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Matters of perspective

Local visual expertise and natural history drawings in Java, 1820-1850

ANDREAS WEBER AND SYLVIA VAN ZANEN

ABSTRACT

This essay examines how local draughtsmen using their visual expertise shaped natural historical knowledge production in colonial Indonesia in the early nineteenth century. The persons at the core of this essay are Tsing Wang Ho and Pieter van Oort, both draughtsmen who worked for the *Natuurkundige Commissie voor Nederlandsch-Indië* (Committee of Natural History of the Netherlands Indies). By zooming in on the Committee's fieldwork in Java in the 1830s, this essay highlights that producing scientific drawings of animals and plants was a challenging endeavour. Despite detailed instructions from Europe and the logistical support of the colonial government in Batavia, the success of the Committee's fieldwork also depended on local visual and natural expertise. By shifting the analytical focus from European draughtsmen and naturalists to local visual and natural expertise, this essay offers readers glimpses on a cross-cultural learning process which, in the long run, reshaped the visual repertoire on which taxonomic and biodiversity research has since then built on.

KEYWORDS

History of natural history; scientific illustration; visual culture; Javan nature; cross-cultural learning; Pieter van Oort; Tsing Wang Ho.

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INTRODUCTION

Natural history museums and herbaria in Europe owe much of their authority to specimen and drawing collections brought together in former colonial areas.¹ Naturalis Biodiversity Center in Leiden in the Netherlands, which is one of the largest natural history museums in Europe, houses tens of thousands of plant and animal drawings produced in the former Dutch colonies in Indonesia in the first half of the nineteenth century (Eulàlia Gassó Miracle 2022; Menno Schilthuizen and Freek Vonk 2020; Andreas Weber 2021). The habitat of many of the plants and animals depicted have since been threatened by deforestation, mining activities, intensive agriculture, overfishing, and natural hazards such as volcanic eruptions (Kathleen Schwerdtner Mánez and Sebastian C.A. Ferse 2010; Anthony Reid 2016; Nico J. van Strien and Kees Rookmaker 2021). However, instead of reading such visual representations of insular Southeast Asian nature only as valuable source of taxonomic and other biodiversity related research, this essay travels an alternative route. By providing an in-depth analysis of various animal drawings produced in early-nineteenth-century Java, this essay suggests reading such biocultural collections as the result of moments in which European natural history, Chinese and other local visual expertise and colonialism became closely entangled.

This essay zooms in on a series of water-colour drawings which the draughtsmen Pieter van Oort (1804-1834) and Tsing Wang Ho produced during a journey through the Preanger Regentschappen in the hilly hinterland of Batavia in the course of 1831 and 1832 (see Figure 1). Both draughtsmen worked for an official body called the *Natuurkundige Commissie voor Nederlandsch-Indië* (Committee for Natural History of the Netherlands Indies, hereafter: the Committee). The Committee was a large-scale collection endeavour launched by the Dutch king, Willem I, in 1820 (Weber 2019). As was the case with other European expeditions in the late-eighteenth and early-nineteenth century, Van Oort and other Committee members were given a hybrid task: firstly, the Committee's members were asked to record, collect, and describe as many as possible plants and animals, as yet unknown in Europe, which they encountered during their extensive travels in the region (Gassó Miracle 2022: 85-119). Secondly, the Committee was given the task of helping the colonial government in Batavia to survey and improve the exploitation of agricultural and other natural resources in Java and neighbouring islands (Maarten Manse 2013; Pieter van Wingerden 2020). Thirdly, the committee was asked to visualize collected plants and animals in the form of perspective drawings (Samuel J. Edgerton Jr. 1991).

¹ Parts of the third and fourth sections of this essay are a revised text from an introductory section of the book *Kunstenaar op Java*, originally published in Dutch in 2021. They are adapted to fit the topic of this essay. We also thank Dr Esther van Gelder for her comments on previous versions of this essay.



Figure 1. Entrance to a cave near the volcano Mount Gede in the Preanger region. The undated and unsigned drawing probably depicts Van Oort and Tsing Wang Ho and is thought to have been made by the latter during their journey through the Preanger region (1831/1832). (Naturalis, archives Natuurkundige Commissie, NNM001000779_001).

Until the Committee's dissolution, Committee members and affiliates made extensive journeys in the region and brought together a world-wide unique archive and specimen collection which documents the area's flora and fauna in the first half of the nineteenth century (Hans J. Jacobs and André Koch 2021; Jacobs 2021; Marinus S. Hoogmoed et al. 2010; Johannes Müller 2022). Besides expeditions in Java, the Committee also travelled to Sumatra, Borneo (Kalimantan), New Guinea, Timor, Celebes (Sulawesi), and the Moluccas (Van Wingerden 2020; Willem F.J. Mörzer-Bruyns 2018; Gerlof Fokko Mees 1994). Large parts of the Committee's specimens and archival collections have recently been made publicly available on the Internet as an enriched and searchable visual edition (Gassó Miracle et al. 2020; Weber et al. 2018, Lise Stork et al. 2019; Stork et al. 2021).² This also includes many of the water-colour drawings by Pieter van Oort, Tsing Wang Ho, and other draughtsmen of the Committee. The field diaries of Pieter van Oort and a selection of drawings have also recently been published in print (Weber and Van Zanen 2021a, 2021b). Together with a multi-volume monograph series on the findings of the Committee published in the mid-nineteenth century, there is now an excellent source base available for contextualizing Dutch biocultural collections brought together in colonial Indonesia in the first half of the nineteenth century (C.J. Temminck et al. 1839-1844). Since political and

² See here: <https://dh.brill.com/nco/>.

other aspects of the Committee's fieldwork have been covered in recently published papers and ongoing research, this essay is limited to a preliminary analysis of the Committee's visual output.³

This essay analyses Pieter van Oort's and Tsing Wang Ho's water-colour drawings in two steps: firstly, we introduce Pieter van Oort and Tsing Wang Ho and the training they received as draughtsmen of natural historical objects. Along the way, readers will also learn more about the political context in which the draughtsmen and the Committee operated. In the second step, we shift the focus to the daily practices of producing drawings in the field and also discuss the visual result of Pieter van Oort's and Tsing Wang Ho's interactions during their journey through the Preanger region in 1831 and 1832. This essay draws heavily on drawings made by Tsing Wang Ho and Pieter van Oort and the handwritten field diaries of Pieter van Oort. Both resources offer a glimpse of the daily work of European and local scientific illustrators in the early-nineteenth-century world (Weber and Van Zanen 2021a, 2021b). As a whole, this essay argues that visualizations of Southeast Asian flora and fauna as they are stored in Dutch and other European natural history museums are more than just the "scientific" outcome of European draughtsmen reproducing Southeast Asian nature. As did many other colonial draughtsmen, Pieter van Oort became entangled in a cross-cultural process of learning and experimentation which, in the long run, reshaped the visual repertoire on which taxonomic and biodiversity research later built.

