

ISSUES & DEBATES

**Art in history
History in art**

Studies in seventeenth-century Dutch culture

Edited by David Freedberg and Jan de Vries

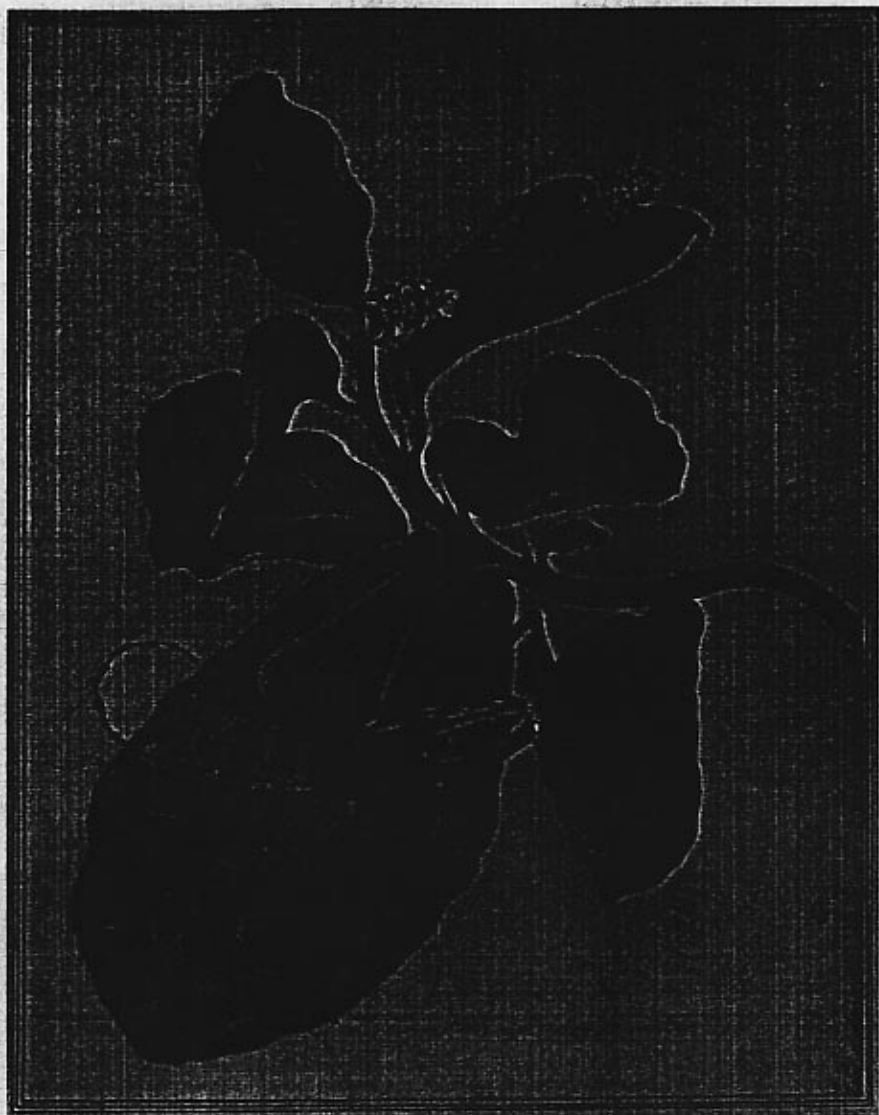


Fig. 1. Maria Sibylla Merian,
Preparatory study for *Metamorphosis
Insectorum Surinamensium*
(Amsterdam, 1705),
watercolor on vellum, 35.8 x 27.7 cm.
Windsor, Windsor Castle, Royal Library.
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Majesty the Queen.

David Freedberg

SCIENCE, COMMERCE, AND ART:

Neglected Topics at the Junction of History and Art History

Ever since my youth I have been engaged in the examination of insects. I began with silkworms in my native city of Frankfurt, but then, noticing that much more beautiful butterflies, both nocturnal and diurnal, emerged from caterpillars, I was moved to gather together all the caterpillars I could find and to make observations of their metamorphoses. For this reason I set aside my social life and devoted all my time to these observations and to improving my abilities in the art of painting, so that I could both draw individual specimens and paint them in lively colors. The result was that I was able to gather together, quite beautifully painted by me on sheets of vellum, all the insects that I found, first in Frankfurt and then in Nuremberg [fig. 2]. When a number of amateurs later happened to see these, they strongly encouraged me to publish my observations of insects, in order to satisfy both their demands and those of other conscientious natural historians. And so, moved by their urgings, I had the figures engraved and published, the first part in quarto in 1679 and the second part in 1689.¹ I then moved to Friesland and to Holland. Naturally, I continued in my examination of insects, especially in Friesland, since in Holland there was less opportunity than elsewhere, particularly for investigating those kinds of insects found on heath and moorland. But very often the skills of other amateur naturalists helped fill this lacuna, and they brought me caterpillars in order to study the metamorphoses of these animals still more deeply: to such a degree that I was able to gather together a large enough number of observations to make a further addition to the two previous volumes.² When I was in Holland I saw with wonderment the many kinds of animals being brought back from both the West and the East Indies — especially when I had the honor of visiting the distinguished

