevented further tests.’¹³

Even though Van den Broek did not succeed to take the photographs of the barometer, his tests were probably among the very first applications of photography to other sciences.

Donker Curtius agreed to the request of dr. Van den Broek. In his answer dated 1 July 1856, he stated that the daguerreotype-camera and an other camera had been received on Dejima a half year earlier. They had been requested by the *Daimyō* of Chikuzen, who had seen them in Donker Curtius’ collection of instruments. The cameras had not been delivered to the *Daimyō* as without the necessary training in the technique of photography they would be useless to the Japanese. The cameras would be kept on Dejima longer for the period asked by dr. Van den Broek and he could use as many silver plates, of which there were 36 in six different sizes, as he wanted but he was asked to save a few in case the cameras were going to be delivered to Chikuzen after all. Van den Broek was asked to order new plates and chemicals from Batavia to replace those he used up.¹⁴

The second camera was obviously for the use of an other technique, the wet collodion photography as appears

from the order of ‘Photographic collodion’ in Van den Broek’s order of chemicals to Batavia on 1 December 1856. This order asked for paper, blotting paper, glass plates without bubbles, pure nitric acid, nitrate of silver, bromium, the already mentioned collodion, and the most important French publications on photography. It seems that Van den Broek first started to teach the theory and techniques of photography. On 29 July it was time to start practising and the doctor asked for the construction of a small dark room in his house in the garden on Dejima. Van den Broek wrote Donker Curtius:

The undersigned has the honour to ask Your Honour politely to have a small darkroom constructed in the corridor from the dispensary of my house, two ells (one el is 91.44 cm) square, to be able to prepare the photographic chemicals necessary for the lessons in photography given to the gentlemen Soju, physician of the Lord of Chikuzen and doctor Keisai at the request of the Governor of Nagasaki.

This small room should be ready before Friday as these gentlemen will come on that day to continue on Sunday.

Dr. Yoshio is allowed only with three civil servants and a metsuke in my house and this makes it necessary to arrange everything carefully, especially in the dark, as these gentlemen have to be present everywhere.¹⁵

Results of Van den Broek’s teaching in the shape of photographs he took, have not been found yet. There are no reports on the progress of Soju and Keisai. Van den Broek has not written about Matsuki Kōan or other students of photography, but it is quite probable that many interested Japanese have asked Van den Broek also to teach photography to them. From Van den Broek’s reports it is known that he distributed his own-written manuals, often translated into Japanese, freely among his students. In this way his manual on the photographic camera may have reached more people, also outside the small circle of Japanese allowed entry to Dejima to see the Dutch physician.

Unfortunately relations between Donker Curtius and the other Dutch on Dejima became really bad in the course of 1856, culminating in the departure of nearly all of them. Dr. Van den Broek was recalled to Batavia in 1857, to be replaced by J.L.C. Pompe van Meerdervoort. Because of the bad relationship between Van den Broek and Donker Curtius, dr. Van den Broek has not given his annual report for 1857 to Donker Curtius. He planned to give his report personally to the Governor General when he would have returned in Batavia. It is possible that the report has disappeared in the colonial archives but it has not yet been

found.

The date for the first appearance of a photographic camera in Japan is still unclear though in Japan the 160 year jubilee of the first camera in Japan will be celebrated in 2008. With the documents in the Dutch archives it is not possible to confirm that a camera was imported into Japan in the year 1848. The documents of that year are nearly all missing. Might it not have been so, that Ueno Shunnojō, who made a sketch of a camera in 1843, constructed a camera which he later sold to Shimazu Nariakira? Seen from the Dutch side, the first cameras exported to Japan were the cameras in the collection of instruments on Dejima, used by dr. Van den Broek. The very first camera in Japan would then be Van den Broek's own camera which he brought with him in 1853.

The camera's imported on Dejima are listed in the list of imports. It mentions a mahogany box containing a daguerreotype-camera with its accessories at a price of f 475,-, and an other box containing an instrument for photography and the necessary accessories like chemicals, silvered copperplates, etc., valued at f 70,-. The list of accessories shows a mercury box with a broken thermometer, trays for iodine, a double achromatic lens, and a camera body. Both cameras stayed on Dejima till they were bought in 1861 by Hikiya Sakubei at the sum of 180 Mexican dollars.

At the time of his death in 1865, Van den Broek was in the possession of a camera which is described in the list of his effects as:

'No.82 An apparatus for photography, with all its accessories, made and used by the late dr. J.K. van den Broek.'¹⁶

Unfortunately we do not know where this camera went and if it was the camera dr. Van den Broek had with him on Dejima.