DRAWING PLANTS AND ANIMALS IN THE PREANGER REGION (MARCH 1831/ NOVEMBER 1832)

Pieter van Oort and Tsing Wang Ho must have met for the first time in the early 1830s in or near the botanical garden in Buitenzorg (present-day Bogor) in the mountainous hinterland of Batavia.⁴ Since its foundation in 1817, the garden and its nearby infrastructure had served as the Committee's operational centre and point of departure for longer journeys into the Preanger region in Southwest Java (Van Zanen and Weber 2021; Weber 2019). Although Dutch and British merchants had been penetrating the Preanger in their efforts to establish coffee plantations since the end of the eighteenth century, the region was not well known to the colonial authorities either in Batavia or in The Hague (Jan Breman 2010: 30). The land-rent system had never been introduced there and, owing to the lack of well-maintained roads between the main settlements, travel was difficult. The lack of roads is also obvious on contemporary maps (see Figure 2).

³ Pieter van Wingerden (Vrije Universiteit Amsterdam) is currently working on a comprehensive PhD thesis in which the Committee's history will be further contextualized.

⁴ Van Oort mentions Tsing Wang Ho in his diary for the first time on 21 July 1831. He refers to him as "our Chinese" (Weber and Van Zanen 2021a: 115). Since the Committee's draughtsmen were usually examined before they were allowed to work for the Committee, we can assume that Van Oort and Tsing Wang Ho must have known each other prior to the Preanger journey. Future research in the archives of the Algemene Secretarie in Jakarta will probably shed more light on this.



Figure 2. Map of main roads in West Java. The map was published as: *Etappenkaart van Java. Samengesteld door luitenant-kolonel der genie W. Brouwer in opdracht van de min. van koloniën Van den Bosch*. (Leiden 1836, National Archives, The Hague, 4.MIKO, inv. 766).

In order to facilitate the work in the field, Van Oort, Tsing Wang Ho, and other members of the Committee were accompanied by local porters carrying the equipment and food provisions packed in large boxes. Buginese hunters, plant collectors, and cooks also travelled with them on foot. Van Oort and the other members of the Committee, their personal servants, and guests (in this case a Javanese nobleman) as well as Tsing Wang Ho travelled on horseback. In his diary, Van Oort describes the caravan and the role of Tsing Wang Ho to whom the draughtsman referred to as “onze Sinees” (our Chinese) or “mijn goede Sinees” (my dear Chinese) as follows: “Our company consisted of Mr [Salomon] Müller, our Chinese, Samaié, the brother of the Javanese head of Tjitjoeroeg, Müller’s servant, Asied (my loyal servant) and myself. Messers [Heinrich Christian] Macklot and [Pieter Willem] Korthals had already left yesterday with a couple of Javanese [...]”.⁵ Ultimately the caravan consisted of more than 150 people (Weber and Van Zanen 2021a: 102-103). To facilitate the Committee’s travels, the colonial government in Batavia had also asked all colonial administrators and owners of large tracts of private land in Preanger to assist the party on its journey.

⁵ Weber and Van Zanen (2021a: 115), 20 July 1831: “Ons gezelschap bestond uit den heer Muller, onzen Sinees, Samaié, broeder van het Javaansche hoofd van Tjitjoeroeg, Mullers bediende, Asied, mijnen trouwen knecht en mijn persoon. De heeren Macklot and Korthals waren gisteren reeds met eenige Javanen vertrokken [...]”.

The journey through the Preanger region took place from March 1831 to December 1832. Tsing Wang Ho accompanied the Committee until March 1832. The monthly salaries of Van Oort and Tsing Wang Ho were paid by the colonial government. Tsing Wang Ho earned 60 guilders a month, Van Oort received a salary of 250 guilders (Weber and Van Zanen 2021a: 64, 67, 69, 209). Both their salaries were much lower than the salaries of the Committee's botanists and zoologists who travelled with them through the Preanger in 1831 and 1832: they earned around 500 guilders per month.

The colonial government's perfunctory interest in the work of the scientific draughtsmen was also mirrored in the way Tsing Wang Ho's affiliation with the Committee was discontinued in March 1832 (Weber and Van Zanen 2021a: 206). Instead of deliberating with Pieter van Oort, the colonial government simply decided to replace Tsing Wang Ho with Franciscus Adrianus Fievez dit de Malines (*1792). De Malines was a Dutch draughtsman who used to work for the botanical garden in Buitenzorg (Jean Mac Lean 1973: 110-111) and for a short time for the Committee.⁶ Van Oort, who brimmed over with appreciation for Tsing Wang Ho and his drawings, was very much surprised and disappointed by Tsing Wang Ho's dismissal a year after the journey through the Preanger had begun (Weber and Van Zanen 2021a: 206). In his diary, Van Oort noted: "I am deeply sorry that we have to miss the last [that is, Tsing Wang Ho]".⁷ A couple of days after Tsing Wang Ho's dismissal, he added: "Mr Malines has produced a couple of drawings. His drawings are clever enough, but he does not have the patience to carry out his work. Furthermore, the way he begins a drawing is not right".⁸ Van Oort also had his doubts about whether De Malines would be able to do as much work as their "dear Chinese" Tsing Wang Ho.⁹

The low social status of draughtsmen in the former Dutch colonial world is also mirrored in the marginal role these scientific illustrators play in historiography. Existing scholarship in the field of colonial natural history usually focuses only on the achievements of scientific personal of expeditions. Until the mid-2000s, the Committee's fieldwork has, for instance, mostly been studied through the lens of the zoologists and botanists (Charles H.J.M. Fransen, Lipke B. Holthuis, and J.P.H.M. Adema 1997; Peter Boomgaard 2006; Charles Klaver 2007). However, over the last decade, interest in the visual

⁶ In 1824-1825, De Malines had been affiliated with the Committee. However, owing to (mental) health problems and the closure of the botanical garden in 1826, his position had been discontinued. The colonial government probably felt some responsibility towards him when, once recovered, he struggled to make a living. For more background about the reason Tsing Wang Ho's position was offered to De Malines in 1831 when he asked the government for it, see Weber and Van Zanen (2021a: 209).

⁷ Weber and Van Zanen (2021a: 206), 15 March 1832: "Het spijt mij zeer dat wij den laatsten moeten missen".

