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The Werbata-Jonckheer maps The first topographic maps of the Netherlands Antilles, 1911-1915

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Abstract

In the early 20th century the topographical mapping of the Kingdom of the Netherlands was quite advanced in the European part (The Netherlands), as well as in the Netherlands East Indies. The mapping of the West Indies colonies, however, Surinam and the Antilles, had progressed much less far. Shortly after 1900 the necessity arose to survey the Antilles, in particular - and to make topographical maps. With these maps it would be possible to develop a system of small dams to preserve rainwater as efficiently as possible for the use of agriculture. The triangulation of Curaçao started in 1904, that of the other islands shortly afterwards.

Because Dutch topographers had no experience in the surveying of tropical regions, the East-Indian topographer J.V.D. Werbata (1866-1929) was commissioned to survey Curaçao and instruct some local surveyors.

Werbata stayed on Curaçao from 1906 to 1909, making a topographical map to the scale of 1:20,000 of that island as well as a map of Willemstad to 1:5,000. His student Willem A. Jonckheer Jr. continued the survey of Aruba and Bonaire on the same scale of 1:20,000. Finally, probably also by Jonckheer, the islands of St. Martin (Dutch part) and St. Eustatius were surveyed. The six topographical series were printed by Smulders in The Hague between 1911 and 1915 (see the list of maps in the article).

Introduction

The topographic mapping of the Kingdom of the Netherlands was in full swing at the beginning of the twentieth century, both in the European portion (the Netherlands) and in the Dutch East Indies. The mapping of the West Indian areas, Surinam and the Antilles, was much less developed. Shortly after 1900 it became necessary to also produce topographic maps of the West Indian islands – above all Curaçao. Because Dutch topographers had no experience in the mapping of tropical areas, the ministry decided to give a topographer from East India the assignment to map the Antilles. They chose J.V.D. Werbata (1866-1929), instructor at the training brigade of the Topographic Department of Netherlands India.

Mapping Curaçao

We are familiar with various maps of Curaçao and the other West Indian islands dating back to the seventeenth and eighteenth centuries. Because the interest in these islands came mainly from the nautical sector, on many maps considerable attention is paid to the coastline and little or nothing of the land is delineated on them. The first

map of Curaçao that gave a reliable picture of the interior of the island was 'only' produced in 1816/17 on behalf of the then governor.¹ This is the first map of the island to also show plantations and country estates. The map was made by the military engineer captain H. J. Abbring (1787-1874), who lived on Curaçao from 1815 to 1825.²

In 1825 King Willem I gave Baron Cornelis R.T. Krayenhoff (1758-1840) the assignment to carry out an exploration of the island of Curaçao, at which time first of all he was to consider the improvement of its defense.³ In May of 1825 General Krayenhoff took off with the West India brigade consisting of three adjutants and ten officers, with the frigate Amstel to West India⁴. After a brief stay in Surinam the expedition arrived in Curaçao in June.

In June, July and August Krayenhoff remained on Curaçao (carrying out smaller expeditions to Aruba and Bonaire) while he and his staff worked on mapping: "...we have been here on Curaçao since 26 June. We have been very busy throughout that time, measuring and drawing, as well as with the other commissions given us by General Krayenhoff. Now we have completed the entire project on Curaçao, and General Krayenhoff who will leave to the fatherland again tomorrow with the Amstel has all the plans and notes with him to give to the King."⁵ Krayenhoff's plan was to cost 7 million guilders, but what was finally carried out, a considerably slimmed-down plan, required only 10% of that sum. The management of the construction of the new fortifications was entrusted to Lieutenant-Colonel Johannes C. Ninaber (1779-1848), who remained on the island until 1829. During his stay Ninaber and his staff drew dozens of maps, plans and views of defense works. Among other things, under his supervision a map of the island was made on a scale of 1:50.000 on the basis of a new triangulation (ill. 1). These manuscript maps are contained in an atlas which was originally kept at the Ministry of War but was privately transferred to the Ministry of the Colonies on 8 May 1905. These days the atlas, named by Ozinga (1959) 'Ninaber file', is kept in the library of the latter ministry in the National Archives.⁶



1. "Figuratieve kaart van het eiland Curaçao", by J.C. Ninaber, drawn in connection with the mission of C.R.T. Krayenhoff, 1825-26 (The Hague, National Archives; scanned from Ozinga 1959).

A printed map that is probably based on Ninaber's work is the *Kaart van het eiland Curaçao benevens een plan van de stad en haven*, which was issued in 1836 by the widow of Gerard Hulst van Keulen (an improved edition followed in 1838). This map was made by the commander of the island, Major Reinier F. baron van Raders, who as garrison officer was witness to the surveying done by Ninaber.

The other islands

Although the topographic mapping carried out in East India in the second half of the 19th century served as an example for many other colonial powers⁷, hardly anything happened on the Antilles. With a few early 19th century maps, in a historic-cartographic context Curaçao comes out rather more favourably than the other islands.

After a carto-bibliographic study that had to be kept brief in the context of this article⁸ we have determined that of the remaining five islands, around 1900 the following maps were the largest in scale:

Aruba: Kaart van het eiland Aruba, gevuld naar den opmeting in den jare 1820 gedaan / onder directie van den kapitein ter zee W.A. van Spengler en in den jare 1825 met verscheidene nieuwe bepalingen verrijkt door den kapitein R.F. van Raders ; Dl. Veelwaard en Zoon, sculp. 1827. - Scale [approx. 1:74.000]. – copper plate; 30 x 44.5 cm.

Bonaire: Carte de l'Île de Bon-Aire, dressée au mois d'Octobre 1866 d'après les ordres du Gouverneur de Curaçao / par A. Conradi et E.E. Jarman. - Scale 1:80.000. - Lithography.

