INTRODUCTION

The fiercely talented and widely acclaimed Netherlandish printmaker, painter, and draftsman Jacques de Gheyn II (1565–1629) is the author of some of the Dutch Golden Age's most enigmatic imagery.[1] His work is often hailed for its variety, manner, and even its idiosyncrasies; and for heralding developments characteristic of Dutch seventeenth-century art. The drawings and paintings of *naturalia* he produced in Leiden mark an important shift – from the humanist production characteristic of Albrecht Dürer (1471–1528) and his many followers to the popularization of botanical and horticultural publications and the rise of independent flower still-life paintings nearly a century later. These works by de Gheyn partake of and contribute to the culture of early modern natural history and curiosity, the realm of and immediately surrounding scientific endeavors. They evoke an empirical (or Baconian) approach to the facts of nature, embody contemporary concerns with morphology and classification in attempting to understand and describe the natural world, and engage a long-standing philosophical and artistic preoccupation with the boundaries between art and nature. During the same years that he made such works, de Gheyn also produced a large number of images of witches, witchcraft, gypsies, and other subjects that are not only evidently not scientific but also more concerned with preternatural than natural phenomena. This latter group of works is significantly aligned with artistic theories of the imagination and contemporary European discussions of demonological effects of the imagination.

Art, Science, and Witchcraft in Early Modern Holland is the first sustained study of the perplexing oscillation in de Gheyn's oeuvre between scientific naturalism and fantastic imagery, and as such it offers an account of the reciprocity between visual representation and early modern descriptive science on the one hand and of the parallels between demonological theories of the human imagination and artistic theories of creativity on the other. A vocabulary and set of practices emerged within natural history of the sixteenth and seventeenth centuries that validated images so

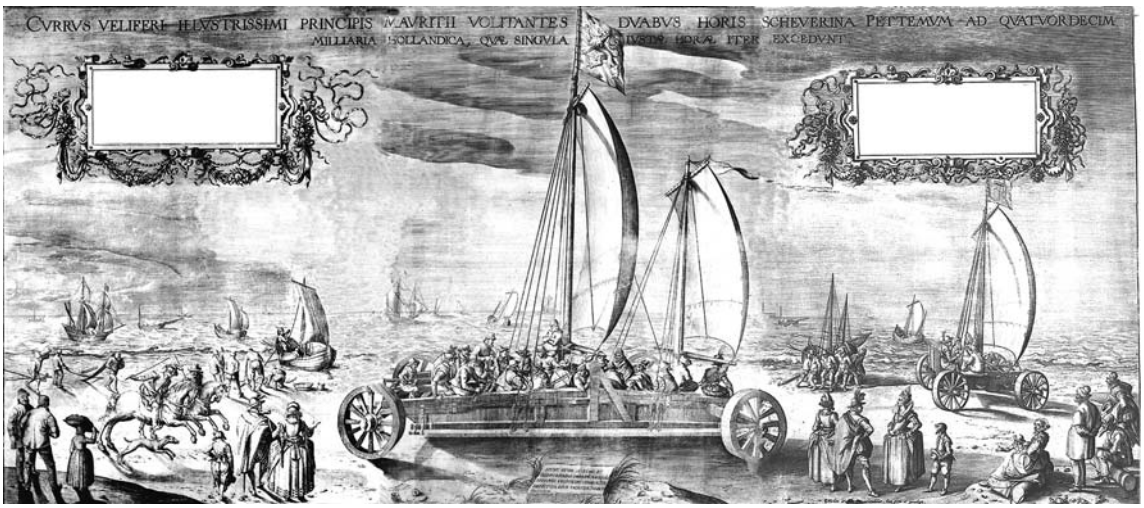
1. Jacques de Gheyn II, *Figures on a Beach*, 1602–3, pen and ink (verso of Plate 1), 18.5 × 24.5 cm. Städelsches Kunstinstitut Frankfurt.

naturalistic that they were deemed capable of standing in for what they represented. At the same time, skeptical theories about the nature of witchcraft held that the phenomena identified and prosecuted as witchcraft amounted, in many cases, to internal and deceptive images – images produced by the (deluded) imagination.