⁸ Weber and Van Zanen (2021a: 210), 27 March 1832: "De heer De Malines heeft een paar tekeningen gemaakt. Hij tekent geestig, maar heeft geen geduld genoeg om zijn werk uit te voeren. Ook is zijne wijze waarop hij zijne tekeningen begint, verkeerd".

⁹ Weber and Van Zanen (2021a: 209), 21 March 1832: "Het zal mij benieuwen of hij zooveel kan uitvoeren als onzen goeden Sinees".

culture of colonial Southeast Asia has grown. Besides detailed studies of the lives and works of Maurits Ver Huell (1787-1860), Antoine Payen (1792-1853), and the brothers Adrianus Johannes (1790-1872) and Jannes Theodorus Bik (1796-1875), attention should also be drawn to Alexander Raat's biography of Joan Gideon Loten (1710-1789) as a prime example (Chris F. van Fraassen and Pieter Jan Klapwijk 2008; Marie-Odette Scalliet 1995, 2001; Alexander J.P. Raat 2010). Moreover, Susie Protschky has reminded us that scientific and other visual representations of colonial Indonesia cannot be disconnected from a broader colonial culture which was dominated by trade, scientific exploration and violence (Protschky 2011). Most recent research on scientific illustrators has also included non-European draughtsmen in their analyses. In 2013, Peter Kraus and Irina Vogelsang published a detailed study of the Javanese painter Raden Saleh (1811-1880) who left Java briefly after Van Oort's arrival in the late 1820s (Kraus and Vogelsang 2013). Studies which focus on local draughtsmen are interesting since they highlight the negotiated character of natural history drawings at a time when photography was not yet established (Kraus 2005; Henry J. Noltie 2009; Judith Magee 2011; Kwa Chong Guan 2015; William Dalrymple 2019). Many of the studies mentioned examine how Asian artists responded to European influences in colonial areas. By doing this, they also offer important leads for a better understanding of how local and European artists interacted in the Dutch colonial world in insular Southeast Asia.

As will be shown in the next two sections, the interaction of Van Oort and Tsing Wang Ho was characterized by an appreciation of and learning from each other's expertise. During their journey through the Preanger, Van Oort and Tsing Wang Ho collaborated intensively and learned to appreciate each other's work. As well as recognizing communalities in their training and ways of drawing, they also became aware of cultural differences. Tsing Wang Ho, for instance, joined Van Oort in experiments in perspective drawings of individual animals and landscapes. For some of his pencil drawings, Tsing Wang Ho used a perspective grid (see the straight horizontal and vertical lines in Figure 3) which allowed draughtsmen to represent landscapes and large natural history objects in a linear perspective, as will be explained in more detail below.¹⁰ Since Van Oort was full of praise of Tsing Wang Ho, it is highly likely that they also talked and exchanged views about the proper use of composition, colour and lines in scientific and other drawings. Moreover, copying drawings was certainly also part of their conversations. During their journey, Tsing Wang Ho produced dozens of copies of unique fish drawings which had been sent to Van Oort from Deshima in Japan to be passed on to the Rijksmuseum van Natuurlijke Historie (National Museum of Natural History, now: Naturalis Biodiversity Center). In short: during the journey through the Preanger region, Tsing Wang Ho was heavily involved in shaping the Committee's visual legacy.

¹⁰ For more examples of similar drawings by Pieter van Oort, see: Gassó Miracle et al. 2020. Naturalis, archive Natuurkundige Commissie, online: https://dh.brill.com/nco/view/nco_NNM001000333_001/makingsense and https://dh.brill.com/nco/view/nco_NNM001000331/makingsense.

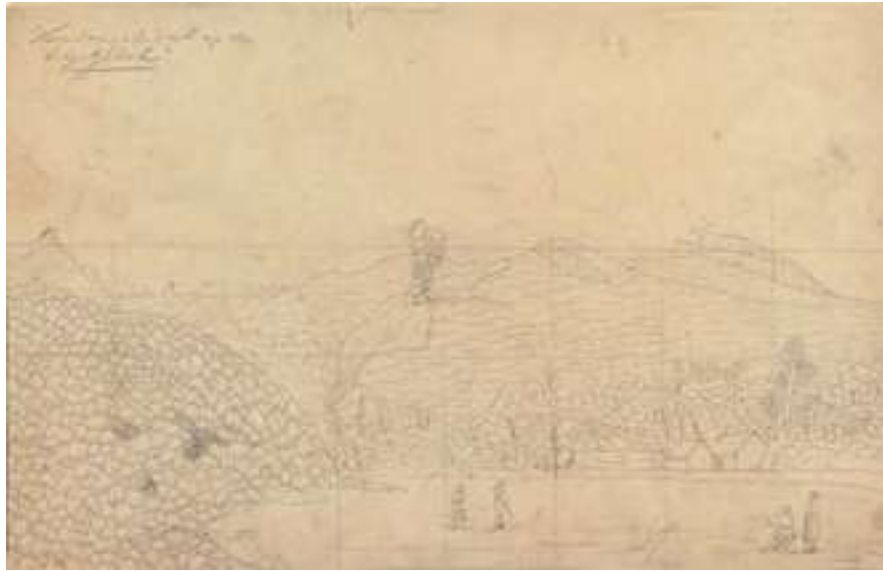


Figure 3. Perspective drawing of the volcano Mount Gede by Tsing Wang Ho in 1831/1832. In the picture Van Oort and Tsing Wang Ho are depicted in the lower right-hand corner. The use of horizontal and vertical lines indicate that Tsing Wang Ho used a perspective grid to produce this drawing. (Naturalis, archives Natuurkundige Commissie, NNM001000334_001).



Figure 4. Illustration of the volcano Mount Gede based on a drawing by Tsing Wang Ho (see Figure 3). The lithographer noted underneath the illustrations: “Tsjing wang ho ad nat[uram] del[ineavit]”. In this published version, Tsing Wang Ho is not depicted but Van Oort and other local helpers are. (C.J. Temminck et al. 1839-1844: Vol. 3, Plate 64. For an online version see: https://dh.brill.com/nco/view/nco_NNM001000871_064/makingsense).