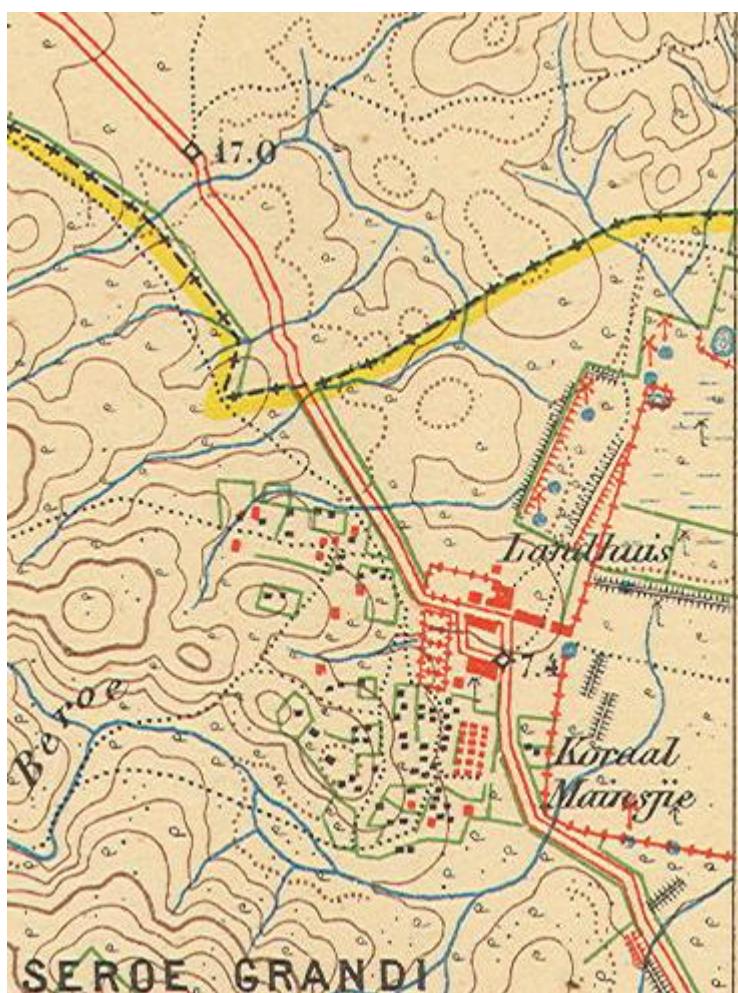
Saint Martin:⁹ Kaart van het eiland St. Martin / get. door I. Dornseiffen ; lith. E. de Geest. - Scale 1:42.000. – Appendix to the *Tijdschrift van het Koninklijk Nederlandsch Aardrijkskundig Genootschap*, 1883.

Saint Eustatius: Kaart van het eiland St. Eustathius volgens de opname van A.H. Bisschop Grevelink. - Scale 1:25.000. - 36 x 38 cm. – Appendix to the *Tijdschrift van het Koninklijk Nederlandsch Aardrijkskundig Genootschap*, 1876.

Saba: Map of the island of Saba (Dutch West Indies), lithogr. from a copy sent by M.L. Statius van Eps. - Scale [approx. 1:18.636]. - 31 x 45 cm. In 1950 the Department of the Cadastre at Curaçao made a copy of this map, which was unfamiliar to the creators of the *Encyclopædie van Nederlandsch West-Indië*.

Need for new maps

Around 1900 the situation in the colony of Curaçao was quite miserable. The Lower Chamber decided that a commission should carry out studies on site. In December of 1901 and January of 1902, at the request of the Chamber Professor F.A.F.C. Went, professor of botany and zoology in Utrecht, and J. Havelaar, Netherlands India engineer on leave, visited the Antilles. Their report is included in the appendices to the colonial report of 1903 (Havelaar 1904). Even before the publication of that report the Socialist member of the Lower Chamber, Henri van Kol (1852-1925), traveled to the Antilles on his own initiative and published his findings in a travel report full of critical remarks (Van Kol 1904). In May of 1903 he spent a few weeks on Curaçao and described the system of water supply for agriculture on the island: "For agriculture they had built a few earthen dams in a fold of the terrain and after a heavy rain there was sometimes water there for 5 to 6 weeks, which was then slowly absorbed back into the ground, to then be pumped by windmills in stone trays,



2. A few dams on the Savonet plantation. See also the fragment of the map (ill. 3). The photo was taken from the "Landhuis" in a northerly direction. Photo by Soublette & Fils, approx. 1900.

3. Fragment of the map of Curaçao with the Savonet plantation (map collection Faculty of Geosciences, University Library Utrecht).

and (...) brought to the orchards." (Van Kol 1904, 297-298) (ill. 2 en 3). 75 years earlier the same system had already been described by De Veye: "A few hundred steps from the house there was then a low valley, surrounded by walls of brick, and with dikes at the bottom, that prevented the rainwater from running further away or going into the sea, and force it to go into the ground in the valley."¹⁰

Van Kol describes the further possibilities of this system: "Already during my trip from the Westbaai to Savonet my attention had been drawn to how well this terrain lends itself to the storage of rainwater (...). In fact a few small landowners had begun to built simple terraces here: but after a brief topographic assessment one could very quickly design a system of effectively laid dikes which, linking up with the water divisions, could contain the water from the narrowest points of the valleys flowing from the slopes downward, and make it available to the small-scale agriculture.

Above all on the south side of the road on which I traveled I was able at first glance to point out scores of such points, and I began hastily to work toward that purpose by making a rough sketch of this terrain, (of which not a single usable map exists!) but the bouncing of the carriage became too extreme, and a strong burst of wind pulled the papers from my hands;¹¹ so to my regret I had to give up my engineering work." (Van Kol 1904, 299). At the plantation Savonet there were already 30 dams at that time (Havelaar 1904, 56). In the chapter "What to do now?" Van Kol makes a number of recommendations that he would include in a memorandum for the handling of the colonial budget of Curaçao for 1904. One of those recommendations is: "Topographic surveying of the islands" (Van Kol 1904, 402). However one does not find the recommendation in the relevant memo. Went and Havelaar advised only the laying of dams and collecting tanks without mentioning any cartography.

Governor of the colony of Curaçao in those years was Jan Olphert de Jong van Beek en Donk (1863-1935), who had established the Curaçaosche Maatschappij tot Bevordering van Landbouw, Veeteelt, Zoutwinning en Visserij (Curaçao Company for the Furthering of Agriculture, Animal Husbandry, Salt Extraction and Fishery) in 1901. Under the influence of the report of Went and Havelaar and Van Kol's recommendations, De Jong was supported further by the Dutch government in his efforts to further agriculture. In 1904 it was possible to commence repairs of the largely neglected dams and the building of a series of new dams (Hartog 1961, 816-817).