After dr. Van den Broek's departure from Dejima on 5 November 1857, his successor, Pompe van Meerdervoort tried to continue the lessons in photography but it took him two years to produce a reasonable result as reported in a letter to Donker Curtius on 20 December 1859¹⁷ in which asked to order chemicals necessary for photography. He wrote also about his plan to produce an album of 'photographic portraits and views of Japan'. This plan was never realised and during the following years the Dutch teachers of photography were quickly surpassed by their Japanese pupils.

Notes

1 This article is based on my book: *Een miskend geneesheer, Dr. J.K. van den Broek en de overdracht van kennis van westerse technologie in Japan 1853-*

1857 (A misunderstood physician, Dr. J.K. van den Broek and the transfer of western technology in Japan 1853-1857), Amsterdam, De Bataafsche Leeuw, 2003. ISBN 90 6707 567 2.

- 2 P.H. Kramer, 'De Clinische School te Rotterdam omstreeks 1840' (The Medical School in Rotterdam c. 1840) in: *Geneeskundige Gids*, 1931, pp. 101-122.
- 3 About Mulder and the Clinical School see: M.J. van Lieburg Jr., 'Gerrit Jan Mulder' in: J. van Herwaarden, *Lof der historie* (In praise of history), Rotterdam 1973.
- 4 J.P.C. van Tricht, *dr. J.K. van den Broek herdacht in het Natuurkundig Genootschap Tot Nut en Vergenoegen te Arnhem den 1en Augustus 1865* (In Memoriam dr. J.K. van den Broek in the Physical Society Tot Nut en Vergenoegen in Arnhem, 1 August 1865) (Arnhem 1865). Municipal Archive, Arnhem, Collection Wessel Knoops, Inv. nr. 93.
- 5 Letter of J.H. Donker Curtius to the Director of Products and Civil Storehouses at Batavia, 31 October 1853. (National Archive, Nederlandsche Factorij in Japan, nr. 1653).
- 6 From a published letter by Dr. Van den Broek in *Tijdschrift voor Nederlandsch Indië* (Magazine for the Dutch Indies) Vol. 22, Part I, pp. 155-163.
- 7 *Ibid.*
- 8 Count J.M. van Lijnden, *Beschrijving van zijn reis naar Japan in 1855* (Description of his voyage to Japan in 1855). Archive Van Lijnden in Castle 'Keukenhof', Inv. nr. 98.
- 9 On Fabius see: H. Stapelkamp, *Gerhardus Fabius (1806-1888)* (Amsterdam, De Bataafsche Leeuw 1999).
- 10 Dr. J.K. van den Broek, *Report on his activities in 1855*. (National Archive, Colonies Nr. 585).
- 11 Letter of J.H. Donker Curtius to the Governor General of the Dutch Indies in Batavia, 17 August 1854, Secret, La. C. (National Archive, Nederlandsche Factorij in Japan Nr. 1700)
- 12 Dr. J.K. van den Broek to J.H. Donker Curtius, 1 July 1856. (National Archive, Nederlandsche Factorij in Japan Nr. 1656).
- 13 Dr. J.K. van den Broek, 'Kantteekeningen bij den officieusen tekst' in: *De Tijdspiegel*, 1861. This is Van den Broek's review of W.J.C. Huijssen van Kattendijke, *Uittreksel uit het dagboek van W.J.C. ridder Huijssen van Kattendijke, Kapitein Luitenant ter zee, gedurende zijn verblijf in Japan in 1857, 1858, 1859* (The Hague, 1860).
- 14 J.H. Donker Curtius to dr. J.K. van den Broek, No. 23, 1 July 1856. (National Archive, Nederlandsche Factorij in Japan nr. 1656).
- 15 Dr. J.K. van den Broek to J.H. Donker Curtius, No. 7, 29 July 1856. (National Archive, Nederlandsche Factorij in Japan, Nr. 1639/1).
- 16 Catalogue of the public auction of dr. Van den Broek's effects on Arnhem on 15 October 1866 (Library of the University of Amsterdam). It is not known who bought the camera.
- 17 Dr. Van den Broek's Japanese books and manuscripts of his Dutch-Japanes and Japanese-Dutch dictionaries are kept in the Municipal Library at Arnhem. They are available on microfiche. (In Japan through Yushodo).
- 17 J.L.C. Pompe van Meerdervoort to J.H. Donker Curtius, 20 December 1859, No. 49. (National Archive, Nederlandsche Factorij in Japan, Nr. 1642)