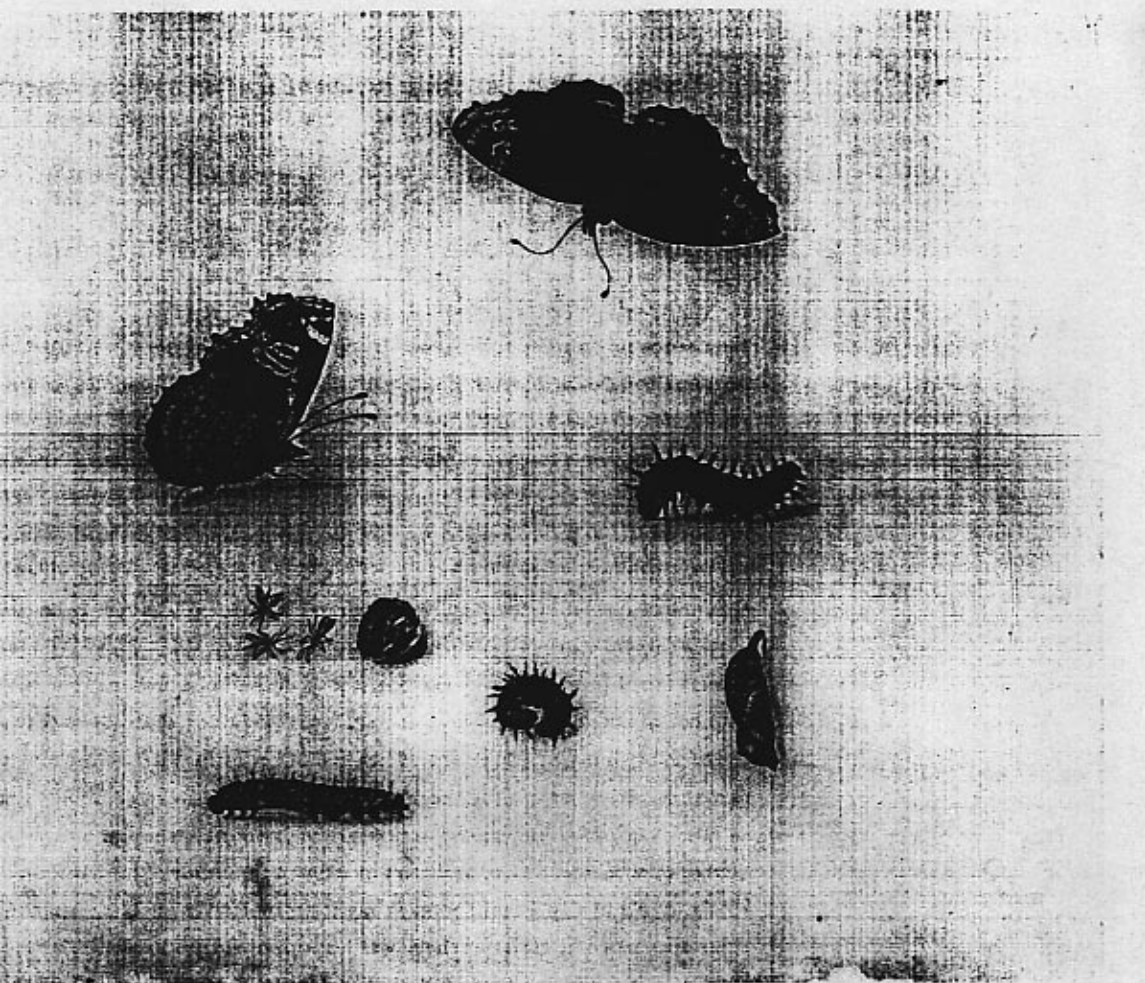


Fig. 2. Maria Sibylla Merian,
Preparatory study for *Der Raupen
wunderbare Verwandlung, und sonderbare
Blumen-Nahrung* (Nuremberg, Leipzig,
and Frankfurt, 1679),
watercolor on vellum, 19.8 x 25.6 cm.
London, British Museum.

museum of the most noble and distinguished burgomaster of Amsterdam and director of the East India Company, Nicolaas Witsen, and the most noble Jonas Witsen, secretary of the same town. Afterward, I saw the museum of the distinguished Frederick Ruisch, medical doctor and professor of anatomy and botany, as well as that of Levinus Vincent and of many others. Here I saw these and innumerable other insects, but I did not see their origin and generation, nor how the caterpillars became chrysalises and how they were further transformed. Inspired by just this, I made a long and expensive journey, sailing in June 1699 to Surinam in America (a hot and humid region whence the above mentioned gentlemen had obtained the insects), in order to make a more accurate investigation of the same subject and to pursue my study further. There I remained until June 1701, when I sailed back again to the Netherlands, returning there on 29 September. In Surinam I painted these sixty figures with the greatest diligence on pieces of parchment, all life-size, as well as my observations of them [figs. 1, 3]. They can be seen at my house, along with some small dried specimens. But I did not really find the opportunity I had hoped for of examining the insects, since the climate of the place was very hot, and the heat did not agree with me. For this reason I was forced to return home sooner than I had planned.

After I returned to Holland and a number of amateurs of such things saw my paintings, they began to urge me to commit them to the press and to publish my findings, since they thought that they were the most superior and most beautiful of all the works ever painted in America. At the beginning, the expense of bringing this book to completion deterred me, but finally, since the burden had already been undertaken, I began to work on the project.

This book, therefore, consists of sixty copper plates, on which are displayed ninety studies of caterpillars, worms, and maggots, how they change their pristine color and form once they have shed their skins and are finally transformed into butterflies, moths, beetles, bees, and flies. All these animals I have placed on the plants, flowers and fruits that provide their respective nourishment [figs. 1, 3].³ To them I have added the development of the spiders of the West Indies, ants, snakes, lizards, and the rare toads and frogs, all observed by me in America and drawn from life, with only a few exceptions, which I have added based on the oral testimony of the Indians.

In putting together this book, I have not sought to make money. I was simply content to cover my costs. Nor have I spared any expense to bring the work to completion. I have taken care to have the plates engraved by the

CONCLUSION

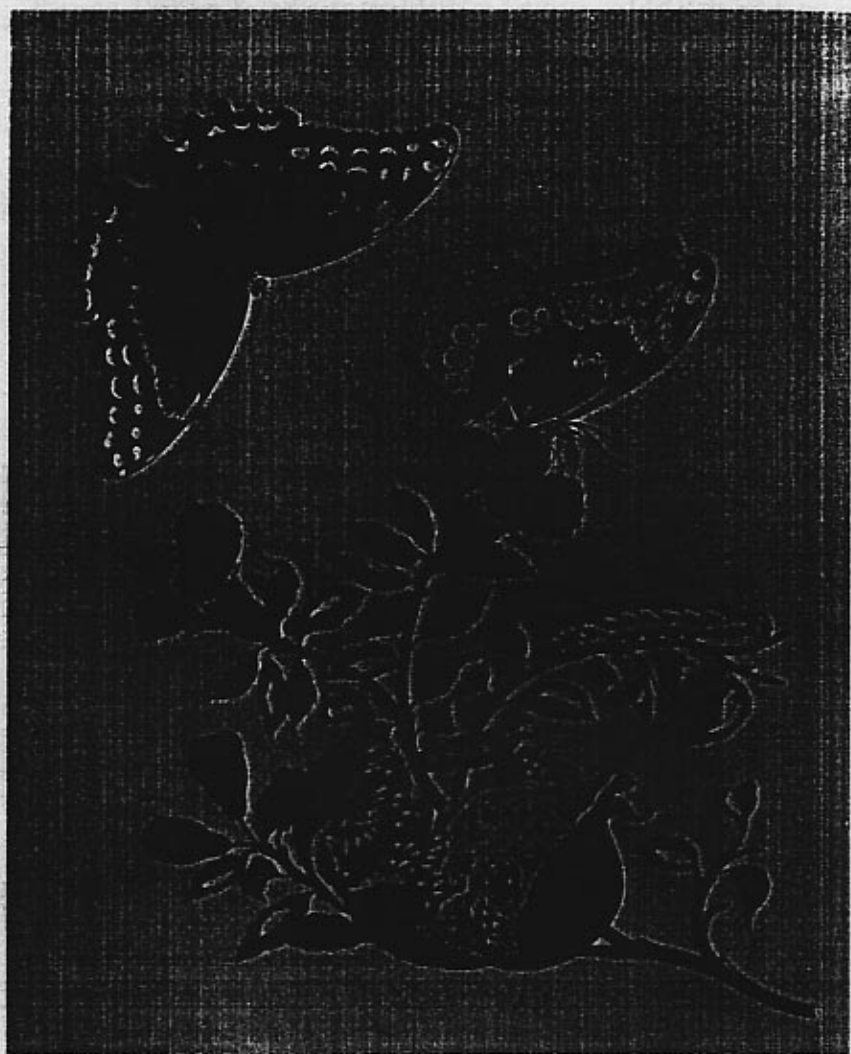


Fig. 3. Maria Sibylla Merian,
Preparatory study for *Metamorphosis
Insectorum Surinamensium*
(Amsterdam, 1705).
watercolor on vellum, 36 x 29.5 cm.
Windsor, Windsor Castle, Royal Library.
Photo: Reproduced by permission of Her
Majesty the Queen.