Beginning of triangulation and mapping

As Van Kol had already observed of course this project required maps. So it would not have been by chance that the 'Ninaber file' with the results of his cartography, was transferred in 1905 from the Ministry of War to the Ministry of the Colonies. But the maps that it contained were not detailed enough for these agrarian objectives. The best map was the map by J.C. Ninaber on a scale of 1:50.000 made in 1825-26.¹² During their visit to Curacao Havelaar and Went used the map by Van Raders from 1836 and the geological map by Martin from 1887¹³ (Havelaar 1904, 57 and 65). None of these maps was detailed enough to be able to determine the exact size and location of the valleys. In addition on Ninaber's map height differences were indicated by washed colours, whereas for the construction of the dams exact information in the form of contours was required. The printed map of Van Raders also contained insufficient information concerning height. Precise information about the height situation and the surface of the valleys with their branches was of particular

importance for the construction of the dams. Before the construction of the dams could commence, therefore, the islands had to be topographically surveyed.

In the colonial budget for 1904 the sum of 1000 guilders was reserved for the costs of surveying and mapping the domain on Curaçao.¹⁴ This mapping comprised triangulation and surveying for cadastral purposes. For this goal the minister of Colonies A.W.F. Idenburg felt that a sketch-like overview was sufficient and there was no need to have a topographer come over from East India. He did, however, want to consider whether it was necessary for the dam construction to map the entire island.¹⁵ At the handling of the budget on 23 December 1903 Van Kol said that according to his calculations for topographic surveying of Curaçao and St. Eustatius, where the need for dams was the greatest, only some 15 to 20,000 guilders would be needed. He also hoped that no extremely high requirements would be set with regard to the maps and that the goal of this would not be forgotten.

Incidentally not everyone felt that a map was needed. The Colonial Council on Curaçao felt that the expense did not balance with the usefulness of the maps:

"The departments have very serious reservations when it comes to all these entries of triangulation and topographical surveying of the Leeward Islands. One can hardly justify the expenditure for this of around f 20,000 as matters stand at present.'

Since the council only considered the need for a topographic map of the three islands necessary in order to use it to be able to establish what maximum quantity of passing water one must anticipate with regard to the dams to be built, since otherwise there would be the danger of the walls not being large enough, the departments permitted themselves to focus on the fact that one finds tracks everywhere on this land where the rainwater flows to the sea, and that it is sufficiently possible to determine from those tracks how much water passes there to make the spillways of the dams so wide that the danger of a burst could be kept to a minimum. One could also avoid this danger entirely were one in any case of doubt to makes the spillways too large than too small [*sic!*]; this would of course cost a bit more, but these additional costs would not be significant in comparison to the large expenditures required for triangulation and topographic surveying."¹⁶

The governor – fortunately – did not agree. Informing the people about high water levels can vary from time to time, so this is unreliable. So the salaries of the surveyor (f 3000) and the officer, "charged with the triangulation of the islands Curaçao, Aruba and Bonaire at f 6 per day" (f 2190) remained in the budget. Here it is indeed remarkable that in the explanation particular mention was made of the need for such a triangulation, whereas that had already actually commenced for the national land. This will require further investigation. The next year the salary of the surveyor remains the same, plus there is an additional f 2225 for "costs and salaries for triangulation of the islands Curaçao, Aruba and Bonaire, and the topographic surveying of the island Curaçao" (consisting of f 1725 "salary during topographic surveying" and f 500 for "purchase of instruments").

So the search was on for a "surveyor who is suited to working independently from the Topographic department [in the Netherlands Indies], who, provisionally for the duration of 1 1/2 years, would be seconded at the expense of the budget of the colonial household of Curaçao to the West Indies." Of course the request was for an East Indian topographer who with his experience in tropical areas was considered more suitable than a topographer with experience only in the Netherlands. During this surveying he was to train two "young men from Curaçao", so that they could also survey other islands of the Netherlands Antilles.

Chosen for the task was J.V.D. Werbata, civil official topographer of the 2nd class, who had a great amount of experience in surveying tropical areas and in the training of topographers.

J.V.D. Werbata

Johannes Vallentin Dominicus Werbata¹⁷ (ill. 4) was born in Padang on 22 September 1866¹⁸. At the age of ten J.V.D. – he was known by his initials – registered at the Military Pupils School in Gombong. After his education he was a fusilier in the Army starting in 1884, but during that same year he was appointed *élève* surveyor of the Topographic Department. As sergeant-surveyor he worked from 1887 to 1895



4. J.V.D. Werbata (1866-1929), his wife Clementine Harms and his sons Frits and Ernst. Portrait owned by the family.

under the supervision of captain J.J.K. Enthoven on the surveying of the Westerafdeling of Borneo. This surveying project was fraught with hardship and made heavy demands of 'the physical and the ethical' of the personnel. As an example for later surveyors a special book was written about this cartography, in which Werbata's report of his surveying task in the catchment basis of the Boven-Kapoeas is included.¹⁹ The difficult terrain, the river that was hardly navigable even with pirogues, unskilled coolies and bad weather conditions were the greatest problems. The description of the first surveying is therefore significant: "According to our calculations we would need at most five days to complete the work in this project, but due to unexpected circumstances such as the unwillingness of the Dayak coolies with

regard to felling trees, bad axes, but even more because of the ceaseless rain and heavy fog, we were only able to leave the top after the 12th day." An advantage was indeed that friendly Poenans happened along who gave us 'a variety of geographic information including the names of mountain tops and river tributaries'.

In 1893 Werbata was promoted to military supervisor and returned to Java with his brigade in 1895. Because of their experience with surveying under difficult circumstances on Borneo the entire brigade was converted into a training brigade and Werbata himself was made instructor. S. Kuiper, director of the Topographic Department, lists as his greatest virtue that his training was focused on the creation of 'that mental strength that is indispensable to a surveyor so that no 'tjot' is too high, no jungle too hard to find, if it is after all necessary to stretch a surveying line across it' (Kuiper, 1930). His teaching was interrupted when in 1898 he was added to an expedition under J.B. van Heutsz to Atjeh. There he acted as a guide for Van Heutsz on a day-long trip through the jungle to Tamseh. For such actions as this he was named Knight 4th Class of the Military Willems Order (Van Roon, 1900).

