Introduction

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This chapter introduces the main topic and the seven chapters of the edited volume *Toward an Intercultural Natural History of Brazil: The Historia Naturalis Brasiliae Reconsidered*. First, it situates the publication of Piso and Marcgraf's treatise in the context of the Dutch Republic and its global economic ambitions in the mid-seventeenth century. It then briefly reviews its reception history and its impact on science in order to explain the need and importance of yet another scholarly publication about the *Historia Naturalis Brasiliae*. Each one of the seven chapters is thus briefly summarized. This introductory chapter argues that a rich, multi-layered, and novel interpretation of this book can emerge from the interdisciplinary set of research questions and methodologies used in this volume's reconsideration of the treatise.

In 1912, American ichthyologist Eugene Gudger published an article in *Popular Science Monthly* titled *George Marcgrave, the First Student of American Natural History*.[2] The article is a biography of the naturalist, whom Gudger argues was the "… man who first of all essayed to make known to the old world the real natural history of the new."[3] The article presents a short reconstruction of Marcgraf's training as a naturalist, a brief description of his activities in Brazil, a reflection on his ichthyologic contributions, and much praise for his manuscript *Historia Rerum Naturalium Brasiliae*, published together with physician Willem Piso's work on tropical medicine under the title *Historia Naturalis Brasiliae* (henceforth HNB) by Elzevier in Leiden and Amsterdam in 1648.[4] Gudger claimed that practically all of the plant and animal species described and figured in this treatise – about 600 and 400 of them, respectively – were "new to science."[5] It remains otherwise unexplained what the author precisely means by these terms, but one can assume with some degree of certainty that Gudger had modern, post-Linnean standards of zoological and botanical description in mind.

Despite Gudger's rather anachronistic take on Marcgraf's work, the HNB did indeed make an impact on "Old" World science. Yet, Marcgraf was not the first to write about "New" World nature nor was Gudger the first to write about him – so much so that, only two years later, he published a

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postscript in *Science* lamenting the fact that he had missed the publication, in 1908, of Brazilian historian Alfredo de Carvalho's article on Marcgraf, and adding some data and bibliographical reflections to his earlier text.[6] Carvalho, in turn, acknowledged the place of sixteenth-century French authors Jean de Léry and André Thevet as the first to describe Brazilian fauna and flora, and of Francisco Hernandez, commissioned by Phillip II, to have done so for Mexico. However, much like Gudger, Carvalho also firmly defended the point that Marcgraf was – almost one century later – the scholar who first started the "modern" study of Brazilian nature.[7] Both articles are representative of the overly positive tone frequently found in the historiography of Dutch Brazil, placing the Dutch period as a formidable alternative to the Portuguese colonization, or, as aptly put by Joan-Pau Rubiés, "a philo-Dutch counter-myth centered on the figure of Johan Maurits" that reasserts Dutch exceptionalism and modernity in the early modern era.[8] In this counter-myth, the HNB features as one of the finest material outcomes.

This is not to say that the HNB is *not* a remarkable product of Johan Maurits of Nassau-Siegen's colonial endeavors and editorial sponsorship. An in-folio tome of about 400 pages, containing hundreds of animal and plant descriptions and their images, the HNB impressed the early modern reader with an abundance of well-organized information about Brazilian nature. However, its uniqueness does not rest on its supposed first place in an extemporaneous chronology of European scientific explorers of "New" World nature, but rather on a complex combination of internal and external factors, including its physical qualities, its lavish illustrations, the careful program of distribution carried out by its patron and its publisher, the dynamics of the Dutch printing market in the early modern period, and, of course, the sheer amount and variety of natural history descriptions presented therein. Additionally, in the HNB, the commercial and political interests of the Dutch in the Americas are clearly addressed, adding a layer of political pamphleteering to its many functions.

To minimize confusion, in this volume we have chosen to consistently refer to the HNB as a whole as a "treatise" or a "tome;" its original division into two separately titled and paginated works by Piso and Marcgraf respectively is maintained by using the terms "part I" (Piso) and "part II" (Marcgraf); finally, the subsequent separation into "*libri*" are either translated literally as "books" or referred to by the more familiar "chapters."