most skilled artists,⁴ and to this end I have also sought out the very best paper; so that I might respond not only to those who are knowledgeable about art but to all students of insects and plants. And if I find that I have achieved this goal and have satisfied and not displeased such readers, then I will indeed rejoice.⁵

This is the justly proud letter to the reader with which Maria Sibylla Merian begins her great book on the insects of Surinam, published in Amsterdam in 1705. It is at once modest and exalted, the testimony to a single-minded and heroic achievement, and it yields much to the historian and art historian prepared to take the long view of the course of Dutch art from the end of the sixteenth century until the middle of the eighteenth century. The book itself is entitled *Metamorphosis Insectorum Surinamensium*, "in which the worms and caterpillars of Surinam are drawn from life, along with their transformations, and placed on the plants, flowers, and fruits on which they are found"⁶ (and not, it should be noted, just any wildflowers, but specifically those of some economic interest and value). It is the apotheosis of those lowly animalcules celebrated not only by natural historians but by every emblem writer and poet who saw in them yet further evidence of the divine and splendid intricacies of God's creation. But it is also, as the title suggests and the text makes magnificently clear, the great fulfillment of the implications of a term — *metamorphosis* — which dominated the complex relations between mythology, art, and nature for more than a century.

The tradition of metamorphosis had always combined science and fable and offered the basic parallel for the transformations of nature by art: hence the importance for Dutch painting of Karel van Mander's seemingly old-fashioned reworking of the genre of moralized metamorphoses in his *Wileggingh op den Metamorphosis* appended to the *Schilder-boeck*; hence the persistence of this genre long after its apparent extinction at the end of the fifteenth century; and hence the republication of just this part of the *Schilder-boeck* as late as 1660 and again in Nuremberg in 1679. But with Merian metamorphosis was finally stripped of fable altogether. In earlier books there might have been long discussions of whether rightly to call a *Lacerta* a *Stellio* (after Ovid's boy-lizard), as in Johannes Faber's vast dissertation on Mexican animals first published in 1628,⁷ but Merian shows no such indecisiveness, no such taxonomic anxiety. With insects, worms, and caterpillars, one might expect to find lessons about the greatness of God

being evinced in these smallest and lowliest of creatures, as Jacob Cats and Constantijn Huygens and many others found heaven in a grain of sand; and one might have anticipated something explicit about the grand complexity of God's designs, about his magnanimity in thus investing such insignificant beings, or even about his humility in so endowing them with reflections of the divine. But no — missing even is the more obvious insistence on metamorphosis as a figure for the resurrection of the soul.

The most extensively illustrated earlier work on insects was that of Johannes Goedaert, a painter from Middelburg,⁸ whose many practical experiments with insects were translated and edited for publication by his Middelburg acquaintances Doctor Johannes de Mey (for the first volume) and Paulus Veezaardt, minister from Wolfaartsdijk and formerly chaplain of Michiel de Ruyter (for the second). From the very outset of Goedaert's book — significantly entitled *Metamorphosis Naturalis* (1662 and 1667), as if to make clear the distinction from the metamorphoses of mythology and fable — notions about the divine are still wholly present. "Although these animalcules are generally despised by men, on account of their slight size... it is clear that by observing the visible works of God we are able in our minds to reach those things in God otherwise invisible in themselves," he says in his first volume. "There is nothing in the universe and in nature more divine than man himself; yet insects too are divine. They are miracles of nature to be admired, the irrefragable testimony of infinite wisdom and power. From the outside they seem to be disgusting and abject, but if you look at them more closely, you soon discover they are very different," it is asserted in volume two.⁹

There is none of this in Merian — even though we might expect it, given the refuge she took among the devout Labadists of Friesland. It was here, as she makes clear in her letter to the reader, that she began the studies that led to the book on the insects of Surinam. And although the depictions of the insects in Goedaert are good enough, Merian raises the portrayal of insects to great art. If this applies to her earlier books on the insects of Frankfurt and Nuremberg (the title pages specifically state that they were intended not only for lovers of insects and plants but also for painters),¹⁰ it is even more strongly the case with the studies produced during and following her visit to the Indies (figs. 1-3).

Between Goedaert and Merian came one of the great entomologists of all time, Jan Swammerdam, who was also one of the leading anatomists of

the century. Swammerdam was able to rectify at a stroke some of the more egregious of Goedaert's mistakes (most notably by setting forth the stages of the transformation from worm to moth and thereby confuting Goedaert's misguided views about the spontaneous generation of insects). But Swammerdam's book, *Historia Insectorum Generalis*, for all its importance in the history of systematic entomology and the classification of insects, and despite his pioneering use of the magnifying glass and the beautifully and densely etched plates, is not nearly as pretty a production as Goedaert's or as sumptuous as Merian's — nor is it as extensively illustrated.¹¹ It thus makes less of a contribution to the history of systematic visual documentation and to the broader history of art.

Swammerdam himself, who fell under the influence of Antoinette Bourignon, ended his days attempting to provide his scientific interpretations with lengthy pietist glosses. It was left to Hermannus Boerhaave to take up Swammerdam's role in the next century with the 1737–1738 edition of *Bybel der Natuure of Historie der Insecten*, in which he published a famous essay proving the sex of the queen bee. But here the illustrations were altogether different. Self-consciously artistic aims were almost entirely relinquished in favor of new, more scientific forms emphasizing detailed visual analysis of parts and the whole of the anatomy; the detail was so careful and so dense that representation crowded out much of the available space on the page. There was often so much visual information on a single sheet that the earlier attention to the decorative and ornamental yielded to the new epistemological pressures.

Merian's Surinamese book thus stands at the apex of a tradition of scientific examination that had been growing for just over a century, and it was intimately bound up with the mental habits underlying the great seventeenth-century museums.¹² The book is unimaginable outside the context of the extraordinary investigative excitement aroused by the adventures of the two companies of the Indies, East and West; and it binds together the fruits of high artistic skill with intense and minute observation in the interests of both science and art. It forces upon us awareness of the perils of neglecting a strain in Dutch culture that has been almost completely passed over by historians of Dutch art. This strain cannot be understood without considering the ways in which the historic and economic motivations for Dutch trade overseas reached far more deeply into Dutch art than is generally acknowledged and without emphatically recalling the ways in which

such motivations spurred the progress of science. The basic historical and economic context is now available in the excellent works of scholars like Charles R. Boxer and Jonathan Israel.¹³ Art historians have failed to take sufficient cognizance of such studies, but in this neglected tradition history and art history come together with the development of natural history in ways that may stand as a paradigm for the fruitful meeting of these disciplines. But such paradigms can only be perceived by taking a longer view than usual.