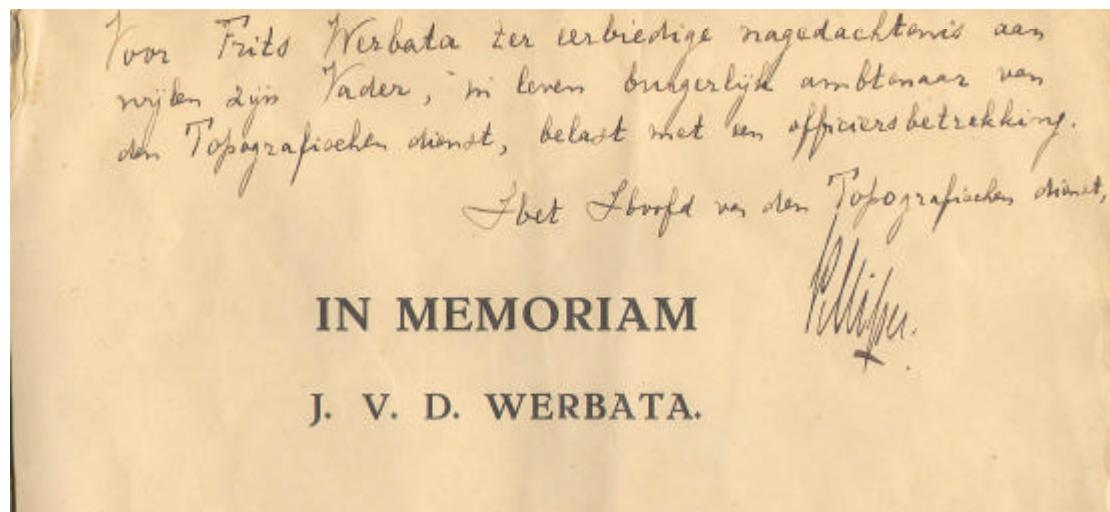
In 1906 Werbata was given the assignment to make a map of Curaçao. On 16 August of that year he left Batavia and traveled via Genoa (but not from the Netherlands) to Curaçao, supplied with complete equipment in terms of surveying and drafting instruments. On 21 October he arrived on Curaçao, where he commenced surveying and mapping the island on 31 October. He will certainly not have had as many problems on Curaçao as he had on Borneo! That island had no fog and rain, no non-navigable rivers (there are no rivers at all), and no primitive tribes.

In the annual reports of the Topographic Department in the Netherlands Indies Werbata wrote two reports on his work: first in 1907 about the first year and then in 1909 a final report. These reports are written in rather a dry and official manner and unfortunately have no similarity to the lively descriptions of the mapping of the Boven-Kapoeas.

It is very probable that the 'Ninaber file', or at least a copy of his overview map, was placed in Werbata's hands when he was on Curaçao. In his report in 1907 he mentions the unsuitability of this map for the dam project.

In 1909 his mapping was complete and he returned to the Netherlands Indies where he was appointed civil official-cartographer 2nd Class at the topographic department in Batavia. For his work on Curaçao he was named Brother in the Order of the Netherlands Lion in 1912.

After he had been brigade head of the 1st Surveying Brigade in Padang up to 1928, he was placed in the review brigade of Central Java in Magelang. He died there in the night from 1 to June 1929, shortly before he was to interrupt his work for a 'certainly well deserved foreign leave'.



5. Dedication by S. Kuiper, director of the topographic department in the Dutch East Indies in the offprint of the *In Memoriam* given to Frits Werbata (owned by the family).

Execution of triangulation

Through triangulation the geodetic control network was obtained on which maps are based. On the basis of the triangle points a topographer enters the field to measure land with detailed measurements, sketches and elevation surveying with the aid of a levelling instrument.

The island of Curaçao has a length of approximately 58 km, is between 3.8 and 11 km wide and has a surface of 439.4 km². It consists of slightly rolling hilly land that is usually less than 100 m above sea level, with a few isolated cliff tops, of which the St. Christoffelberg with 376 m is the highest (ill. 6). Nothing grew on these peaks and they were at a distance of maximally 10 km from each other, which was of course favourable for triangulation.

First lieutenant, later captain M.L. Pliester was given the assignment in March of 1904 to survey Curaçao and make a map of it. In 1906 his task was taken over by first lieutenant L. Lens. The plan was to also map the other Leeward Islands. The assignment to map Aruba was given to J.J. Beaujon,²⁰ who had little time for the job and made little progress with it. In 1907 he departed to Curaçao and his task was taken over by R.J. Beaujon, who was not able to do much. The surveying of Bonaire – the network of triangles of which could be linked to that of Curaçao – commenced in 1905, but due to a shortage of suitable personnel it took until 1909 to be completed.²¹ The triangulation of Aruba and Bonaire was finally completed by L. Lens²² who had meanwhile been promoted to captain. According to the colonial reports these triangulations were intended for domain maps (predecessors to the cadastre) of the relevant islands, but they were undoubtedly also used for topographic maps.

Pliester and Lens established a network of triangles on Curaçao of 45 points with a base approximately in the centre of the island that was surveyed three times and turned out to be 1388.465 m long. Werbata assisted in this surveying job.²³ The base was oriented by solar perception and the height of the ends was determined by a levelling of the existing Curaçao's elevation at the harbour mouth of Willemstad.

In his report Werbata did not mention the triangulation already carried out by Ninaber around 1825.²⁴ Perhaps he considered this to be unsuitable, as he did Ninaber's map.



6. The St. Christoffelberg, the highest mountain peak in Curaçao, was one of the clearest triangulation points. The photo was taken in a south-westerly direction from the Savonet plantation. At the mapping the altitude was determined to be 372.44 m (see ill. 8). Photo by Soublette & Fils, approx. 1900.

7. Fragment of the map of Curaçao with the St. Christoffelberg (map collection Faculty of Geosciences, University Library Utrecht).

Mapping Curaçao

Once twenty triangulation points had been determined, on 19 November 1906 J.V.D. Werbata was able to begin his main task as topographer, specifically surveying and drawing the topographic details. He began with the valley of Scherpenheuvel, which was the first to be eligible for systematic dam construction. Because first of all the map was to serve for determining the surfaces of various river catchments, it was important that contours be drawn in. The land was indeed extremely hilly, but there were no major elevation differences. First, therefore, it was planned to draw the contours at intervals of 5 m instead of the usual 10 m. Werbata decided to do a test and made two maps, one in which the contours had an interval of 5 m, and one with an interval of 10 m and with auxiliary contours on the watersheds. On comparison the latter method proved to be effective.²⁵ On less steep gradients, however, nonetheless 'auxiliary contours' have been drawn at an interval of 5 m.