TSING WANG HO: A CHINESE DRAUGHTSMAN IN JAVA

While there is plenty of information about Van Oort's career and activities in the years prior to his journey through the Preanger, we know far less about Tsing Wang Ho. Although we learn from Van Oort's field diaries that Tsing Wang Ho made substantial contributions to the visual work of the Committee, information about his origins and training are scarce. However, since his name is transliterated into Dutch from Mandarin, we can assume that he was one of the skilled Chinese who arrived in Java as immigrants in the late eighteenth and early nineteenth century.¹¹ Probably Tsing Wang Ho travelled to Java from Canton (Guangzhou) in the province of Guangdong in South China. Guangdong was one of the nodal points of a far-flung Chinese trading network which bound Southeast Asia's colonial cities such as Batavia, Singapore, Manila, and China to one another (Alexander Claver 2014: 19-72; Leonard Blussé 1999). By the late-eighteenth century, Canton had developed into a hub for Chinese export art. In the city's workshops, thousands of artists and draughtsmen – some of whom were still children – produced flower paintings, wallpapers, and other Chinese artefacts of varying quality for European households (Fa-ti Fan 2004: 14-39; Guan 2015: 120). British naturalists, among them John Reeves (1774-1856) who was stationed in Canton, made extensive use of this extraordinary concentration of artistic talent in one city. Reeves regularly hired Chinese draughtsmen to produce hundreds of high-quality plant and animal drawings for the Horticultural Society of London (Fan 2004: 43-47; Magee 2011).

Tsing Wang Ho had very probably received a practical training in a workshop in or near Canton. In their studies, Fa-Ti Fan and Kwa Chong Guan offer a fascinating insight into workshop practices in Guangzhou at the turn of the century. Since a better insight into workshop practices is necessary to evaluate the interaction of Tsing Wang Ho and Pieter van Oort in Java, here we paraphrase some of Fan's and Guan's observations (Fan 2004: 47-49; Guan 2015: 320-326). As in Europe, the workshops in Canton worked under the control of a guild system and therefore the training of young artists followed certain rules. It often took years of apprenticeship to prepare young artists for their tasks in the artistic workshops of Guangzhou. The actual work was often subdivided into tasks to achieve sake of uniformity and accuracy. One object – for instance, a painting – passed through the hands and under the eyes of several artists. While one artist was responsible for the background, another could sketch the contours of animals and humans. A third was responsible for the colouring. Motifs were often copied from already existing drawings or sketches. Owing to the high demand for Chinese export art in Europe, Chinese artists sometimes also combined Chinese drawing styles with western drawing techniques such as perspective and chiaroscuro. To do so, they often also learned to handle western drawing implements and paint. It is therefore reasonable to assume that Tsing Wang Ho had arrived in Java with a good understanding of how draughtsmen such as Van Oort worked.

¹¹ We thank Dr Koos Kuiper for sharing this observation with us.

Based on a visual analysis of Tsing Wang Ho's later work in Java, it can be assumed that he had been trained in producing drawings in the so-called *gongbi* style. Unlike the *xieyi* style which was favoured by the Chinese court, the *gongbi* style allowed draughtsmen to produce naturalistic drawings of plants and animals which overlapped with the aesthetic interests of European naturalists (Guan 2015: 321). Draughtsmen trained in the *gongbi* style usually studied manuals such as the *Mustard seed garden manual of painting*, which was first published in the late-seventeenth century. Several slightly changed editions of this immensely popular manual came off the presses in the eighteenth and nineteenth centuries.

The manual, which was also published as English edition in 1956, is split up into different books (Mai-Mai Sze 1956). As well as more general books, it includes volumes on how to draw rocks, trees, plants, people, landscapes, and objects. However, it lacked a book on perspective. Unlike the requirements expected of European artists, Chinese draughtsmen like Tsing Wang Ho were taught that perspective was not optical but, as Guan puts it, axonometric. Instead of assuming a vanishing point in the background at which all lines of a three-dimensional object meet, axonometric drawings depict objects in parallel without optical distortion. This technique allowed Chinese artists to visualize landscapes on large scrolls which could be rolled up. In Cantonese and other workshops, Chinese draughtsmen learned to "ignore the optical law of diminution (which makes objects in the background appear smaller than those in the foreground) and the effects of light and shadow" (Guan 2015: 321) (see also Figure 1).

Tsing Wang Ho's previous training enabled Van Oort and him to enter into a learning process of how to produce perspective drawings of plants and animals. The production of perspective drawings was a complex technique which had been first introduced by Leonardo da Vinci (1452-1519) and Albrecht Dürer (1471-1528) during the Renaissance and was later developed in greater detail in the eighteenth and early-nineteenth century (Edgerton Jr. 1991). A good insight into the role perspective played in natural history in the early-nineteenth century is offered by a manual which Herman Schlegel (1804-1884), a draughtsman and later curator of the Leiden Rijksmuseum van Natuurlijke Historie, published in 1849 (Schlegel 1849). In the manual, entitled *Verhandelingen over de vereischten van natuurkundige afbeeldingen* (Treatise on the requirements for natural historical drawings), Schlegel explains that scientific drawings of animals should be accurate enough to replace collected specimens. Naturalists in Europe who had not been able to observe animals in their natural habitat depended heavily on visual representations like those made by Pieter van Oort and Tsing Wang Ho (Lorraine Daston and Peter Galison 2007; Didi van Trijp 2021: 199-216). Textual descriptions in the form of fieldnotes were often not enough to classify specimens. To safeguard the "scientific" value of drawings, the choice of the proper perspective played an essential role. Only if animals were drawn in linear perspective, could naturalists in Europe make use of the drawings to describe and classify the nature of colonial areas.

In his treatise, Schlegel offers draughtsmen a clear step-to-step routine setting out how to produce perspective drawings of animals large and small: for smaller or flat objects such as birds or butterflies all which was needed was a ruler to make sure that the drawing had the same measurement as the actual specimen. Such objects could be best depicted from a distance of 20 to 120 centimetres (Schlegel 1849: 6). Remaining this close to the object allowed the draughtsmen to depict details accurately while also being able to relate individual parts (for example, the claws of birds) in proportion to the shape of the entire object.

Larger objects with more depth (for example, rhinoceroses) were more challenging, since the human eye has difficulty sensing those parts of the animal which are situated farther away from the viewer. To avoid flawed drawings, draughtsmen needed to place one or two wooden frames (depending on the size of the object) in front of them (Schlegel 1849: 14-23, see also Figure 5).