Consider the long history of botanical illustration in the Netherlands. In assessing the significance not only of the descriptive element in Dutch art but of the relation between description and fantasy and between the earthly visible and the divine invisible, we cannot afford to overlook the strain that runs from the herbals of Rembert Dodoens (Dodonaeus), Matthias de L'Obel (Lobelius), and Charles de L'Ecluse (Clusius) to Hendrik Adriaan van Reede tot Drakenstein's stupendous *Hortus Malabaricus* — issued in twelve large volumes (with over six hundred plates) between 1673 and 1703¹⁴ — and then to Linnaeus's epochal *Hortus Cliffortianus* of 1737¹⁵ and the final publication of the *Amboinsche Kruid-Boeck* by the "Pliny of the Indies," Georg Rumphius, in 1741–1755.¹⁶ The strain has not gone wholly unremarked, it is true, but has never been referred to more than cursorily. It calls for interrogation, and questions arise from both the historical and art historical implications of its production. When we look at this full strain, we note how the foreigners — from Lobelius to Merian, Rumphius, and Linnaeus — either come to the Netherlands themselves or have their work published there, first by Plantin in Antwerp, then by Raphelengius in Leiden, and finally by the great publishers of Amsterdam and The Hague. We ponder the relations between the development of close graphic description (in the early stages in the florilegia by Adriaen Collaert, Jan Theodoor de Bry, Emanuel Sweerts, and the De Passes) and the close attention to objects demanded by fetishizing gardeners and museum founders (consider, in the early stages, the relation between Joris Hoefnagel and Rudolf II).¹⁷ We discern the significance of the bond not simply between mapmaking and description but — most pronouncedly in the beginning — between calligraphy and descriptive illustration, as in the manuscripts of Hoefnagel and Georg Bocskay. And we see the impetus offered by Dutch overseas trade to art, museums, and science. In short, we begin to detect much of what the more regular histories of Dutch art miss in their concentration, on the one

hand, on the work of art itself and, on the other, on its looser contexts. And when we survey this particular history, a wrongly other history, we start to discern the larger patterns as well.

Two great decades for the illustration of flora and fauna stand out, from 1647 to 1658 (the decade plus one year marked by the publications resulting from Johan Maurits of Nassau-Siegen's expedition to Brazil), and the *decennium mirabilis* from 1695 to 1705. These years saw the publication not only of the final volumes of the Van Reede tot Drakenstein's *Hortus Malabaricus* but of the book by Jan and Caspar Commelin (uncle and nephew) on the rare plants of the Amsterdam Hortus,¹⁸ of Maria Sibylla Merian's book on Surinamese insects, and of Georg Rumphius's *Amboinsche Rariteitkamer*. This last book showed the contents of the cabinet (but the word is too modest for his collections) of Rumphius, the blind German doctor resident in Amboina (see fig. 9), and is notable above all for its stunning illustrations of crustaceans (see fig. 6), which the illustrations in the author's posthumous *Kruid-Boek* do not approach in quality.¹⁹ If one considers painting alone, the Golden Age may be said to end in 1669; but if one considers art in its better and larger sense, the Golden Age is still at its height at the turn of the century. Natural history flourishes as never before and so does still life. We need no longer be puzzled by — or be obliged to overlook — the abundance of great flower pictures executed well into the eighteenth century. Or should one take a slightly different view in which, almost with the death of Rembrandt, artistic energy may be seen to have drained from painting, only to pass into book production and the illustration of natural history?

The heroes of the story include the figures around Johan Maurits, from Caspar van Baerle to the medical doctors Georg Marcgraf, Willem Piso, and the versatile Johannes de Laet, the last neglected for all but his history of the West Indies Company;²⁰ they also include Nicolaes Tulp, always in the shadows, Swammerdam, the Commelins, and Rumphius himself. The great heroine is Maria Sibylla Merian, relegated by patriarchal histories to the role of illustrator or only mentioned in passing. Merian stands at the apex of the tradition that I am emphasizing, chronologically and in terms of skill, but as with the lesser figures Gesina ter Borch (whose sketchbooks have only now been published),²¹ Judith Leyster (whose tulip books deserve further study), and Rachel Ruysch, the inability to place Merian within the grand progress of art is wholly symptomatic of the patriarchal view. And her case is further bedeviled by the low view of illustration in general

and the dismissal of natural history drawing as a predominantly female activity. Women are omitted from the histories, as are natural histories. Yet no one who has seen the books themselves, or Merian's preparatory drawings made on the purest vellum and preserved in the British Museum and at Windsor Castle (see figs. 1-3), the Leningrad sketchbooks, or even those copies of the book colored under her supervision could doubt her status and the magnitude of her contribution to the recording and classification of the natural world. It is here, not earlier, that description and art finally come together in perfect concord. When it comes to picture making, art historians may argue about the relative claims of description — "reality," say — and art, of faithful recording on the one hand and the pressures of imagination and intellect on the other. In Merian such relativizing anxieties fall by the wayside.

Let us return briefly to the implications of Merian's letter to her readers. It is informed by the same independence of spirit that saw to the publication of her earlier books on insects, led her and her daughter to the loneliness of the sectaries at Castle Waltha at Wieuwerd in Friesland (the place to which Anna Maria Schuurman had also retired and died), enabled her to refuse the repeated and pressing implorations of her husband to return to Nuremberg with him, made her see that her studies in the safe museums of Ruysch and Vincent would be incomplete without a personal visit to the rain forests of America, and compelled her to take the risk of subsidizing the publication of her great book herself (when the Commelins published their volumes on the exotic plants of the Amsterdam Hortus in 1697 and 1701, they received a full subsidy from the city council). Merian rigorously records from life — here too is the ultimate fulfillment of the phrase *naer het leven* — under appalling difficulties but cannot do so without setting herself the highest artistic standards. And whom does she address in this foreword? The powerful museum owners: Witsen, mayor of Amsterdam, director of the East Indies Company, and author of an authoritative book on shipbuilding as well as a treatise on Siberia, a part of the world inaccessible to ships; Witsen's promising but prematurely deceased brother Jonas, secretary of the city; Frederik Ruysch, father of Rachel, doctor, and professor at the Amsterdam Hortus; and finally Levinus Vincent, owner of perhaps the most famous museum at the time. The bond between trade, exoticism, collecting, and the fetishization of objects could hardly be clearer; and the role of art in making the kinds of objects that are traded, transported,

and enshrined in museums available to the eyes of all is spelled out.