Werbata used the polyhedron projection that was usual in the East Indies, although he did make changes in it here and there in accordance with circumstances. In ten months' time 119 km² of detailed surveying was carried out and 125.3 km of road surveying (29.3 km of this with the chain). In the *Jaarverslag* of the East Indies topographical department Werbata wrote a report in 1907 on these first results (Werbata 1907).

Two years later, in July 1909, all the surveying of Curaçao was complete. The result was a map on a scale of 1:20,000 on a total of 18 sheets. In the execution of the map there were sometimes deviations from the regulations as these are applied in the East Indies. These deviations concern such matters as a clearer presentation of the catchment basins and dry beds and the addition of an extra symbol for a well with a windmill. The legend is very exhaustive. For example Werbata differentiated various types of buildings and boundaries using various symbols and colours. The existing dams that were the impetus behind the mapping were differentiated in four categories.

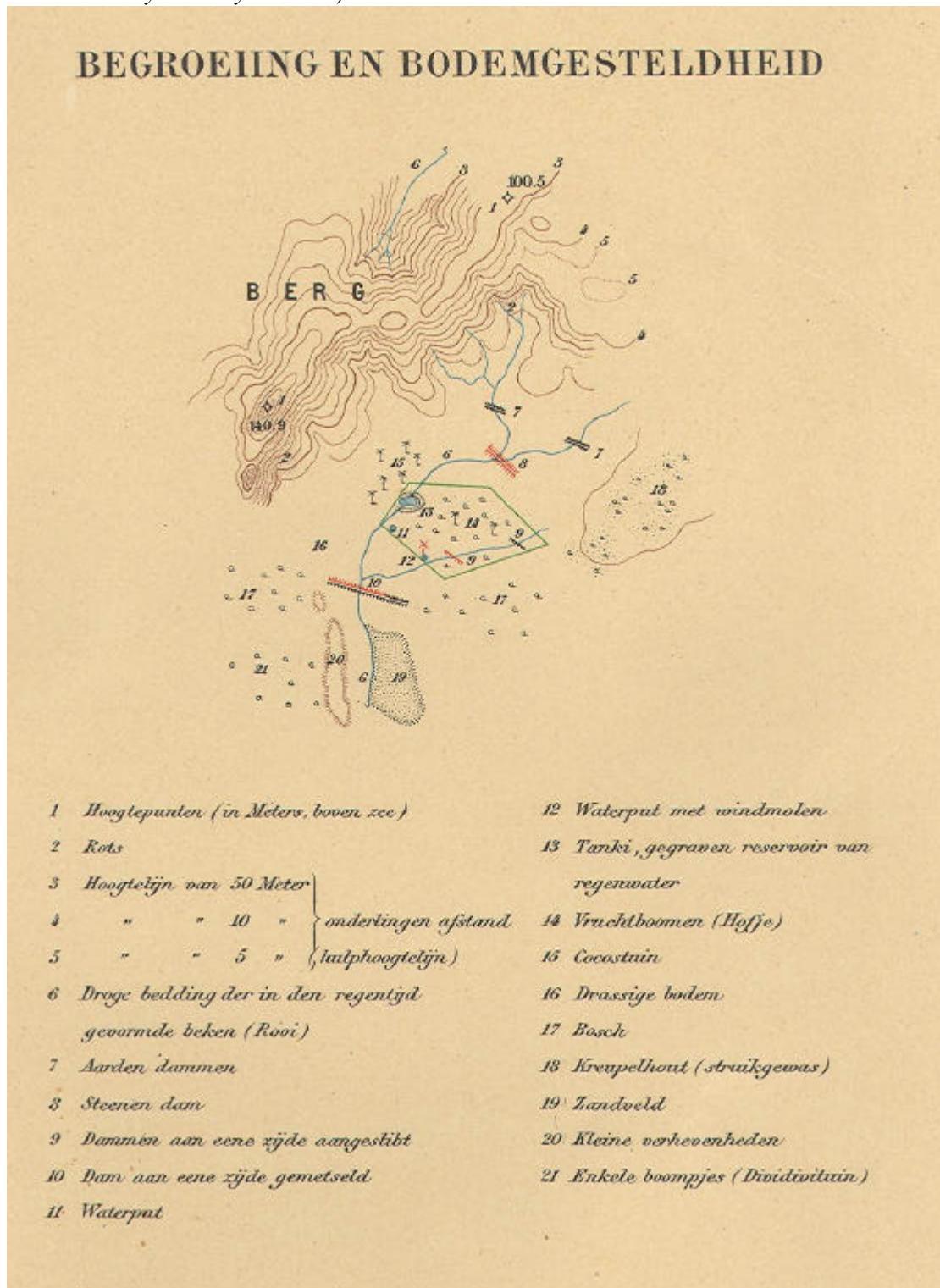
In 1911 the map, that had been printed with a lithographic press of the company J. Smulders & Co. in The Hague, was available. Before printing the map was still corrected, according to a remark by L.C. van Panhuys, by L.A. Bakhuis, head of the department at the ministry of the Colonies and former employee at the Topographic Department in the Netherlands Indies. It is not known precisely what Bakhuis did. It is remarkable that in the introduction to the exhibition on the occasion of the fortieth anniversary of the KNAG in 1913 – where Werbata's maps were displayed – all that was said about the maker of the maps was that he was 'a skilled topographer from the Topographical Department of the Netherlands Indies'. This introduction was written by ... L.A. Bakhuis.²⁶

The government wanted the file distributed as much as possible and therefore set the price at 5 guilders for the 18 sheets including cover.²⁷ On Curaçao the map was received well, in part due to its price. On 29 April 1911 the *Amigoe di Curaçao* wrote: "We can advise everyone to purchase this map of our island on which numerous experts have worked for several years. It is a masterpiece such as has rarely been seen in our Colony. On this map one can find everything down to the smallest detail, such as roads and footpaths, *rooien*,²⁸ *trankeren*,²⁹ mountains and hills. The map consists of 18 sheets with explanation and cover and is available from the Secretary at the price of 5 guilders. A super buy!"



8 (page 12). Part of sheet VIII of the map of Curaçao (map collection Faculty of Geosciences, University Library Utrecht).