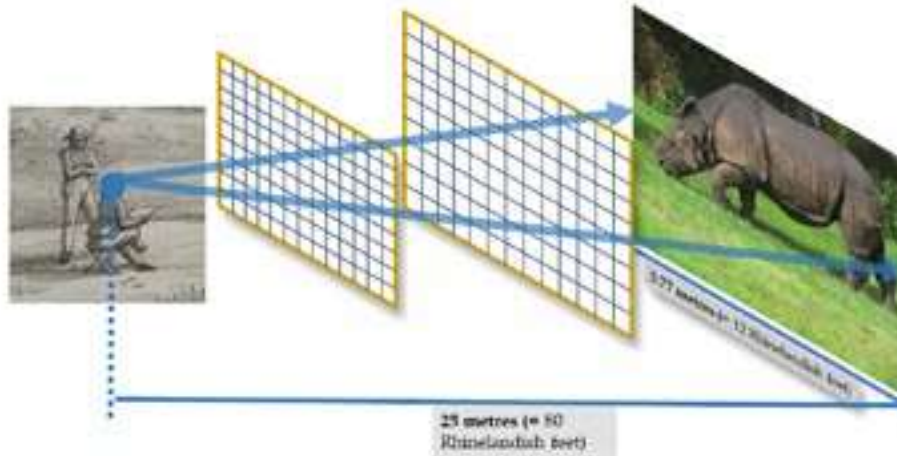


Figure 5. Schematic illustration how perspective drawings of large objects were made in the field.

Each of the frames had to be sub-divided into rectangles by wires running horizontally and vertically. Positioned correctly, the grid enabled draughtsmen additional visual guidance to be able to represent three-dimensional objects accurately on paper. Draughtsmen first had to sketch the outline of the rhinoceros and the individual parts of an animal (for example, legs, head) from a greater distance than the aforementioned 20 to 120 centimetres. Then they were supposed to move closer and fill in all details. This method allowed artists to draw large natural historical objects which would not have fitted onto drawing paper if they had been depicted them from nearby as perspective drawing. Moreover, this technique also prevented the foreshortening of parts which were further away from the eye of the draughtsmen. Alternatively, draughtsmen could also use a large piece of glass with rectangles drawn on it. Glass had the advantage that the outline of the object could be directly drawn onto the glass and then later be copied onto paper.

The extent that perspective mattered is also revealed in a brief comparison of two drawings of an Indian hare (*Lepus nigricollis*) (Figure 6).



Figure 6. Two water-colour drawings of an Indian hare (*Lepus nigricollis*). The drawing on the left was very probably made by Tsing Wang Ho. The one on the right is signed by Pieter van Oort. (Naturalis, archives Natuurkundige Commissie, NNM001000373_001 and NNM00100373_02).

While the right-hand drawing was produced by Pieter van Oort in Java in 1826 or 1827, the one on the left is a copy made by a draughtsman who was less skilled in perspective drawings. The left-hand drawing differs from the one on the right in at least three ways: firstly, the paws of the hare appear flatter in the left-hand drawing. Secondly, the draughtsman put more emphasis on lines than did the draughtsman of the right-hand drawing. Thirdly, the drawing on the left is less detailed than the drawing on the right. The differing rendering of the fur presents a really good example. This and some other stylistic features suggest it was created by a Chinese draughtsman. Although the copy is not signed, we know from Van Oort's diaries that Tsing Wang Ho was the only Chinese draughtsman with whom he collaborated over a longer period of time. Probably the left-hand drawing was made either during or before Van Oort and Tsing Wang Ho left on the Preanger expedition. Besides these differences, there is also a significant overlap. Like the draughtsman who made the drawing on the right, the draughtsman of that on the left made careful use of colour. It is not surprising that European naturalists were often

enthusiast about the use of colour in Chinese drawings (Fan 2004: 50). Van Oort also praised Tsing Wang Ho for his ability to produce accurate copies of drawings made by other artists (Weber and Van Zanen 2021a: 206).

PIETER VAN OORT: A DUTCH DRAUGHTSMAN IN JAVA

Pieter van Oort was born in Utrecht in the Netherlands in 1804 and had (as had Tsing Wang Ho) received a practical training as a draughtsman. His childhood years in Utrecht were characterized by economic instability. Especially in the years after the Napoleonic wars, the middle class struggled to make a living. Van Oort was the eldest son of Hendrik van Oort (1775-1847), an artist and landscape painter. Hendrik van Oort made ends meet by producing landscape paintings for rich individuals and institutions such as the municipal theatre. With his father and his mother, Adriana Stekelenburg (1780-1832), Pieter van Oort grew up in the city centre of Utrecht near the fish market (Kim Nieuwendijk 2011: 85-86). As well as practical lessons in his father's workshop, Pieter probably also attended lessons run by *Kunstliefde*, a local artist society which offered drawing lessons to the youth of Utrecht. In later years, Van Oort regularly exchanged letters with Christiaan Kramm, a pupil of one of the two founders of the society (Kramm 1857: 1221). The increasing availability and growing circulation of perspective manuals in the Netherlands in the late-eighteenth century shows that the production of perspective drawings formed a central part of every artist's training (for example, Caspar Philips Jacobsz 1765; Willem Bilderdijk 1826). In the early-nineteenth century, artist societies like *Kunstliefde* – limited initially to the higher echelons in society – also gradually opened up to lower-middle-class families (Louis van Tilborgh and Annemieke Hoogenboom 1982: 22-26). Since Pieter van Oort's father was an established painter in Utrecht, it can be assumed that he knew many of the artists involved in *Kunstliefde*.

While most of the young artists trained in *Kunstliefde* focused on drawing (naked) human models and plaster casts, Van Oort and his father specialized in making scientific water-colour drawings of prepared and living animals. Since the circumnavigation of James Cook in the second half of the eighteenth century, Europe had witnessed a growing demand for draughtsmen who were able to depict plants, animals and landscapes in the growing colonial empires around the world (John McAleer 2017). This demand could be sensed even in Utrecht.

Pieter van Oort and his father Hendrik regularly made drawings for Theodoor Gerard van Lidth de Jeude (1788-1863), owner of a large and costly collection of prepared animals and illustrated natural history books in Utrecht. He was also the first director of a new National Veterinary School (*Rijksveeartsenijschool*) in Utrecht which now forms part of the city's university. Van Lidth de Jeude taught both practical and more theoretical courses on animal anatomy. It is highly likely that the drawings which Hendrik and Pieter van Oort produced for Van Lidth de Jeude were used in classes. At the time when the veterinary school opened its doors to students, educational

material (for example, in the form of illustrated books or charts) was scarce (Weber and Van Zanen 2021a: 21-22).

Pieter van Oort's talent also did not remain unnoticed in other parts of the Netherlands. After the establishment of the Leiden Museum of Natural History (Rijksmuseum van Natuurlijke Historie), the new director, Coenraad Jacob Temminck (1778-1858), was looking for collectors and draughtsmen whom he could send to the Netherlands Indies as members of the Committee. After the unexpected death of draughtsman Gerrit Laurens Keultjes (1786-1821), who had accompanied the first team of the Committee to Java, Temminck was forced to look for a replacement. Since Temminck's expectations were high, it turned out to be quite difficult to find this replacement. Draughtsmen who were interested in the position were examined to demonstrate their drawing skills on site. In 1825, Van Oort spent a month in the Rijksmuseum van Natuurlijke Historie and produced various drawings for Temminck. Since Heinrich Boie (1794-1894), curator of the Rijksmuseum and member of the Committee, was working on producing a major contribution to the study of amphibians and reptiles, Van Oort was probably asked to produce drawings of turtles like the one depicted in Figure 7. Van Oort's drawing is of a dead Amboina box turtle (*Cuora amboinensis*) which had been collected in Java and sent to the Rijksmuseum.