The whole nexus between trade, America, art, and the advancement of natural history deserves deeper investigation than it has received so far. At the center of the relationship between the museums of seventeenth-century Holland and pictorial production lies a whole set of problems — economic, psychological, and art historical — pertaining to the fetishization of objects. It is perhaps worth remembering, as R. W. Scheller reminded his readers in a pathfinding article on Rembrandt and the encyclopedic *kunstkamer*, that even some of the greatest picture collections — such as that of Gerard and Jan Reynst — were only part of museums that also contained natural expressions of God's creation alongside objects artificially made or adapted by man.²² Conversely, many of the greatest *kunstkamers* had very few oil paintings in them, and the works of art they contained were of a kind not today regarded as especially high — pictures made of stones or birds' feathers, for example. When the brothers Reynst wanted a museum, they took over a Venetian collection lock, stock, and barrel;²³ and we may note the irony that their father, one of the founders of the East Indies Company, was governor-general of the East Indies from 1613 until his death in Djakarta two years later. From mid-century on, however, there was no need for such importation. The *naturalia* could come directly from America and to a lesser extent, at least to begin with, from the East Indies. So it was with Rembrandt, with Jan Swammerdam the Elder (whose entomologist son prepared the inventory of his museum), and above all with the great and versatile director of the West Indies Company, Witsen, and the well-traveled virtuoso Vincent.

Before considering some of the further artistic and scientific implications of the Dutch expeditions to the Indies and their relation to cultural production, a few preliminary remarks about the historical precedents may be in order. Central to this history is the work of Charles de L'Ecluse of Arras (Clusius), who was brought from the Imperial Gardens in Vienna in 1593 to head the botanical garden at Leiden and to take up the professorship of botany there. Clusius systematized the more random approaches of the earlier herbalists and was even more determined in his search for exotic specimens and in his careful descriptions of them. It was he, as is well known, who introduced the tulip to England and was responsible for the first growth of the Dutch bulb trade, which led to the rise and fall of speculation in tulips and tulip bulbs.²⁴ Yet art history has barely risen above superficial

comments on the relationship between the economic weight of tulips and the penchant for depicting them. How little we know about the effects of developments in the classification and taxonomy of such plants on their representation in some of the most materially precious and meticulously crafted pictures of both centuries! What was the substitutional value of such representations, and what was their epistemological significance? These are matters that have yet to be clearly set out.

But first a great deal of basic work remains to be done on Clusius's remarkable and wide-ranging correspondence, which, aside from anything else, offers powerful testimony to his energetic and authoritative search for the rare and the exotic. One consequence of the newer academic divisions between studies of the Netherlands and those of Italy has been the failure to discern the close and unexpected ties that bind the investigators of nature in both countries. Yet just as the gardeners of Amsterdam corresponded with those of Florence from the beginning of the sixteenth century, so the gardeners of Florence and Montpellier learned from Clusius and he from them. The botanists' methods of compiling the visual evidence of nature were interlocked and mutually stimulating. The brilliant Fabio Colonna was greatly encouraged by Clusius, with whom he corresponded; a few years later books such as those on the Farnese Gardens by Pietro Castelli²⁵ were illustrated in a sophisticated manner that far exceeded the finest garden books of the *De Passes* or the florilegia of De Bry and Sweerts.²⁶

But it is not simply a matter of the connections and comparisons to Italy. Among Clusius's pioneering activities was his work in Hungary where, under the patronage of Baron Balthasar de Bathyány, he hired an artist to paint the mushrooms of Pannonia. These drawings, most of which still survive in Leiden, formed the basis of his late book on the subject.²⁷ This in turn provided the spur for the greatest mycological endeavors of the first half of the century, those of Federico Cesi and his fellow Linceans, and formed the foundation of modern mycology. It all reminds us how wide the net must be cast.

To speak of Eastern Europe is to recall the role of that extraordinary personality Rudolf II, whose garden in Vienna had been founded by Clusius. His patronage of both art and science and his museology have recently been the subject of exhibitions and scholarly study.²⁸ But let us not forget that the tradition that bore such fine fruit in the work of Swammerdam and Merian may be said to begin with Hoefnagel, Rudolf II's favorite miniaturist. In a

treatise now almost forgotten, Outger Cluyt describes a scene in which Hoefnagel sits by the banks of the Dijle outside Mechelen, drawing the insects flitting above the river.²⁹ It is entirely characteristic of the lacunae that I am attempting to address that the source of this charming and important vignette should be the practically unknown Amsterdam doctor Cluyt (Cloet, Clutius), himself the son of one of Clusius's friends and correspondents, Theodorus Cluyt (Dirk Outgersz.), founder of the Botanical Garden in Leiden but not yet a significant figure in the literature. In addition to his entomological studies, the younger Cluyt wrote treatises on the transport of bulbs, on nephrites and other stones, and on the double coconut of the Maldive Islands (with frequent references to the collections of Rudolf II).³⁰ These count amongst the earliest Dutch works of their kind and are much less thorough than the almost contemporary researches into similar subjects by the Lincei, who knew of Cluyt's work and tried to obtain copies of his writings on nephrites. Cluyt's book on the insect he called a *hemerobion* (the insect observed by Hoefnagel) was dedicated to none other than Nicolaes Tulp, to whom Swammerdam was in turn to dedicate his spectacular anatomy of a testicle and the male genital system some thirty-seven years later³¹ — one year before he dedicated his perhaps even more famous engravings of the female genital system to the Royal Society of London. The story of the medical doctors in the development of science and their importance as patrons and encouragers of the arts is a heroic one and has yet to be told in all its fullness.

Once we grasp the extent of the lacunae, we begin to appreciate the merit of the long view. We will continue to see the story of Dutch art as ending around 1670 as long as we continue to overlook the implications of the colonial experience and colonial trade for the study of Dutch art. It is symptomatic of the current state of the field that the only large-scale monographs on Frans Post are inadequate and that with the outstanding exception of Rüdiger Joppien, art historians have barely begun to mine the excellent material brought to the fore by the exhibitions of 1979 on Johan Maurits of Nassau-Siegen, Governor of Brazil between 1636 and 1644.³² In his establishment of a briefly secure settlement and administration there, in his scientific entourage, and in the extraordinary publications that he sponsored, his importance can hardly be overestimated. His library provides testimony to the range of his interests in art and science. The celebrated and well-con-

nected poet Caspar van Baerle (who had recently written the well-known epigrams on Tulp's anatomy theater in Amsterdam and the splendidly illustrated volume on the entry of Marie de Médicis into Amsterdam, the *Medicea Hospes* of 1638, and who was a long-standing friend of Constantijn Huygens) inaugurated a series of publications hitherto unparalleled in the history of chorographic and scientific literature: the account of Johan Maurits's rule in Brazil, its establishments, battles, and achievements, the *Rerum per Octennium in Brasilia et alibi nuper gestarum, sub praefectura Illustrissimi Comitis Iohannis Mauricii Nassoviae & C. comitis* of 1647.³³