9. Part of the legend of the map of Curaçao (map collection Faculty of Geosciences, University Library Utrecht).



Training

To begin with not much came of the training of two young men from Curaçao: there was no money available. Only in 1908 were funds made available. In June 1908 Werbata began training Willem A. Jonckheer Jr. (1887-1960). As soon as in October of that year he was able to map a large piece of land (13 km^2) of rather hilly land. The second student, Enrique E. Ecker (1887-1966), arrived in November 1908 and in March of 1909 was given ‘useful work’ to do. From March through May of 1909 a joint effort was made to deal with the rest of Curaçao. Jonckheer did well in this work and was judged suitable for independent work. Ecker, on the other hand, was not skilled enough, and was given ‘exemption from further work’. It was also rather remarkable that after four years of studies in tropical agriculture at the National Agricultural Academy in Wageningen and another month of traineeship at the agricultural testing station in Surinam immediately after his return to Curaçao he was appointed student surveyor at the topographic department. We can indeed assume that he simply did not feel like doing this work. A short time later he departed for Chicago, the beginning of a fantastic career as a bacteriologist, microbiologist and immunologist.³⁰

After in June of 1909 the triangulation of Aruba and Bonaire was completed, the further surveying of the islands was entrusted to Jonckheer. Immediately in June of 1909 he began surveying Aruba (Werbata 1909).



11. Willem A. Jonckheer (1887-1960) and his family in 1913. After the mapping of the islands Jonckheer surveyed the refinery. Then he left cartography and became an accountant. He was the father of Efrain Jonckheer (1917-1987), the first prime minister of the Dutch Antilles (photo owned by the family)..

Werbata's maps

The work of Werbata and his coworkers and successors resulted in six topographic maps that were generally all referred to with the term "Werbata maps". This standard term is incorrect, since Werbata was only involved in the terrain surveying of the maps of Curaçao and Willemstad, the triangulation was done by Pliester and Lens. Aruba and Bonaire were surveyed by student surveyor W.A. Jonckheer on the basis of triangulation by L. Lens. Because land surveying to a considerable extent determines the appearance of maps, it would actually be better if the series would in future be referred to as "Werbata-Jonckheer maps".

The maps are³¹:

1. Topographische kaart van Curaçao / [triangulation M.L. Pliester and L. Lens 1904-, terrain surveying J.V.D. Werbata, W.A. Jonckheer and E.E. Ecker 1907-1909] . - Scale 1:20.000. – The Hague : Lith. J. Smulders & Co., [1911]. - 1 map series in 18 sheets : in colour ; 45 x 46 cm per sheet. There are various editions of this map, for example on a few sheets the terrain of the Curaçaosche Petroleum Industrie Maatschappij (C.P.I.M.) is shown that was established at the Schottegat in 1915-16 .
2. Topographische kaart van Aruba / [triangulation J.J. Beaujon, R.J. Beaujon en L. Lens, 1904-1909, terrain surveying W.A. Jonckheer 1909-1911]. - Scale 1:20.000. – The Hague : Lith. J. Smulders & Co., [1913]. - 1 map series in 8 sheets : in colour ; 47 x 46 cm per sheet.
3. Topographische kaart van Bonaire in 10 bladen / [triangulation L. Lens 1909, terrain surveying W.A. Jonckheer 1911-1912]. - Scale 1:20.000. - [The Hague : J Smulders & Co., 1915] . 1 map series in 10 sheets : in colour ; 46 x 46 cm per sheet.
4. Topographische kaart van Sint Eustatius. - Scale 1:20.000. – The Hague : Lith. J. Smulders & Co., [1915] . - 1 map : in colour, 37.5 x 36.5 cm.
5. Topographische kaart van Sint Martin (Nederlandsch Gedeelte). - Scale 1:20,000. – The Hague : Lith. J. Smulders & Co., [1915] . - 1 map in 2 sheets : in colour, 40 x 38 cm

In the colonial report of 1914 it is stated: "The triangulation and the topographic surveying of the Dutch part of the island of St. Martin and of the island St. Eustatius have been commenced and completed. This concludes the topographic surveying in the colony Curaçao."³² The reason why Saba has not been mapped has not been mentioned. This island is indeed the smallest of the six Netherlands Antilles, but it was (in 1910) the next to the smallest in terms of population (St. Eustatius had fewer residents). Perhaps the mapping was not considered necessary because due to its natural characteristics Saba required no dams.

All Werbata maps were reprinted by the British War Office (in black and white) and in 1942 by the U.S. Engrs. Force Curacao, at which time all junctions were marked with a red X and numbered.

It was only in the years 1962/63 that maps appeared that were based on the new triangulation and surveying, these being of 1:25,000 and 1:10,000, composed by KLM Aerocarto and issued by the Department of the Cadastre in Willemstad (including

Saba!). A new edition appeared around 1985. In 1993 KLM Aerocarto published a new map series of Curaçao on a scale of 1:25,000.

There is also a sixth "Werbata map":

6. Kaart van het stadsdistrict van het eiland Curaçao / in 1909 opgenomen door J.V.D. Werbata. - Scale 1:5.000. - The Hague : Lith. J. Smulders & Co., [1912].
 - 1 town plan on 2 sheets : in colour; 71 x 67 cm per sheet. – with index of streets, roads and squares

This map of Willemstad is the only one on which Werbata placed his name. Because the map was not mentioned in official documents, it may be assumed that he put this together under his own initiative (and in his free time?).

The dam construction revisited

The remarkable fact exists that, although it was always written that the construction of dams was the impetus for topographic surveying, the actual construction and improvement of those same dams had already begun in 1904, two years before the topographic surveying began and seven years before the completion of the map of Curaçao. No wonder, then, that the director of public works M.C. Fauel, who was responsible for dam construction, sighed after three years: "A usable water level instrument was not present, and the only overview maps we had of the terrain were those by Seyffardt³³ and the so-called military topographic survey from the time of Ninaber ." Fauel's conclusion was, however, not to postpone the construction until the maps were available. He thought it best to charge the owners of interested parties themselves with 'the execution of the dam construction with Government subsidies'.³⁴ Later in the same report he wrote, however, that it would only be possible to build the dams with the proper topographic surveying.