Van Oort was expected to work according to the strict scientific requirements formulated by the museum. However, a brief comparison of two drawings Van Oort made during his travels in Java in 1826 and thereafter illustrates that he had an elastic view of what it meant to be a "scientific" draughtsman in the early-nineteenth-century colonial world (Weber and Van Zanen 2021a: 22-25) (Figures 8-9).

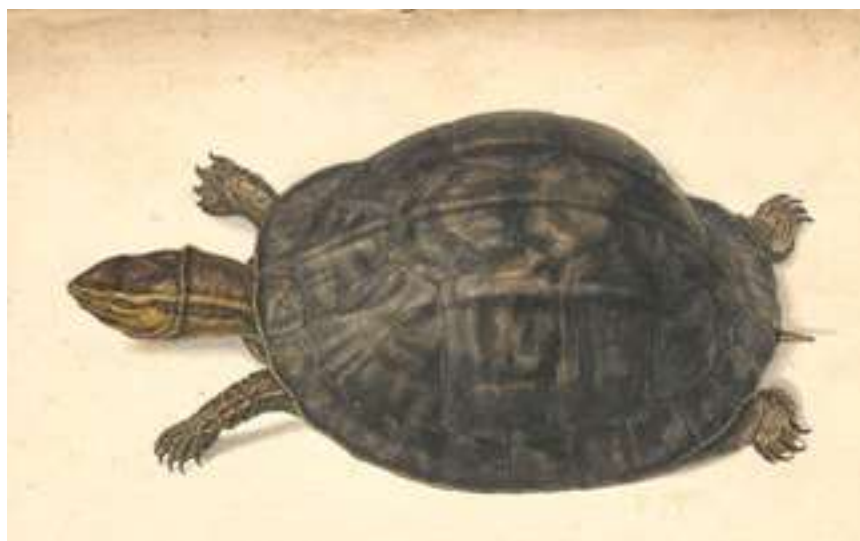


Figure 7. Drawing of an Amboina box turtle (*Cuora amboinensis*) by Pieter van Oort. Name on paper: *Emys curo*. The drawing was probably made prior to Van Oort's departure to Java in 1826. (Naturalis, manuscript *Erpétologie de Java*, BOIE020029).



Figure 8. Drawing of a Lesser Green Leafbird (*Chloropsis cyanopogon*). Water-colour on paper. Name on paper: *Phyllornis cyanopogon*. Drawn by Pieter van Oort in Buitenzorg (Bogor), Java, in May 1827. (Naturalis, archives Natuurkundige Commissie, NNM001000085).

The first drawing of Van Oort depicts a Lesser Green Leafbird (*Chloropsis cyanopogon*) and the second shows a Javan Slow Loris (*Nyctibus javanicus*). The first drawing meets all the requirements of a good scientific drawing according to the definition Schlegel later codified in his manual in the 1840s. First of all, the Lesser Green Leafbird was drawn from nearby, which allowed Van Oort to depict important parts of the bird in detail (for example, claws, feathers). Moreover, the bird is depicted as a precise scale drawing which means that it and its parts are visualized in the correct proportions. Thirdly, the bird was drawn from the side in a sitting posture. Fourthly, the drawing represents the entire species, not just one specimen. Individual features (for example, variations in feathers) are not visible in the drawing. Added pencil drawings show characteristic features of the species, such as the claws and the beak. To capture its colours correctly, Van Oort drew the bird in daylight hours and on paper which was as white as possible.

Unlike the first drawing, the second drawing of the Javan Slow Loris does not meet the requirements of a “scientific” drawing. Schlegel even used this specific drawing by Pieter van Oort as an example of a drawing which was artistic, but not scientific (Schlegel 1849: 30-31). Schlegel remarks that the animal, which is active at night, was depicted in a room which was only partially lit. This improved the artistic quality but did not anything for the scientific quality of the drawing. Most importantly, as Schlegel remarks, the illustration of the Javan Slow Loris was foreshortened, which meant that it

was impossible for naturalists in Europe to understand and reconstruct the animal's precise proportions. It was particularly difficult to see how parts of the animal in the background of the drawing related to parts in the foreground such as the head.



Figure 9. Drawing of a Javan Slow Loris (*Nycticebus javanicus*). Water-colour on paper. Name on paper: *Stenops kukang*. Made by Pieter van Oort on Java between 1826 and 1832. (Naturalis, archives Natuurkundige Commissie, NNM001000401_002).

Van Oort also made creative use of his field diaries. Instead of writing diaries whose content could later be used in scientific publications about the Committee's fieldwork, Van Oort used them to describe the colours of the natural phenomena such as sunrises he observed. He also used his diary to comment on the use of colour in a drawing on which he was working. Sometimes Van Oort also added notes to a sketch in his diary, commenting on the colours he saw, possibly to aid him in a coloured drawing to be worked out later (Figure 10).

Van Oort's diaries also sometimes detail very personal reflections on his time in the Netherlands Indies. Van Oort was socialized in a culture in which parents stimulated their children to keep a diary to reflect upon their emotions, reading and learning about nature, culture and society. For many parents in the early-nineteenth century, it was an established educational routine to read the diaries of their offspring regularly and comment on them

(Arianne Baggerman and Rudolf Dekker 2009). It is therefore not surprising that Van Oort's diaries contain lengthy passages in which he reflects on his own development as a person and a draughtsman in the Dutch colonies (Weber and Van Zanen 2021a: 108-110). Therefore, like other European ego documents produced in Europe and/or colonial areas, Van Oort's diary is almost silent about his interactions with Tsing Wang Ho and other local helpers. There are only a few exceptions, such as the passage in which he notes that Tsing Wang Ho was drawing some orchids on the peak of Mount Salak, while he himself drew a sacred tomb there (in which, he had been told by local helpers, a king of Padjajaran had been buried).



Figure 10. Drawing of "Tjoeroeg Tjieleat", with indications of colours: 'Foreground dark; water snow white; rock dark gray; small plants on the same [rock], beautiful warm green; trees dark, warm green' (*Voorgrond donker; water sneeuw wit; rots donkergrauw; kleine planten op denzelven, schoon warmgroen; boomen donker warmgroen*). Pencil and pen on paper. Drawn and annotated by Pieter van Oort, 14 November 1832. (Naturalis, archives Natuurkundige Commissie, NNM001001118_027).