In 1658, Willem Piso published a treatise named *De Indiae utriusque Re Naturali et Medica Libri Quatuordecim*, which is often erroneously considered as a second edition of the HNB.[9] In fact, Piso's volume is a rearrangement of many sections of the HNB. *De Indiae utriusque* … is divided into two parts. The first one contains six chapters on tropical medicine alongside chapters on the plants and animals of Brazil. The former were authored by Piso and correspond to his work as published in part I of the HNB; the latter are taken from Marcgraf's *Historia Rerum* … (part II

of the HNB), but not attributed to him thereby suggesting that these studies had also been carried out by Piso. The second part of *De Indiae utriusque …* is likewise composed by Marcgraf's two chapters on topography, meteorology, and on the inhabitants of Brazil and Chile, corresponding to the HNB's part II, chapter ("book") eight. Finally, this volume also includes Jacobus Bontius' natural history of Java in the East Indies, *De Medicina Indorum*,[10] thereby uniting the Dutch West and East Indies in one treatise and giving the book a global range.

While a detailed comparison of these two versions of the HNB is outside the scope of this introduction, it is important to briefly address the political and economic context of the Dutch Republic (or the United Provinces of the Netherlands) in which these treatises were created. In the mid-seventeenth century, the Dutch East- and West India Companies, with the support of the central government (the *Staten Generaal*), were busy trying to expand and consolidate their colonies abroad and to strengthen their commercial activities all around the world. Yet, much changed in the 10 years that separated the publication of the HNB and of Piso's *De Indiae utriusque …* By 1648, the United Provinces had just gained their independence from the Spanish Empire after the Eighty Years' War and the HNB contains clear signs of attempts to confront and compare the Dutch overseas possessions and their economic potential to those of the Habsburgs. For instance, in the entries about sugar and manioc, Johannes de Laet, editor of the HNB and, importantly, also one of the directors of the West India Company (WIC), added an entire new chapter to compare Marcgraf's reflections on sugar and manioc to the writings of Francisco Ximenes on the same plants in New Spain. Both crops were essential to the economy of Dutch Brazil. Sugar was a cash crop and the main reason why the WIC conquered Brazil; as for manioc, Johan Maurits had made it mandatory for sugar-planters to devote a percentage of their lands to growing manioc and, in doing so, tried to solve the problem of hunger in the colony. In highlighting the methods of and riches coming from sugar production, and in drawing attention to the governor-general's solution to the food crisis in Brazil, De Laet also showed prospective colonists and the *Staten Generaal* how the colony was a viable source of profit. The HNB was therefore a guidebook to life in the colony just as much as a comparison between Dutch and Spanish overseas possessions; one that included a strong statement about the viability of Brazil for the Dutch.

The loss of Dutch Brazil in 1654 put a definite end to the public debate on Brazil and the Atlantic, which had peaked in the 1640s,[11] and by the time Piso's volume came out there was no reason to invest in propaganda for the WIC nor to praise the riches of Brazil. Therefore, in republishing (parts of) the HNB, Piso chose a different title (and different ensuing title page): one that reinforced Dutch commercial possibilities all over the globe, but particularly in the East Indies where the profits of international trade were to be found. In this sense, both treatises, while being extremely similar in textual terms, represent very different political projects of the Dutch Republic.

Despite Piso's effort to replicate the success of the HNB, it was the original edition that made history, partially due to the patronage of Johan Maurits and the strategic editorship and distribution by De Laet and the Elzevier publishing house. Similarly, as Neil Safier has pointed out, "part of this wide appeal had to do quite simply with the fact that the HNB was the sole natural historical text printed in the seventeenth century that focused primarily, if not exclusively, on South America."[12] Immediately after its publication, it became a much-cited, authoritative source on the fauna and flora of South America, so much so that the Swedish naturalist Carl Linnaeus used its names and descriptions of species to create part of his taxonomic system and received lavish praise in Diderot and d'Alembert's *Encyclopédie*.[13] Throughout the eighteenth century, scholars continued to refer to Piso and Marcgraf's work as the leading authority on the natural history of Brazil, providing material for contrast and comparison to nature elsewhere in the "New" World.[14] In fact, its impact – and physical presence – went beyond Europe and the Americas: a number of copies of the HNB were taken by James Cook and his crew for consultation during their voyages on board the *Endeavour*,[15] and its physical presence in historical libraries around the world proves the extent of its dissemination.[16] It is generally agreed that, at least in terms of the breadth and scope of identification and description of botanical species, the treatise was only superseded two centuries later by the *Flora Brasiliensis* of Johann Baptiste von Spix and Carl von Martius.[17]