One of the most compelling of de Gheyn's works is a double-sided sheet of sketches, now in Frankfurt, dated circa 1603. The contents of this sheet are representative of key features of de Gheyn's oeuvre – namely, the painstaking rendering of the natural world and bizarre fictions featuring witches, their familiars, and their victims. One side of the sheet (Plate 1) contains drawings of a group of hybrid figures in a fiendish sort of huddle, three related figures making off to the left, and a bare or homeless hermit crab. The placement of the crab and its scale are incommensurate with what is sketched in pen and ink behind it. The exacting application of color in the body of the crab renders its features – jaunty, extended antennae; poky eyes; fleshy tail – entirely credible. The creatures assembled around the multiteated, bat-eared, frog-legged, seated creature at the right of the sheet and the figures who accompany a bald figure sporting a short cape and a tail at the left are drawn in a brisker, sketchier manner that makes it difficult to discern what exactly they are up to – or, indeed, what their relationship to the hermit crab might be. The difference between the shadows cast by the crab and the shading of the figure groups behind it sharpens the contrast between the two kinds of pictures – naturalistic and fantastic – this sheet conjoins.

On the verso of this sheet (Fig. 1), de Gheyn drew several vivid sketches of contemporary figures, among them men and a woman who walk, sit, converse, or pose with arm akimbo. Similar spectators and bystanders reappear in the foreground of an imposing engraving (Fig. 2) after de Gheyn of land yachts designed by the enterprising Dutch engineer Simon Stevin (1548–1620) for the Stadholder of the Netherlands, Prince Maurits (1567–1625).[2] The engraving shows one large ship and one small, which were able to travel at speeds of up to forty kilometers per hour along the sandy beaches of the North Sea. In the spring of 1602, Prince Maurits and his brother Frederick Hendrick sailed the yachts, laden with dignitaries and officials, along the coast from Scheveningen to Petten. Their maiden journey is commemorated in the 1603 engraving, which depicts the audience that gathered as well as riders on horseback trying to keep apace of the sand wagons. The fact that the verso of the *Study of Hermit Crab and Witchcraft* contains sketches de Gheyn made in preparation for the design of the engraving of Maurits's "renowned *curiosum*"[3] is doubly interesting: It suggests that the recto sketches were not made earlier than 1602–3, and it amplifies the contrast of manners and subject matters at play in this sheet.

This remarkable drawing stages a dramatic conjunction of two kinds of subject matter and dual modes of representation for which de Gheyn is known. Much of his oeuvre is devoted to depicting observable reality with the perspicuity of a disciplined empiricist – the naturalistic representation of the natural world – and as much of it again features unruly denizens of the realm of the fantastic, most



2. Willem van Swanenburgh after Jacques de Gheyn II, *The Land Yachts of Prince Maurits*, 1603, engraving on three plates. Total measurements 54 × 125.5 cm. Rijksmuseum Amsterdam.

of them witches. De Gheyn's works range from painstaking depictions of flowers, insects, blowfish, and other natural history subjects to fiercely rendered images of foreboding landscapes, gypsies, and witches. The bystanders on the verso of the *Study of Hermit Crab and Witchcraft* and the carefully observed forms of the crab's body on its recto are consistent with his many naturalistic renderings of the observable world, whereas the fictive, hybrid figures are of a kind with his more fantastic works.

Svetlana Alpers has written of this drawing that the "hermit crab . . . drawn in all of its spiky detail beside a kind of witches' sabbath puts the complex relationship between curiosity and imagination in pictorial terms."[4] These different modes of representation and their respective subjects pertain crucially to broader patterns of early modern epistemology. In addition, the connection between the realistic depiction of observable reality and the production of imaginary entities can be understood as a function of the distinction drawn by Karel van Mander (1548–1606) in his *Schilder-Boeck* (1604) between works of art made *naer het leven* (from the life) and those done *uyt den gheest* (from the mind or spirit). This distinction, central to nascent Dutch art theory, is but one means of expressing the connection between mimesis and imagination.

Much like de Gheyn's *Study of Hermit Crab and Witchcraft*, this book has two subjects: on the one hand, the place of naturalistic images and, more generally, art in natural history and science and, on the other hand, theories of imagination and representations of witchcraft in the late sixteenth and early seventeenth centuries. This account is grounded in the work of the dextrous and fascinating de Gheyn, who is both a representative and elusive figure in the history of the development of Netherlandish art. His paintings of floral compositions are heralded as among the first Dutch still-life paintings and his graphic works have long been admired, but de Gheyn's art remains enigmatic. Much of this has to do with the virtuosic range of his production, exemplified though not exhausted in the diversity of genres represented in the *Study of Hermit Crab and Witchcraft*. He also painted allegorical still lifes and historical works; his printed oeuvre ranges from cartography and portraiture to allegory and religious scenes. Moreover, the association between natural history and witchcraft, in de Gheyn's work as also more generally, is not self-evident and is difficult to account for in comprehensive terms.