However, despite this epistemic disadvantage, Pieter van Oort's diary is still of enormous use to historians in improving our understanding of the interaction between different visual cultures in the Dutch colonial world in insular Southeast Asia. This can be done by zooming in on the copying of already existing natural history drawings. Copying natural history drawings

was an essential activity of every naturalist in the early-nineteenth century. Not only the Committee but also many other natural history expeditions in that period made major efforts to safeguard that already available drawings were reproduced and sent to Europe.

COPYING DRAWINGS FROM JAPAN IN THE PREANGER

As well as drawing orchids and other plants, animals and landscapes in the Preanger, Van Oort and, in particular, Tsing Wang Ho, D.H.R. van Gelder (another Committee draughtsman) and De Malines spent weeks copying fish and other drawings of marine animal from Japan. The drawings are part of an enormous collection of Japanese animal and plant specimens which Philip Franz von Siebold (1796-1866) and Heinrich Bürger (1806-1858) assembled during their assignments to Japan in the 1820s and early 1830s (Lipke B. Holthuis and Tetsuo Sakai 1970; Takao Yamaguchi 1997: 1-45; Martien J.P. van Ooijen 2012). Since there was no direct shipping connection between Deshima and the Netherlands, Von Siebold's and Bürger's collection was first dispatched to Batavia where all objects were prepared for shipping to Europe. While previous research has considered the stop-over in Batavia as a routine which did not change the content of the collections, the following section introduces some nuances into that picture.

In January 1831, twenty-four large wooden boxes of items which Siebold and Bürger had assembled in Japan arrived in the harbour of Batavia (Weber and Van Zanen 2021a: 197-198). After having been stored at the harbour for three weeks, eighty porters carried the boxes of specimens, manuscripts and illustrations to the Committee's premises in Buitenzorg where they were unpacked, checked, and repacked. However, since parts of the collection had been damaged by heavy rain and flooding on the way to Buitenzorg, this process took longer than expected. Although the collected birds had been protected by metal boxes, other specimens needed to be dried and otherwise treated. Moreover, the collection also included more than a hundred drawings of fish and other marine animals which had to be copied by the Committee's draughtsmen while they were travelling through the Preanger region. A close reading of Van Oort's diaries shows, for instance, that making copies of many of the collection's fish drawings was a very time intensive endeavour in which Tsing Wang Ho, Van Gelder, and De Malines, played a pivotal role. In March 1832, Van Oort noted in his diary: "With Van Gelder and our Chinese, I am busy copying fish from Japan which were sent [to us] by Mr Burger. [...] There are two hundred drawings from last year and 125 from this year. Seventeen are finished already. Our Chinese has drawn most of them. This man copies as accurately as anyone could wish". As well as emphasizing the labour- and time-intensive endeavour of copying drawings, this quote reveals that previous shipments from Japan had also passed through the hands of the Committee.

Although Van Oort was quite satisfied with the accuracy of the Japanese drawings, he was less pleased with their artistic execution. Van Oort's complaints about these drawings, which were probably the work of Kawahara

Keiga (1786 - circa 1859) a Japanese draughtsman who worked for Von Siebold and Bürger in Deshima (Matthi Forrer and Ken Vos 1987; Van Ooijen 2012: 12), were frequently echoed in that period. Like many other European naturalists, Van Oort complained about the stiffness and flatness and consequently how devoid of life many of the Japanese drawings were (Guan 2015: 321). In their attempt to produce European perspective drawings, the Japanese had indeed produced an accurate drawing but one which lacked the depth necessary to qualify as scientific drawing. In February 1832, Van Oort had already noted in his diary: “Mr Burger has sent 125 drawings of fish, crabs and lobsters which were drawn by a Japanese and are quite accurate. However, the liveliness and light and the brown as well as the firm touch of the brush which usually enhance the quality of drawings are entirely missing”. Depth could, as the quote highlights, be easily achieved by utilizing the effects of light and shadow and the proper use of lines. Figure 11 shows an example of a water-colour drawing of a decapod produced on Deshima in the early-nineteenth century.

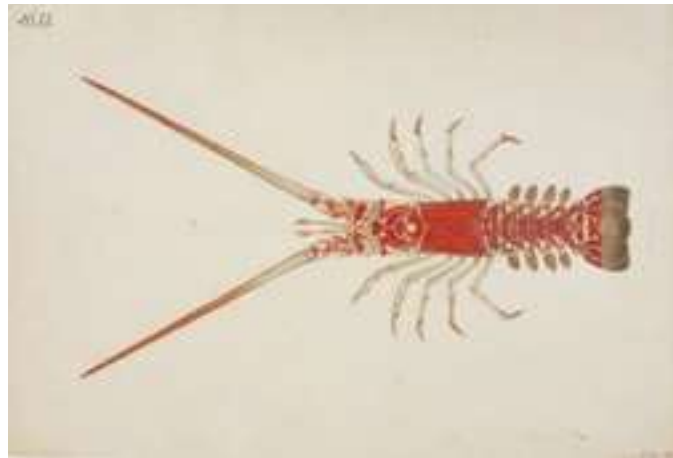


Figure 11. Drawing of a decapod (*Linuparus trigonus*) produced by a Japanese draughtsman on Deshima in the early-nineteenth century, probably Kawahara Keiga. (Naturalis, RMNH.ART.66, see also: <https://commons.wikimedia.org>).

In the weeks thereafter, Tsing Wang Ho worked hard on producing copies of the drawings sent by Von Siebold and Bürger. In March 1832, only five weeks after the arrival of the drawings, Van Oort noted in his diary that seventeen copies were already finished and that Tsing Wang Ho had produced most of them. The accuracy of Tsing Wang Ho's copies of the Japanese drawings was, Van Oort thought, astonishing and therefore the original drawings could soon be forwarded to Leiden, while the copies could remain in Batavia a little bit longer (Weber and Van Zanen 2021a: 198). Owing to this stop-over in Buitenzorg, it could sometimes take more than six months for specimens and drawings from Japan to reach the museum in Leiden (Van Ooijen 2012: 14-15). Many of the fish drawings which Kawahara Keiga produced, and which Tsing Wang Ho and Van Oort copied in Java, were later published as illustrations in a multi-

volume book entitled *Fauna Japonica* (1833-1850). Even nowadays, many of the specimens and drawings which can be found in Siebold and Bürger's collection in Naturalis and the publications based on them, are valuable sources of visual information for taxonomic and related research.