Up until the present day, scholars continue to discuss the HNB from diverse disciplinary angles. From the perspective of life sciences, scholars have been using the treatise as a source of information on the biodiversity of Brazil, with recent scholarly literature using it for taxonomic identification and comparative studies between the presence, the naming, and the use of plants in colonial era and present-day Brazil.[18] Similarly, the HNB has been studied from a historical perspective as an object of inquiry in itself. In this sense, many are the publications praising its contributions to "New" World botany and zoology,[19] as well as those critically discussing the treatise from the perspectives of the history of science and medicine, and art history.[20] Marcgraf and Piso have each received due attention in biographical works.[21] Furthermore, there have been new studies on the astronomical section of the HNB, as well as on the expeditions and cartographical work of Georg Marcgraf.[22]

One may wonder, what else is there to be said about such a well-known tome? The aim of this edited volume is to reconsider the HNB as a multilayered, complex compilation of experiences and knowledge, one that is better understood if looked at from multiple, sometimes contradictory, interdisciplinary viewpoints. Instead of considering the HNB as a masterpiece of Western science, the chapters in this volume interpret it as the product of global intercultural encounters in the early modern era. As such, chapters attempt to contextualize the treatise vis-à-vis its predecessors and

contemporaneous works of natural history and to test its botanical, zoological, and linguistic accuracy and usefulness in the present day. Moreover, this volume hopes to suggest a model for scholarship on the history and historiography of knowledge, arguing that it is possible to write global histories of knowledge-production by concentrating on one individual, physically concrete object of study, which in turn can be deconstructed into a set of entangled parts or multiplied into various interdisciplinary questions. In this sense, and in order to reframe the HNB as a point of reference rather than a starting point, this edited volume contains seven chapters by scholars representing different fields of knowledge, including anthropology, botany, linguistics, book history, early modern and medieval history, and art history. Therefore, the chapters reflect the types of scholarly questions and methodologies typical of their authors' respective disciplinary trainings.

The volume starts with a chapter that introduces the making of the HNB from a comparative perspective. Singh and Françozo explore how both the HNB, on the natural history of Brazil, and the *Hortus Malabaricus*, on Indian botany, are products of Dutch colonial engagements with Indigenous knowledge-systems. By doing so, the chapter proposes that the HNB can be better understood when read alongside other such treatises of natural history produced in the seventeenth century Netherlands, following a specific pattern of information acquisition and later publication.

Chapter 2 moves from the Dutch to the Portuguese Empire and likewise reads the HNB comparatively, this time alongside Portuguese medical texts of the seventeenth- and eighteenth-centuries. Walker researches how each of them codified Indigenous knowledge and, although the author defends the superiority of the HNB vis-à-vis its Iberian counterparts, he also points out and explores the essential role of works such as Da Orta's in providing Piso and Marcgraf with a framework and a basis from which they could prepare for and imagine what they would find in the "New" World.

Chapter 3, by Alsemgeest and Bos, presents the first complete census of the existing copies of the HNB in public libraries worldwide, locating for the first time more than 300 copies of the treatise, including the identification of another 8 colored copies in addition to the 6 that were previously known. Based on data from the census, the chapter analyzes the patterns and particularities of the trajectory of this tome, making important points about its initial distribution and the distinction it later received. The chapter is accompanied by the census itself, published as an appendix towards the end of this volume.

In Chapter 4, Van Andel, Françozo, and Alcántara Rodríguez delve into one particular, important plant product of the tropics – the copaiba balsam – and review a series of early reports on this species and its medicinal properties. By exploring accounts from the sixteenth- and seventeenth-centuries, as well as contemporaneous pharmacopeia, the authors show the confusion that arose in the taxonomy, uses, and names for this plant, thereby highlighting how the careful study of the original historical documents associated

with the HNB, such as the images in the *Libri Picturati* in Kraków, can greatly assist in the identification of plants and thus solidifying the usefulness of such colonial natural histories for present-day botanists.

Chapter 5, by Willemsen, refers to the medieval tradition of bestiaries to explore changes and continuities in the format and content of the HNB vis-à-vis the description of animals. The chapter defends the point that the treatise is as much rooted in tradition as it is modern, and, furthermore, adds evidence to the central role played by De Laet in the composition of the tome.

In Chapter 6, Smith offers an autoptic reading of the HNB focusing on the chapters about fish and birds. The chapter explores how, in his descriptions, Marcgraf sometimes closely follows, while at other times completely diverges from, the sixteenth-century naturalist tradition, thereby placing Marcgraf in conversation with Aldrovandi, Gessner, Belon, and Rondelet – and later on also comparing him to Willughby and Ray.