In this huge volume, one of the most sumptuously illustrated works of the Golden Age, mapmaking and picture making come closer than ever before. But would that the equation were that simple! Further elements must be added. The parallel (rather than equation, perhaps) does not simply hang on the matter of description.³⁴ The book, illustrated with scenes by Frans Post, consists of two classes of imagery: maps showing the settlements, battles, and campaigns and great foldout prints with views of inland and coastal settlements as well as portrayals of sea battles with the Portuguese. In the maps description is intensely bound up with the conveying of atmosphere and a sense of pastoral idyll (even in scenes of sieges); a good proportion contain finely etched vignettes of the houses, animals, and daily activities of the primitive and youthful denizens of that land. In these vignettes — placed with graceful nonchalance on the side of maps of sieges, troop movements, and beleaguered settlements — pure description yields to invention, the invention of new idylls in that hard land. We see this even on maps such as that of Seregipe, where the vignettes are of tapirs, jaguars, and cacti.

The link between science (in the form of topographic or faunal and floral description) and pastoral idyll emerges even more clearly in the foldouts of interior and coastal scenes. Here topography gives way to pure effect, to vast and airy scenes, arguably the airiest in all Dutch art. Houses and people are even less significant — visually speaking — than in contemporary mainland prints, where skies and large expanses of water were also dominant. We might have expected this watery airiness, it is true, in the scenes of battles at sea, but the enormous four-fold depiction of Johan Maurits's capital, Mauritiopolis, seems *all* sea and air (fig. 4). Descriptive representation of the capital goes by the board, as Frans Post yields to the spell of a spaciousness: a spaciousness that the sea journey itself must have called forth, and then a land a hundredfold larger than Holland itself.

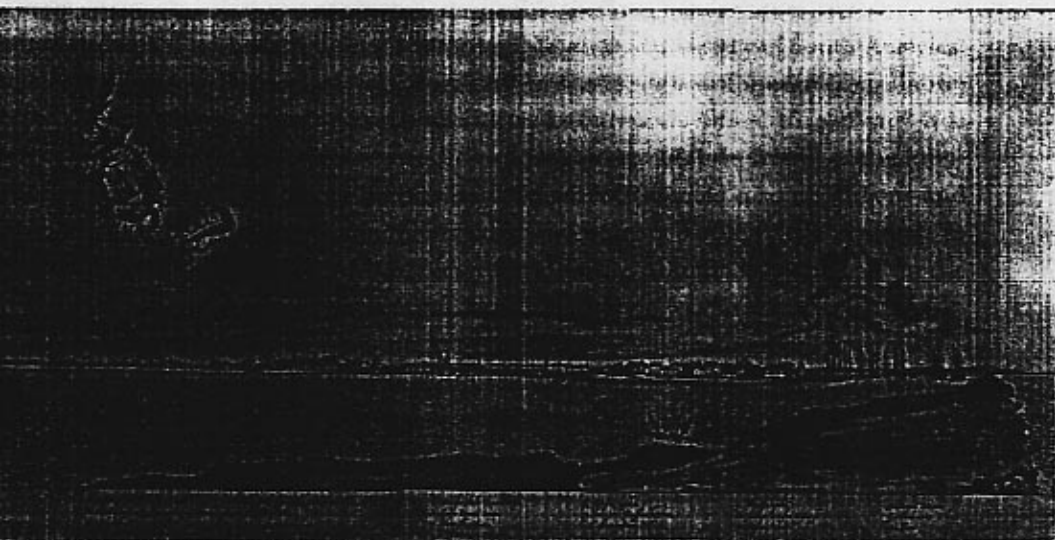


Fig. 4. After Frans Post,
View of Mauritiopolis, engraving from
Caspar van Baerle, *Rerum per Octennium in
Brasilia et alibi nuper gestarum*
(Amsterdam: Ioannis Blaeu, 1647).
Santa Monica, The Getty Center for the
History of Art and the Humanities.

The etcher of several of Post's scenes was Johannes Brosterhuisen, later professor of Greek and botany at Breda. Brosterhuisen, who went on to produce some of the lightest, most delicate, and most finely detailed landscape prints of the seventeenth century, is still too little known. How much truth there is in the report that he worked on his prints at the Amersfoort country estate of that most classical of artists Jacob van Campen — where he also worked on his Dutch translation of Vitruvius — we do not know; but in his biography and personality Brosterhuisen encapsulates just those elements of the pastoral and the scientific, the classical and the descriptive, that seem to be separate in much Dutch art but go together far more often than it is now fashionable to think. It seems futile, when we look at works like Van Baerle's (and, for that matter, Merian's) to insist on too strenuous a distinction between the descriptive and the classical, the realist and the pastoral. If Dutch culture is to be endowed with distinctiveness, then it would be best to allow it one of its great graces: the marriage of classical culture with its realist, scientific, and descriptive strain. One has only to remember that the Mauritshuis itself was built by Post's brother, Pieter, according to designs by Van Campen, and that Pieter, the second great classicist architect of the Netherlands, not only did the interior decoration of Johan Maurits's new home in The Hague but was also responsible for the planning and layout of Olinda and Pernambuco in Brazil.

Van Baerle's book was followed less than a year later by a work of signal importance for the natural history and ethnography of South America and thereby for the history of Dutch art, the *Historia Naturalis Brasiliae*. Johan Maurits funded both the research for and publication of this volume. Three men were responsible for its contents: Georg Marcgraf, who came from Germany but studied in Leiden; Johannes de Laet, who edited Marcgraf's contribution and added comments of his own; and Johan Maurits's doctor, Willem Piso.³⁵ Piso's contribution consisted of four extensive discussions. The first was on the air, water, and topography of Brazil, the second on its endemic diseases, the third on poisons and their remedies, and the fourth on its medicinal plants. Marcgraf, like the artists Post and Albert Eckhout, joined Johan Maurits's personal entourage and was directly paid by him (unlike Piso, who was paid by the West Indies Company); he was responsible for the immensely careful and valuable sections on plants, fishes, birds, quadrupeds, snakes, and insects.³⁶ Marcgraf's nomenclature was adopted to a substantial degree by Linnaeus in his classification of Brazilian fauna

and has thus passed into modern scientific terminology. To these important sections Marcgraf added precise astronomical observations, as well as short discussions of several of the native tribes of Brazil and Chile and brief glossaries of two of their languages.