From the perspective of art history, stylistic differences and contrasts in subject matter among works by a single artist are perplexing. And from the perspective of the history of early modern thought and science, it is not yet wholly clear – although evidence is mounting – how to chart affiliations between empiricism and the occult. In approaching the work of de Gheyn with these concerns in mind, I have followed David Freedberg's recommendation: "It is all very well to insist

on the importance of considering the full range of Dutch visual culture, but what remains to be identified is the relationship that may or may not exist between particular kinds of knowledge on the one hand and individual representational genres on the other."[5] Thus, I explore the significance of van Mander's pairing of the terms *naer het leven* and *uyt den gheest* in the artist's biography and account for these modes of representation in broader epistemological terms. Part I of this book offers an analysis of de Gheyn's representation of nature; Part II presents a new model for the association of early modern representations of witchcraft with contemporary conceptions of imagination. Together, they show how de Gheyn's pictorial works exemplify fundamental aspects of the practice and theory of natural history and of the imagination at the turn of the seventeenth century.

"Much *nae t'leven*"

The autobiographical essay written by Dutch statesman Constantijn Huygens (1596–1687) in circa 1630 closes with a discussion of the two natural philosophers Huygens considered the most important critics of "the hollow concepts, theories, and axioms of the ancients": Francis Bacon (1561–1626) and Cornelis Drebbel (1572–1633).[6] Huygens carefully enumerated their works, from Bacon's ambitious *Instauratio Magna* (1620) to Drebbel's submarine, *perpetuum mobile*, camera obscura, and microscope. In keeping with the spirit of scientific endeavors of his time, Huygens moved cunningly from the promise of a revolutionary epistemological shift in Bacon's works to the study and appreciation of the most minute elements of the natural world, as seen through Drebbel's lenses. The tiny things that become visible, suddenly, under the microscope designed by Drebbel ("this wonderful tube") comprise what Huygens called an "other treasure room of nature." On first view, the microscope appears to reveal nothing – users complain of not being able to see anything – as the sights are wholly unfamiliar. Soon thereafter, however, they "shout with delight that their eyes perceive the most unbelievable things." Exposure to this new visual horizon comes not without a sense of wonder: "It is truly as if you stand before a new theater of nature, another world."[7]

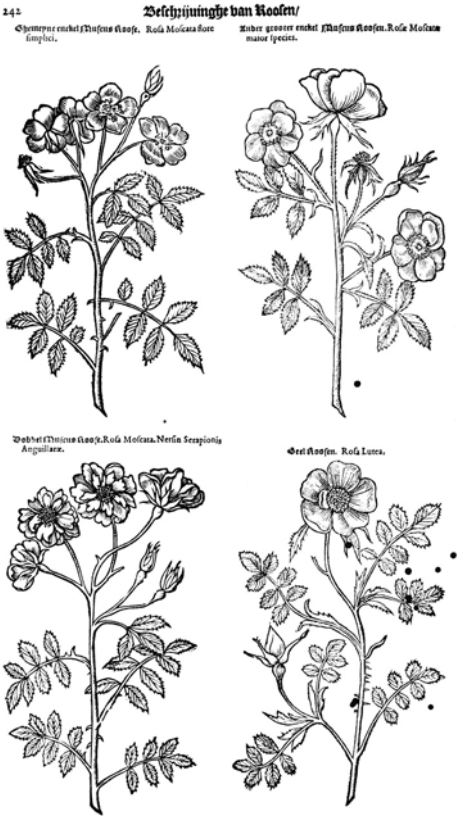
The "New World" revealed by Drebbel's microscope conjures myriad associations, in the context of Baconian experimental science and European voyages of discovery and conquest. In the event, this "new theater of nature" called to Huygens's mind the art of Jacques de Gheyn II, his friend and neighbor in The Hague. De Gheyn died in 1629 at the age of sixty-four, but, according to Huygens:

> If [he] had lived longer, he would presumably have undertaken to depict exactly those smallest objects and insects with a very fine

> brush. I had already begun to push him in that direction and he was open to the idea. He would have assembled [these pictures] in a book, copies of which would have been engraved in copper, which he would have titled "The New World."[8]