Detecting Tsing Wang Ho's copies in the present-day Naturalis collection of fish drawings from Japan is a difficult undertaking. However, the episode recounting Tsing Wang Ho and Van Oort's encounter highlights that copying formed a central part in the work of scientific illustrators in the early-nineteenth century world. During his time in Java, Van Oort and other draughtsmen of the Committee copied at least 325 drawings which had been sent from Japan. For Tsing Wang Ho, copying more than a dozen of these drawings in a short amount of time, this seemed to be a relatively easy undertaking. Perhaps the speed of work was related to the provenance and style of the drawings. Unlike European drawings of the time, these were by a Japanese draughtsman who had - like Tsing Wang Ho himself - been trained to draw animals and plants as flat two-dimensional objects in a three-dimensional axonometric space. Since perspective did not, or at least to a much lesser extent, matter in the process of copying, the criteria for judging Tsing Wang Ho's drawings shifted towards accuracy and use of colour. On the basis of Van Oort's appreciative comments about Tsing Wang Ho's work, one can only conclude that both topics must have formed a recurring topic in their exchanges. In which language, or more generally, how these exchanges took place is difficult to say. Besides gestures, sign-language and a basic command, and understanding of Malay by both, this was probably also an issue of mutual learning through experimenting, not only with perspective but also with colours, lines, shapes, and composition (Figures 12 and 13).

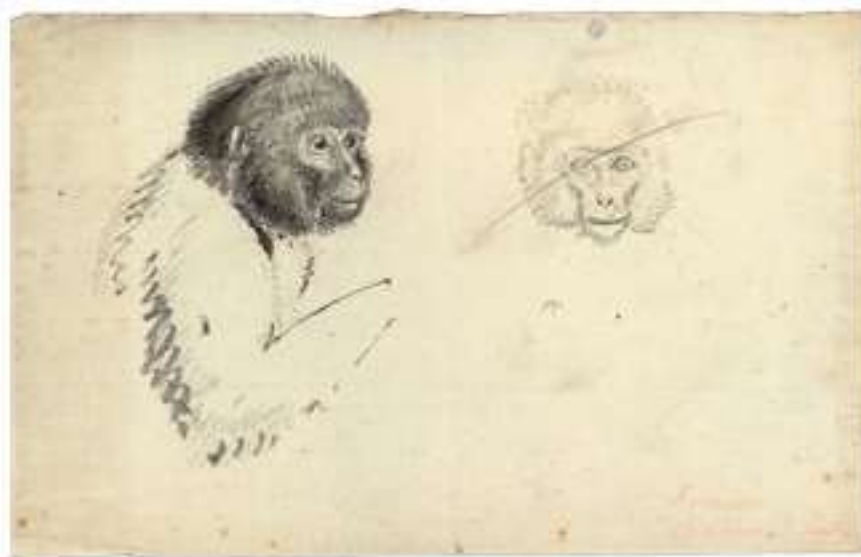


Figure 12. Sketch of a primate probably by Pieter van Oort. (Naturalis, archives Natuurkundige Commissie, NNM001000396).



Figure 13. Sketch of a rabbit. It is unclear whether this sketch was done by Tsing Wang Ho, Pieter van Oort, or some other draughtsman of the Committee. However, the sketch shows that experimenting with colour and form formed part of draughtsmen's everyday life. (Naturalis, archives Natuurkundige Commissie, NNM001000397_002).

CONCLUSION

By discussing matters of perspective, this essay makes three interrelated points. Firstly, it discusses very literally how perspective drawings of plants, animals, and landscapes were produced in Java in the early nineteenth century. The centrepiece of this essay are the water-colour drawings executed by Tsing Wang Ho and Pieter van Oort as members of the Committee during a journey through the Preanger region in the hinterland of Batavia and Buitenzorg. As well as analysing such visual evidence, this essay also depends heavily on the field diaries of Pieter van Oort. Although Van Oort – like many other Europeans of that period – remained largely silent about his local helpers, his diary offers glimpses of the role of local draughtsmen in producing visual representations of Javanese plants and animals. Over a period of at least more than a year, both draughtsmen engaged in a cross-cultural process of learning and experimentation in which different views on how to produce perspective and other forms of water-colour drawings were exchanged. In the long run, these processes of learning and experimentation, which also took place in other colonial areas in Asia, gradually reshaped the visual repertoire on which taxonomic and related biodiversity related research later built.

Perspective also matters to this essay in a second way. By zooming in on the training and daily activities of two scientific illustrators, it is a plea to intensify the study of an often-invisible group whose expertise was essential to the success of natural history expeditions in the nineteenth century. Often scientific draughtsmen such as Van Oort and Tsing Wang Ho are just dismissed

as assistants of the naturalists with whom they were travelling. In the case of Pieter van Oort, we are in a fortunate position. Owing to his preserved drawings and especially to his detailed handwritten diary which he kept until his death in 1834, we can make a cautious venture into a serious historical reconstruction and analysis of his work and encounters in insular Southeast Asia. Not only in Europe, but also more often in colonial areas, the life and activities of scientific illustrators are far less documented. Tsing Wang Ho, for instance, did not leave an extensive diary and additional visual and archival evidence is scarce.

However, this essay has shown that, even in cases for which there is limited evidence, it is possible to lay groundwork for future, more detailed analyses of how cross-cultural encounters shaped visual culture in Indonesia in colonial times. Many of the drawings discussed in this essay display a cross-cultural mix of drawing styles. In particular Tsing Wang Ho's training in the *gongbi* style offered both draughtsmen a solid basis for their collaboration and experimentation in the field. However, while Van Oort and the Committee praised Tsing Wang Ho for his work, the colonial government was more sceptical. As soon as an opportunity arose, the colonial government replaced Tsing Wang Ho with a much less skilled European draughtsman. This episode clearly shows that Van Oort's superiors in Batavia actively discouraged interactions between European and local draughtsmen. This attitude generally adopted by the colonial government was a common feature at the time. In particular in the years after the Java War (1825-1830) which cost more than 200,000 persons their lives, the colonial government was hesitant about prolonging collaborations between European colonial administrators and skilled Chinese, and other local helpers.

Perspective also matters to this essay in a third way. Taken as a whole, it is a strong plea to enrich purely "scientific" readings of natural historical collections by taking a cultural historical or bio-cultural (Alexandria K. Poole 2018) perspective. Visualizations of nature as they can be found in such collections are more than simply "scientific" representations of nature. If approached from a cultural historical perspective, they are material sediments of historical moments in which Chinese and other local visual expertise, European natural history and colonialism were inextricably interwoven.

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