This book represents the first complete natural history of South America, preceding by just one year the final form of the great Lincean compilation on the subject, published by the Mascardi firm in Rome, 1649-1651.³⁷ It is true that Johannes Faber, the German doctor and close friend of the founder of the Accademia dei Lincei, Federico Cesi (and also of Rubens and Adam Elsheimer), had published his own section on "Mexican" animals in 1628, and the Linceans had long been working on the subject (and on the American notes of Phillip II's physician, Francisco Hernandez), often with the generous practical support of the polymathic Cassiano dal Pozzo; but it was only with the subvention of the Spanish ambassador that the almost complete version of the Lincean studies could finally appear.³⁸ Since the so-called *Tesoro Messicano* concentrates on natural history, it contains even less in the way of ethnographic material than the volume subsidized by Johan Maurits. In fact, it is a tribute to Johan Maurits's artistic and scientific patronage that Marcgraf and Piso's work should have appeared so soon after the expedition to Brazil and that its illustrations should be so considerably superior to those of the Lincean publication.

No one looking through the many hundreds of pages in the immensely complex and diffuse Lincean book could fail to be impressed by the number of illustrations, especially of plants but also of animals — from fish to snakes, from the much-discussed civets to the toothed and untoothed *Onocrotalus mexicanus*. The book as a whole represents a landmark in the history of visual documentation. But how impressed the remaining Lincei must have been when they saw the superiority of the illustrations in the books sponsored by Johan Maurits. It was not just a matter of their greater attractiveness and refinement but above all their accuracy and detail. The Lincean images had always to be supplemented by textual modification, as is abundantly clear from the expansive notes by Nardo Antonio Recchi, Johannes Faber, Johannes Schreck (Terrentius), and Fabio Colonna. But in Piso and Marcgraf's history such verbal modification is far less necessary. Furthermore, not only are the engravings much superior to the admittedly earlier woodcuts of the *Tesoro Messicano*, in many copies they are colored with extraordinary exquisiteness and accuracy, just as they were later in

both of Merian's works on insects. The illustrations in the best copies of these Dutch books give the impression of being individual paintings and not colored prints. The coloring was often carried out under the direct supervision of the original authors and artists, or with reference to the original colored drawings, or both. The whole question of hand coloring is one of the neglected topics of art history, and no one who has seen the coloring of the tropical fishes in Marcgraf's section on the subject in the best copies of the *Historia Naturalis Brasiliae* could doubt its potential interest.

One further difference between the illustration of the Lincean work and that of Piso, Marcgraf, and De Laet is the presence in the latter of ethnographic illustrations. (These are to be supplemented by Albert Eckhout's remarkable paintings of Indians now in the Nationalmuseet, Copenhagen.) But they are not simply ethnographic, since several of the illustrations, as with the maps and views of Van Baerle's *Rerum per Octennium*, show the agricultural and industrial activities of the Indians, most notably those relating to the production of sugar and manioc. Thus the reader is alerted to the entrepreneurial basis of the colonial venture as a whole and of the natural historical explorations in particular, just as economic usefulness was later to be a key factor in the plants that Merian chose to show as the environment for her Surinamese insects. That such factors should be largely absent from the illustrations commissioned by the Lincei — unworldly, aristocratic, clerical, sometimes libertine — in a Rome that had no colonial aspirations is not surprising.

Embodied in the lives and activities of the men involved in the production of the Brazilian book are the chief elements in the nexus that binds together medicine and exotica, trade, art, and natural history. Piso, who in 1638 at age twenty-seven joined Johan Maurits in Brazil and remained there for the rest of his governorship, was a protégé of Tulp and became inspector of the Amsterdam Collegium Medicum in 1655. He was probably Joost van den Vondel's personal doctor as well. Marcgraf had come from Germany to study botany, astronomy, and mathematics in Leiden in 1636, where he soon attracted the attention of Johannes de Laet. Marcgraf returned from Brazil in 1644, soon set off for Africa, and died in August of the same year in Luanda before he could bring his Brazilian notes to order for publication. He was thirty-three years old. Fortunately for posterity, however, the notes were edited and supplied with a commentary by De Laet, one of the most important figures in the development of Dutch natural history.

De Laet, who until the end of his life identified himself as *Antverpianus*, was a member of the Synod of Dordrecht, a friend of Franciscus Gomarus, and the author of a treatise on Pelagianism published in Harderwijk in 1617.³⁹ In 1621 he was elected a director of the new West Indies Company. It is in this connection that he is best known, since his *Nieuwe Wereldt ofte Beschryvinge van West Indië* (Leiden, 1625; reprinted in Dutch, 1630; in Latin, 1633; and in French, 1640) and especially his *Historie ofte Jaerlijck Verhael van de Verrichtinghe der Geoctroyeerde West-Indische Compagnie sedert haer begin tot het einde van het jaar 1636* (Leiden, 1644), all published by the Elzeviers, remain the primary sources for the history of the company. But while historians of Dutch overseas expansion — and Dutch historians generally — have used these works, they, like historians of art and natural history, have passed by his work in the field of natural history in almost complete silence. Charles R. Boxer noted the praise bestowed on De Laet's book of 1631 on the empire of the Great Mogul, *De Imperio Magni Mogolis*, but this is only one of a series that De Laet wrote or edited between 1629 and 1642 for the well-known Elzevier "Republics" series. All of these books testify to his skills and range as a geographer. Furthermore, in addition to his extensive work on the *Historia Naturalis Brasiliae* (note that his editing of Marcgraf's notes is described on the title page: "*Joannes de Laet in ordinem digessit & annotationes addit, & varia ab auctore omnia supplevit & illustravit*"), he also engaged in a serious debate with Hugo Grotius about the original inhabitants of Americas, a debate which, as has sometimes been remarked, does not reveal Grotius in the best light.⁴⁰ De Laet was well prepared for the Brazilian book both by his professional and commercial involvement in the West Indies and by the work in natural history to which he devoted himself, especially after his retirement from the directorship of the West Indies Company in 1636. He had already published an edition of Pliny's *Natural History* in 1635, as if in preparation for his later work on Marcgraf's texts, while in the same year in which the Brazilian book appeared (1648), he published a mineralogical work and his edition and translation of Theophrastus's book on stones. Both formed an invaluable supplement to Adriaan Tollius's reedition of the book on gems and other geological specimens by Rudolf II's doctor, Anselm Boetius (De Boodt) of Bruges.⁴¹ These endeavors are worthy of being set beside the efforts of the great Lincean students of fossils, Cesi and his devoted friend Francesco Stelluti; but they are altogether more professional. De Laet's work demonstrates the

extraordinary strides made in this area, as in so many others, in the short period since the publication of works such as Cluyt's book of 1627 on nephrites and his later tracts on the double coconut and the *nux medica*.⁴²

Finally, De Laet's multifarious output also provides one of the best examples of the reciprocal nourishment of art history and natural history. This we discover not under the sign of realism or descriptiveness alone, but by acknowledging, again, the degree of humanist involvement with the classical past. In Holland such involvement was more direct and less self-conscious than elsewhere, and despite the implications of approaches such as Svetlana Alpers's *The Art of Describing*, it remains a fundamental element of seventeenth-century Dutch society. To oppose intellectualism and realism is to miss the boat, to have to ignore not only the chief affections of Constantijn Huygens, but also to overlook the fact that De Laet could move with such ease – and with such evident enthusiasm – from natural history to classicism or, rather, from theology to commerce to natural history to classicism. In the last year of his life, De Laet's attractive and useful edition of Vitruvius was published with its notes assembled from Daniele Barbaro, Guillaume Philander, and Claude Saumaise, its long extracts from Pomponius Gauricus on sculpture, its edition of Leon Battista Alberti's *De Pictura*, and (prefacing the whole book) a Latin translation of none other than Sir Henry Wotton's *Elements of Architecture*.⁴³ It is as well to remember that this is twelve years after Amsterdam saw the first publication – in Latin – of Franciscus Junius's *De Pictura Veterum*. And it is clear from Dal Pozzo's all too little studied *Memoriale* of the late 1640s (and from his unpublished correspondence) that the Vitruvius was eagerly awaited in Rome and that De Laet kept abreast of all the latest classical discoveries in that city.