Finally, in Chapter 7, Cruz and Praça explore the Indigenous terminology used in the HNB as an entry point by which to expand an ongoing project of language documentation among speakers of languages of the Tupi-stock in contemporary Brazil. The chapter revisits the history of the use of Tupi as *língua-geral* in Portuguese America. It then presents the results of research carried out with three distinct Indigenous peoples in Brazil: the Apyãwa, Baré, and Tapeba. In doing so, the chapter proposes a present-day use for this centuries-old tome, aligning one of the material legacies of Dutch Brazil with contemporary efforts for language revitalization.

The main questions that cut across all contributions address the tensions between the treatise's modernity *versus* tradition; its practical usefulness as a guidebook *versus* its character as a diplomatic gift or a collectible tome; the co-existence of Marcgraf and Piso's eyewitness observations *versus* the recurring references to classic and earlier naturalist accounts, among others. Put together, the seven chapters of this volume present a kaleidoscope of possibilities of how to interpret the HNB within the dynamic context of knowledge production about the "New" World in the early modern era, while also suggesting approaches to continue profiting from its subject matter in the present day.

Notes

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2 Eugene W. Gudger, "George Marcgrave, the First Student of American Natural History," *Popular Science Monthly* 81 (1912): 250–273.

3 Gudger, "George Marcgrave," 251.

4 Willem Piso and Georg Marcgraf, *Historia Naturalis Brasiliae: In qua non tantum Plantae et Animalia, sed et Indigenarum Morbi, Ingenia et Mores Describuntur et Iconibus supra Quingentas Illustrantur* (Leiden and Amsterdam: Elzevier, 1648).

The only translation of this treatise was published in the mid-twentieth century in Brazil in the form of two books that separate the HNB into its two parts: George Marcgrave, *História Natural do Brasil*, trans. José Procópio de Magalhães (São Paulo: Imprensa Oficial do Estado: 1942 [1648]); and Guilherme Piso, *História Natural do Brasil Ilustrada* (São Paulo: Companhia Editora Nacional, 1948 [1648]).

5 Gudger, "George Marcgrave," 261.

6 Eugene W. Gudger, "George Marcgrave, a postscript," *Science* 40, no. 1032 (1914): 507–509.

7 Alfredo de Carvalho, "Um Naturalista do Século XVII: George Markgraf 1610–1644," *Revista do Instituto Histórico Arqueológico e Geográfico Pernambucano* XIII (1908): 215.

8 Joan-Pau Rubiés, "Epilogue: Mythologies of Dutch Brazil," in *The Legacy of Dutch Brazil*, ed. Michiel van Groesen (New York, NY and Cambridge, UK: Cambridge University Press, 2014), 264–318.

9 Willem Piso, *De Indiæ utriusque Re Naturali et Medica Libri Quatuordecim* (Amsterdam: Elzevier, 1658). A Brazilian translation of the book came out as Guilherme Piso, *História Natural e Médica da Índia Ocidental* (Rio de Janeiro: Instituto Nacional do Livro, 1957).

10 Jacob Bontius, *De Medicina Indorum* (Leiden: Franciscum Hackium, 1642).

11 Michiel van Groesen, *Amsterdam's Atlantic: Print Culture and the Making of Dutch Brazil* (Philadelphia, PA: University of Pennsylvania Press, 2017).

12 Neil Safier, "Beyond Brazilian Nature: The Editorial Itineraries of Marcgraf and Piso's *Historia Naturalis Brasiliae,*" in *The Legacy of Dutch Brazil*, ed. Michiel van Groesen (New York, NY and Cambridge, UK: Cambridge University Press, 2014), 169.

13 Peter J.P. Whitehead and Marinus Boeseman, *A Portrait of Dutch 17th Century Brazil: Animals, Plants and People by the Artists of Johan Maurits of Nassau* (Amsterdam: North Holland Publishing Company, 1989); Safier, "Beyond Brazilian Nature," 178.

14 See Willemsen in this volume.

15 Denis J. Carr, "The Books that Sailed with the Endeavour," *Endeavour* 7, no. 4 (1983): 194–201.

16 See Alsemgeest and Bos in this volume.

17 Carl von Martius, *Flora Brasiliensis* (Munich and Leipzig: R. Oldenbourg, 1840–1906). For a discussion of what "superseded" actually encompassed, see Safier, "Beyond Brazilian Nature."