Huygens's fictional dexterity is impressive: In the course of his autobiographical essay, he offered a striking account of the empirical unveiling of a new world newly observed and its representation in drawn and printed form. Huygens made of the artist de Gheyn the future author of a work of natural history, a volume of images of objects and insects observed under the microscope. One thinks, reading this, of efforts such as Robert Hooke's *Micrographia* (1665), famous for its exacting renderings of specimens observed under magnification. "The New World" Huygens described pertains – metaphorically by way of its projected title, technically by way of its making and medium, and substantially by way of its contents – to the efforts and products of early modern science. (By such products, I refer principally to the many catalogues of the natural world published and disseminated in succession throughout the second half of the sixteenth century. These botanical, zoological, and icthyographical volumes were produced in significant numbers, were often

3. Anonymous, *Rosa Centifolia Batavica*, woodcut, in Carolus Clusius, *Exoticorum libri decem* (1605), p. 183. Courtesy of Amsterdam University Library, Rare Books Department (UBA 464 A 14).



4. Anonymous, *Four Roses*, woodcut, in Matthias Lobelius, *Kruydtboeck* (1581), Part II, p. 242. Courtesy of Amsterdam University Library, Rare Books Department (UBA 309 A 9).

ambitious in scope, and deployed new visual technologies – copious printed illustrations in particular – to convey morphological information about the natural world, as Carolus Clusius (Charles de l'Escluse, 1526–1609) and his contemporary Matthias Lobelius (Mathieu de l'Obel, 1538–1616) did in their botanical studies (Figs. 3, 4).) Had de Gheyn lived longer and actually produced "The New World," it would have found a place among the numerous illustrated catalogues of the natural world published in the sixteenth and seventeenth centuries.

De Gheyn never illustrated a volume called "The New World." The fictional status of Huygens's account notwithstanding, a number of de Gheyn's works attest to his participation in contemporary natural history, and de Gheyn maintained close ties with the medical faculty at Leiden University in the years immediately prior to and following the turn of the seventeenth century. Any analysis of these works will need to confront the thorny question – generally put – of the reciprocal relationship between early modern art and science. This has been the subject of increasing attention in the occasionally contiguous fields of early modern history

and art history. It is frequently cited in studies of the epistemic shift classically celebrated as the "Scientific Revolution."[9] It also figures generally in considerations of the works of artists who, throughout the Renaissance and thereafter, both north and south of the Alps, used and advanced perspectival and optical theories.[10] The conventional argument holds that science served art insofar as it provided art with technical aids such as perspective and optics; or that art served science by way of its newly acquired capacity to render the world and its objects naturalistically; or both.

Despite its centrality to early modern explorations of nature, whether characterized as artistic or scientific, natural history illustration has occupied only a marginal place in the study of art history. The art historian E. H. Gombrich referred disparagingly to early modern images intended to impart truthful records of their subjects as "illustrated reportage."[11] Erwin Panofsky wrote of drawings of embryos by Leonardo da Vinci (1452–1519) that they "defy the borderline between scientific illustration and 'art'" – thereby excluding the former from the province of the latter.[12] Art historians have conventionally maintained that works of art and scientific images differ from one another constitutionally and irreconcilably: The former are vehicles for aesthetic expression, whereas the latter convey information, not truth or even style, quasi-anonymously. The distinction between the perceived truth of scientific representation and the fictive or aesthetic potential of art and the impulse to categorize works as either artistic or scientific as such are legacies of Kantian aesthetics, admittedly extremely influential in the shaping of the discipline of art history. The perpetuation of a canon of fine arts has long depended on the Kantian notion that interest or utility precludes the aesthetic – that is, the use to which scientific images are put disqualifies them from inclusion in studies of "high" art.[13] Relative values assigned to the two sorts of images are consistent with the hierarchy of the academic ranking of genres of painting, which prizes narrative compositions (Albertian *istorie*) over modes of representation concerned "merely" with mirroring the world at hand and the stuffs of nature. Moreover, the use to which scientific images are put largely disqualifies them from inclusion in studies of fine art.

Moving beyond this view requires a shift in critical and historical priorities. It demands, among other things, concerning oneself with the history of images (rather than of art). Where we speak of a history of images, the prerogatives of those images may shift under various conditions, according to their production and their use. And their epistemological value need not preclude their aesthetic merits. Recent investigations of images, also called "visual aids," that have long suffered aesthetic prejudice, have explored the connections between science and art. Such pictures of flora, fauna, minerals, and fossils, often anonymously produced, are

now being embraced by the discipline of art history; in many cases, they have been assimilated by historical writing concerned with the cultural history of early modern epistemology (e.g., the collecting practices exemplified by the contents of late sixteenth-century cabinets of curiosity and *Wunderkammern*).[14] In select cases, attempts have been made to account more specifically for what one author calls "an epistemology of scientific representation."[15] The mid-nineteenth-century opposition between art and science, in which polarities such as subjective art versus objective science emerged, and the development of distinct disciplinary models in art and science (as well as in the history of art and the history of science) have occluded significant areas of overlap.