And that turned out to be true. We state above that Werbata began his mapping in 1907 in the valley of Scherpenheuvel. In the colonial report of 1908 we read, then, that 'hard work was done on the systematic construction of the dams in the valley of Scherpenheuvel.'³⁵

Shortly after the maps were completed the Curaçaoche Petroleum Industrie Maatschappij (C.P.I.M.) was established that changed the economy of the island from a marginally agrarian one to a strongly industrialized society. Agriculture was no longer the modest driving force behind the economy, but became more of a sideline. So the dams became less important.

Closing

The maps, the first large scale topographic maps of the Netherlands Antilles, are highly informative for historic research. Before the publication of Werbata's maps it was not precisely known how Curaçao was divided among the various owners. There was no cadastre, and maps of property ownership were either not available at all or else insufficiently updated. A city dweller simply referred to the number of his parcel and a plantation owner described his land by naming the surrounding plantations. Werbata's map shows the limits of the plantations.

What also makes the map important is the fact that it was drawn just before the oil industry came to Curaçao and the area around the Schottegat with its many

mansions and plantations changed drastically. For Aruba, Bonaire, Sint Maarten and Sint Eustatius the historic value of the maps – that can better be referred to as ‘Jonckheer’ maps here – is probably even greater, because there are even fewer maps of those islands than there are of Curaçao.

Although the interest in historic cartography is not all that great on the Netherlands Antilles photographer Harrie Verstappen did recognise the importance of Werbata's maps . Under his own management he produced a CD-ROM in 1998 with reproductions of the map of Curaçao, followed the next year by a CD-ROM containing the other maps.

Literature

- Coomans, Henny, and Maritza Coomans-Eustatia. 2000. *Sint Maarten in map en beeld = St. Martin in maps & prints*. Bloemendaal: Stichting Libri Antilliani.
- Encyclopædie van Nederlandsch West-Indië*, ed. H.D. Benjamins & Joh. F. Snelleman. The Hague; Leiden: 1914-17. Reprint Amsterdam: Emmering, 1981.
- Hartog, Joh. 1961. *Curaçao van kolonie tot autonomie*. Oranjestad (Aruba): De Wit.
- Havelaar, J. 1904. "Rapport betreffende eene reis naar de kolonie Curaçao ingevolge art. 2 van het Koninklijk Besluit dd. 20 Juli 1910, no. 30." *Handelingen der Staten Generaal, Bijlagen 1903-1904. 5 Curaçao*, appendix O².
- Kuiper, S. 1930. "In Memoriam J.V.D. Werbata." Annual Report of the Topographic Department in the Netherlands Indies over 1929. Weltevreden, 1930. Pgs. 126-129.
- Kol, H. van. 1904. *Naar de Antillen en Venezuela*. Leiden: A.W. Sijthoff.
- Newton, Michael A. 2004. "De 'Werbata' kaarten" *Curaçao Amigoe* Feb. 2004 (English text in *The Daily Herald*, 8 February 2004, and in Papiamento in *Curaçao Extra*).
- Ozinga, M.D. 1959. *De monumenten van Curaçao in woord en beeld*. [Willemstad]: Stichting Monumentenzorg Curaçao.
- Roon, J. van. 1900. "J.D.V. [sic!] Werbata, Ridder 4e Klasse in de Militaire Willemsoorde." *Eigen Haard* 26, no. 28 (14 July 1900): 447-448.
- 1920. *De werkzaamheden van den Topografischen Dienst in de Westerafdeeling van Borneo (1886-1895)*. Bandoeng: Visser, 1920.
- Verstappen, Harrie. 1998. The Werbata Maps: 1906 Topographic Maps of Curaçao Island. Curaçao: Fotomatiko n.v. - CD-Rom.
- 1999. *The Werbata Maps II: Aruba, Bonaire, St. Eustatius, St. Martin, Willemstad Curaçao*. Version B2. Curaçao: Fotomatiko n.v., 1999, revised 2002. - CD-Rom.
- Werbata, J.V.D. 1908. "De topographische opneming van de Benedenwindsche Eilanden (kolonie Curaçao)." *Jaarverslag van den Topographischen Dienst in Nederlandsch-Indië over 1907* (Batavia). Pgs. 126-129.
- Werbata, J.V.D. 1910. "De topographische opneming van het eiland Curaçao." *Jaarverslag van den Topographischen Dienst in Nederlandsch-Indië over 1909* (Batavia). Pgs. 228-232.

The reproduction of the entire set of Werbata maps on two CD-ROMs is still available for US\$ 70 (including postage). Information can be found at <http://www.curassow.com/2dvrc/maps/werbata/werbata.html> or e-mail: werbata@vrcurassow.com.

Notes

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App. HSG = Actions of the Dutch Parliament, Appendices.

App. HSG Cur. = ditto, Colonial Report, 5 Curaçao. Chapter B that contains "Mededeelingen van algemeenen aard" and J "Landsgebouwen en openbare werken".

¹ Kaart van het eiland Curaçao, schaal 1:81.318. Opgenomen door kap.ing. Abbring en getekend door het Topografisch Bureau, 1816-17.. Manuscript. The Hague, National Archives. Inv. 4.MIKO, no. 1237; copy in no. 6110/41.

² He wrote about his stay there *Weemoedstoonen uit de gesch. van mijn leven of mijne reis naar Curaçao en vlugtige beschouwingen van hetzelvē, gedurende mijn tienjarig verblijf op hetzelvē* (Groningen 1834).

³ About this expedition: M.D. Ozinga, *Monumenten van Curaçao*. The Hague, 1959.

⁴ The officers included Hendrik Maurits van der Goes, whose 'Aanteekeningen omtrent een verblijf op Curaçao in 1825 en 1826' were issued by B. de Gaay Fortman as appendix to the magazine *Lux*, that appeared on Curaçao from 1943 to 1947 (this appendix is not in the volumes of this magazine in the Royal Institute for the Tropics in Amsterdam); and Henri de Veye de Burine, who reported in detail on this expedition in his letters to family members in the Netherlands. These letters are in the family archives of Van Kempen-De Veye, which are owned privately. Scans of the letters are in the possession of the author of this document.

⁵ Letter from J.H.F. de Veye de Burine to his brother, 19 August 1825. Privately owned. The maps and plans that Krayenhoff showed the King were collected with later documents in an atlas, the so-called 'Ninaber folder' (Ozinga 1959, p. 7). See the next note.