18 Guilherme Garbino, Carla Aquino and Raone Beltrão-Mendes, "Marcgrave's Red-tailed Monkey: The Earliest European Depiction of a Titi Monkey," *Archives of Natural History* 48 (2021): 131–138, doi: 10.3366/anh.2021.0692; Mireia Alcantara-Rodriguez, Mariana Françozo and Tinde van Andel, "Plant Knowledge in the *Historia Naturalis Brasiliae* (1648): Retentions of Seventeenth-Century Plant Use in Brazil," *Economic Botany* 73, no. 3 (2019): 390–404, doi: 10.1007/s12231-019-09469-w; Mireia Alcántara Rodríguez, Isabela Pombo Geertsma, Mariana Françozo, and Tinde van Andel, "Marcgrave and Piso's Plants for Sale: The Presence of Plant Species and Names from the Historia Naturalis Brasiliae (1648) in Contemporary Brazilian Markets," *Journal of Ethnopharmacology* 259 (2020): 112911, doi: 10.1016/j.jep.2020.112911.

19 Maria F.T. Medeiros and Ulysses P. Albuquerque, "Food Flora in 17th Century Northeast Region of Brazil in *Historia Naturalis Brasiliae*," *Journal of Ethnobiology and Ethnomedicine* 10 (2014): 50, doi: 10.1186/1746-4269-10-50; Peter Wagner, "Das Markgraf-Herbarium," in *Sein Feld War die Welt: Johann Moritz von Nassau-Siegen (1604–1679)*, ed. Gerhard Brunn and Cornelius Neutsch (Münster: Waxmann, 2008), 233–245; Marinus Boeseman, "A Hidden Early

Source of Information on North-Eastern Brazilian Zoology," *Zoologische Mededelingen Leiden* 68, no. 12 (1994): 113–125; Peter Whitehead, "Georg Marcgraf and Brazilian Zoology," in *Johan Maurits van Nassau-Siegen 1604–1679*, ed. Ernst van den Boogaart (The Hague: The Johan Maurits van Nassau Stichting, 1979), 425–471; Peter Whitehead, "The Original Drawings for the *Historia Naturalis Brasiliae* of Piso and Marcgrave (1648)," *Journal of the Society for the Bibliography of Natural History* 7, no. 4 (1976): 409–422, doi: 10.3366/jsbnh.1976.7.4.409.

20 Safier, "Beyond Brazilian Nature"; Harold J. Cook, *Matters of Exchange: Commerce, Medicine, and Science in the Dutch Golden Age* (New Haven, CT: Yale University Press, 2007); Timothy D. Walker, "The Medicines Trade in the Portuguese Atlantic World: Acquisition and Dissemination of Healing Knowledge from Brazil (c. 1580–1800)," *Social History of Medicine* 26, no. 3 (2013): 403–431, doi: 10.1093/shm/hkt010; Junia Furtado, "Tropical Empiricism: Making Medical Knowledge in Colonial Brazil," in *Science and Empire in the Atlantic World*, ed. James Delbourgo and Nicholas Dew (New York, NY: Routledge, 2007), 127–152; David Freedberg, "Science, Commerce, and Art: Neglected Topics at the Junction of History and Art History," in *Art in History. History in Art*, ed. David Freedberg and Jan de Vries (Santa Monica: The Getty Center Publication Programs, 1991), 376–428; Julie Hochstrasser, "Human Nature: Observing Dutch Brazil," in *Engaging with Nature: Essays on the Natural World in Medieval and Early Modern Europe*, ed. Barbara Hanawalt and Lisa Kiser (Notre Dame: University of Notre Dame Press, 2008), 155–199.

21 Elke Pies, *Willem Piso (1611–1678)* (Düsseldorf: Interma-orb Verlagsgruppe, 1981); Rebecca Parker Brienen, "Georg Marcgraf (1610–c.1644): A German Cartographer, Astronomer and Naturalist-Illustrator in Colonial Dutch Brazil," *Itinerario* 25, no. 1 (2001): 85–122, doi: 10.1017/S0165115300005581.

22 Oscar Matsuura and Huub Zuidervaart, "America's Earliest (European-style) Astronomical Observatory," in *Scientific Instruments in the History of Science: Studies in Transfer, Use and Preservation*, ed. Marcus Granato and Marta C. Lourenço (Rio de Janeiro: Museu de Astronomia e Ciências Afins, 2014), 33–52; Ernst van den Boogaart and Rebecca Parker Brienen, eds., *Informações do Ceará de George Marcgraf (Junho-Agosto de 1639)* (Rio de Janeiro: Index, 2002).