Recent developments in the history of science encourage further examination of how intersections between art and science might be traced. Sociologist of science Bruno Latour has subsumed the abundance of pictures, words, diagrams, and signs produced as part of the working life of a laboratory under the elastic heading of "immutable mobiles," offering a way to treat diverse representational practices without the interference of familiar distinctions such as art/science, image/fact.[16] Scholarly attention has also been devoted to the spectacularization of experimentation and demonstration and to social practices associated with the investigation of the natural world.[17] In both the history of art and the history of science, recent scholarship has emphasized the importance of excavating the categories of the historical actors themselves in order to avoid anachronistic projections of later models of art, science, and their interactions onto conditions in early modern Europe.

Early modern European natural history assimilated local specimens and varieties introduced by the relatively recently begun voyages to the New World through dense descriptions of its objects. These descriptions depended largely on the visual evidence of the specimens surveyed. One of the means by which this science mastered its objects was by recording information in the form of images. Indeed, it might be said that, throughout the later sixteenth century, advances in natural knowledge were driven by images. This is particularly true of the study of botany. Images of plants were relatively easy to produce because of the multiplicity of specimens and the fact that they could be preserved over time in dried form. The production of botanical (and zoological and anatomical) images gained urgency in light of the realization that the varieties described by classical authors did not correspond to those available and in common use, an urgency that print technology was particularly well-suited to accommodate.[18] By the turn of the seventeenth century, a body of amply illustrated texts had been published – many in the Netherlands – that redescribed, verbally and visually, the plant world and configured it according to practical classificatory schemas.[19] A principal aim of this descriptive project was to secure the identity of the objects of study. The primary

imperative of images employed to these ends was that they serve as trustworthy visual evidence.

Recent literature on early modern science has focused, to compelling effect, on the ways and degree to which the practices and values of science are socially conditioned. In *A Social History of Truth*, for example, Steven Shapin aims to demonstrate that what we take to be a form of scientific objectivity, established and institutionalized at the time of the "Scientific Revolution," amounts to a code of honor, a gentleman's agreement, as it were, on the territorial confines of the verifiable.[20] Much is to be gained by relating such claims to the period spanning the sixteenth and seventeenth centuries during which "truthful" images were put to scientific use. Early modern scientific efforts depended on information conveyed by images as the natural world came to be negotiated by visual artists and scientists alike. The crucial role of visual observation in early modern scientific efforts is illustrated by the copious illustrations characteristic of those efforts. Parallel with the claims for empirical objectivity that underpinned scientific efforts, a rhetoric of verifiability and actuality evolved in the case of images. During the sixteenth century, a specific vocabulary came to be widely employed to certify the truthfulness of images. Its primary terms are, in Latin, *contrafacta* (literally, "made against") and *ad vivum* ("from or after the life"), and, in the vernacular, *naer het leven* [also spelled *nae t'leven*], *nach dem Leben*, *al vivo*, *au vif*, and "from the life."

These terms, widely employed to describe drawings, paintings, and prints, both in Latin and in the vernacular throughout Europe, by viewers as well as artists, served to guarantee the accuracy of such images in relation to what they describe. In many cases, and in the case of botanical renderings in particular, the use of the term guaranteed the substitutability of the image for the thing described. It granted the images so described a certain truth value, one not always in sync with the reality effect of the image itself, and one that had particular relevance to scientific endeavors. That such terms had scientific currency has long gone unremarked in the writing of art history.[21]

It is a well-known fact of the history of Dutch art that the term *naer het leven* (the Dutch cognate of *ad vivum*) was first used in an art theoretical sense by the biographer, critic, and artist Karel van Mander, whose *Schilder-Boeck* (1604) is the first sustained and widely disseminated early modern treatise on Netherlandish painting and painters.[22] It is a lesser-known fact that already, by the time van Mander assimilated it into his critical/descriptive vocabulary, the term *naer het leven* enjoyed widespread currency. For the better part of a century, it had been used in scientific or natural history contexts to guarantee the verifiability of the descriptions it qualified; it designated a particular, functional mimesis. The prevalence of the phrase *naer het leven* in the limited Dutch art theoretical vocabulary of