⁶ Nat. Arch., inv. 4.MIKO, no. 6110 Map book of the island of Curaçao prepared by the planning and execution of various military works, 1825-1830. The set – named 'Ninaber folder' by Ozinga (1959, p. 7) comprises 51 pages, 1 through 40 are from Ninaber, 41-51 were added in 1859 from the estate of lieutenant colonel Eekhout, who also participated in the Krayenhoff expedition.

⁷ See F.J. Ormeling, *Een korte geschiedenis en evaluatie van de kartografie van Nederlands-Indië, 1816-1942*. In: J.R. van Diessen en F.J. Ormeling (ed.), *Grote atlas van Nederlands Oost-Indië = Comprehensive Atlas of the Netherlands East Indies*. - Zierikzee: Asia Maior; Utrecht: Koninklijk Nederlands Aardrijkskundig Genootschap, 2003.

⁸ Consulted were PiCarta and the collections of the Royal Institute for the Tropics in Amsterdam and the Faculty of Geosciences in the University Library Utrecht, and in addition the list published in the Encyclopaedie *van West-Indië* was used.

⁹ In the associated article Dornseiffen gives an overview of the maps of Sint-Maarten. See also Coomans et al. 2000.

¹⁰ Letter from J.H.F. de Veye de Burine to his parents, 20 October 1825. Privately owned.

¹¹ In Van Kol's archive there is a map 'Stukken betreffende een reis naar West-Indië, 1902-1903 (Amsterdam, Internationaal Instituut voor Sociale Geschiedenis, Archief H.H. van Kol, no. 79). Possible sketches that did not blow away are alas not contained there; the folder contains only his work plan, introductory letters and thank you letters for sending his book.

¹² Nat. Arch. Inv. 4.MIKO, no. 6110/3.

¹³ K. Martin, Geologische kaart van Curaçao. Scale 1:150.000. Appendix to the *Tijdschrift van het Nederlandsch aardrijkskundig genootschap*; 4(1887)2.

¹⁴ App. HSG, 1904-1905, Stuk 81.7.

¹⁵ App. HSG, 1903-1904, Stuk 85.24, Memorandum in reply from the Minister of the Colonies.

¹⁶ App. HSG, 1904-1905, Stuk 222.4bis.

¹⁷ In Memoriam J.V.D. Werbata. *Jaarboek van den Topographischen Dienst [in Nederlandsch Indië]* 1930. According to his death certificate his father was named Dominicus Werbata, who was probably a Polish or Bohemian soldier (the names Wrbata and Vrbata exist in resp. Poland and Bohemia).

¹⁸ According to the yearbooks of the Netherlands Indies. In his In Memoriam his birth date was given as 26 August 1866.

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- ¹⁹ J. van Roon, *De werkzaamheden van den Topografischen dienst in de Westerafdeeling van Borneo, 1886-1895*. Bandoeng, 1920. Werbata's report 'De opneming der Boven-Kapoeas', on pg. 39-48.
- ²⁰ App. HSG 1904-1905, Cur. ch. B, pg. 2.
- ²¹ App. HSG 1906-1907, Cur. ch. B, pg. 2; ditto 1907-1908, ch. B, pg. 2, and ditto 1910-1911, ch. B, pg. 3.
- ²² In the map collection at the University Library at Utrecht there is a diazo printing with additions in manuscript: *Aruba: naar de triangulatie van kapt. L. Lens en de opname van W.A. Jonckheer Jr. - 1:50.000* (VII.D.c.12).
- ²³ App. HSG Cur. 1907-1908, ch. J, pg. 14.
- ²⁴ Triangulation map belonging to the military topographic map of the island of Curaçao, surveyed by lieutenant colonel J.C. Ninaber, 1825-1826. Nat.Arch., Inv. 4.MIKO, no. 6110/1.
- ²⁵ App. HSG Cur. 1907-1908, ch. J, pg. 14.
- ²⁶ L.A. Bakhuis. "Overzicht van den opnemings en kaarteeringsarbeid in de West-Indische Koloniën." In: *Koloniaal-Aardrijkskundige tentoonstelling ter gelegenheid van het veertigjarig bestaan van het Koninklijk Nederlandsch Aardrijkskundig Genootschap 20 Sept.-31 Oct. 1913* [catalogue] [1913]. With thanks to Paul van den Brink for this referral.
- ²⁷ v.P. [=L.C. van Panhuys], "Topographische Kaart van het Eiland Curaçao". *Tijdschrift van het Kon. Ned. Aardrijkskundig Genootschap* 27 (1910), pg. 1277-1278 and ditto 28 (1911), pg. 360.
- ²⁸ Rooi = gulley (from the Spanish 'arroyo').
- ²⁹ Trankeer = fence, land enclosure; is also used for an animal screen on the road.
- ³⁰ E.E. Ecker studied from 1904-1908 at the National Agricultural Academy in Wageningen with a grant from the Ministry of the Colonies. There he mainly took lessons on tropical agriculture (App. HSG, 1904-1905 tot 1908-1909). The department of Pathology of the Case Western Reserve University has the Enrique E. Ecker Memorial Lecture and the Enrique Ecker Lectureship. Ecker's biography is in the *CWRU Department of Pathology Newsletter* 3 (March/April 2003) 2, pg. 4 (on-line <http://www.case.edu/med/pathology/newsletter/MarApr2003newsletter.pdf>).
- ³¹ Names and data on triangulation and terrain surveying obtained from the colonial reports from those years. The dating of the publication of the various maps is taken from *Encyclopædie van Nederlandsch West-Indië*. No attempt has been made to prepare a true cartobibliography with all the statuses, variants and derived maps.
- ³² App. HSG Cur. 1914-1915, chapter J, pg. 10.
- ³³ Kaart van het eiland Curaçao benevens een plan van de stad en haven, met toestemming van het Depart. van Koloniën bewerkt naar de Topographische Kaart. - 1:100.000. - Amsterdam: Seyffardt's Boekhandel, 1911. Copies in the Map collection of the Faculty of Geosciences, University Library Utrecht, etc. no. VII.D.c.4.
- ³⁴ App. HSG Cur. 1907-1908, Appendix H, Report concerning the construction of wells and dams on the island of Curaçao, pg. 15.
- ³⁵ App. HSG Cur. 1908-1909, ch. J, pg. 13.