But let us return to the Indies and to art in the service of natural history more generally. In 1658 a new version of the *Historia Naturalis Brasiliae* appeared in the form of fourteen books on the natural and medical history of both the Indies, the *De Indiae utriusque re naturali et medica libri quatuordecim*. This time Piso's name – and his exclusively – appears on a title page which is not much changed, in visual terms, from the earlier one.⁴⁴ But his contribution is less easy to define and has been the subject of some debate. While his own medical observations and researches as they appeared in the 1648 book are here only slightly revised and modified, Piso now ascribes to himself the work on the flora and fauna that had earlier rightly been credited to Marcgraf. It is true that Piso adapted and supple-

mented Marcgraf's text, but the scientific observations and conclusions are basically the latter's; so too are the illustrations (for example, fig. 7). The puzzle, however, cannot be resolved here. In the new book Marcgraf is only fully credited with the authorship of the topographical and meteorological treatise — with its excellent observations on solar eclipses — and with a report on the Brazilian and Chilean natives. Key additions to the work as a whole are the extensive medical discussions of the doctor of Batavia, Willem Bontius, son of Professor Gerard Bontius and a 1614 graduate in medicine from Leiden. To Bontius we also owe the important description of the animals and plants of the East Indies ("*quibus sparsim inseruit G. Piso annotationes & additiones*"!). It is not surprising to discover that Bontius's section on the "medical methods to be used in the East Indies for the purpose of curing the endemic and everyday diseases there" should simply be dedicated to the body of directors of the East Indies Company. His excellent section on animals and the commentaries edited by Piso also deserve more attention.⁴⁵

By the time that Piso's book appeared, the Brazilian adventure had failed, and the main stimulus and encouragement to publish on the East Indian and South African settlements came from Amsterdam itself. The Amsterdam Hortus was set up in 1682, and its directors, Jan and Caspar Commelin, were responsible for or assisted in the chief publications in this area for the rest of the century. It could be argued that they and their garden played a role in the development of the study of exotic plants similar to that which Clusius and his Leiden garden had played a century before. Although the Leiden professor of botany Arnoldus Syen had provided the notes and commentary to the first volume of Van Reede tot Drakenstein's epic work, the *Hortus Malabaricus*,⁴⁶ this task and that of editing the illustrations by native artists and the text by the Cochin minister Johannes Casarius fell to the Commelins for all subsequent volumes from 1679 to 1703. By the time Jan Commelin had begun to work closely on the project of the extraordinarily dynamic and widely traveled former governor of Malabar, he had already published a remarkable book on citrus fruit entitled *De Nederlantze Hesperides*.⁴⁷ This was a kind of Dutch version of the work on the subject by the Jesuit priest Giovanni Battista Ferrari, to which it was heavily indebted in terms of both text and illustrations.⁴⁸

Oranges in the Netherlands! Here is a subject to conjure with. It is worth reflecting both on the growth of private gardens in the Netherlands and on

the role of citrus cultivation and orangeries in them. Citrus fruit in still lifes (lemons above all) may have all manner of symbolic significance, but only when we consider the range of the contents of books like Commelin's and Ferrari's⁴⁹ with their excellent discussions of the origins and uses of oranges and lemons — their medicinal purposes, their uses as cures, perfumes, pastilles, the basis for sherberts, and so on — that we begin to grasp the cultural freight of the presence of citrus fruit in pictures: the more exotic the better. They become food for the eyes, even when wormed or wilted. At the same time, as with the most exotic of the plants, it is worth observing the comparative absence in the pictures of oranges, granadillas, and tiger lilies. The Netherlands would never produce a Bartolomeo Bimbi.

But Commelin had more important work to do. His treatise on citrus fruit simply marks the first flowering of an interest in exotic plants that was soon to find much fuller expression. For the rest of his life he devoted his energies to the garden under his care and to the culminating botanical projects of the century: the description and representation of the exotic and rare plants of the Amsterdam Hortus⁵⁰ and the continuation of the work on Van Reede tot Drakenstein's *Hortus Malabaricus*.⁵¹ Commelin was not to see the completion of either project. It was left to Frederik Ruysch to translate the first volume of the *Rariorum Plantarum Horti Medici Amstelodamensis* into Latin and to edit it properly, while Commelin's nephew Caspar (an encourager of Merian's who provided the Surinamese book with botanical notes) put together the second volume and (with Abraham van Poot) saw the *Hortus Malabaricus* through its final stages.

The volumes on the Amsterdam garden, as has been noted, were published at the expense of the Amsterdam Town Council. Their dedications are to the great magnates and patrons of the garden, among them Witsen, Johan Hudde, Cornelis Valkenier, and Dirk Bas in volume one and Hudde, Jan Corver, Francois de Vicq, Theodoor Munter, Franciscus de Vroede, Johan Huydecoper, and Gerbrand Pancras in volume two (the last three men were also curators of the garden and responsible for the publication of the first volume). The volumes are the summation of the knowledge of plants assembled in countless trips to the Indies. The second volume also contains a proportionately large number of African plants, mostly sent from the Cape by governors Simon van der Stel and his son Willem Adriaen. The rich floral kingdom of the Cape seems, initially at least, to have stimulated rather less research and publication than the flora of the Indies (although



Fig. 5. Hendrik Adriaan van Reede tot Drakenstein, *Hortus Indicus Malabaricus, continens Regni Malabarici apud Indos celeberrimi omnis generis plantas variores* (Amsterdam, 1673–1703), vol. 10 (1690), pl. 50.
Photo: Courtesy History and Special Collections Division, Louise M. Darling Biomedical Library, University of California, Los Angeles.

this may have had much to do with the fact that the serious recording of American plants had gone on for almost a century longer than that of Southern African plants). Once again, many of the copies of the volumes on the Amsterdam garden were beautifully colored with the meticulously accurate watercolors made richer and more permanent by the addition of varnish. The engravings themselves were the work of Johan and Maria Moninckx. To possess such volumes was to combine the preciousness of painting and the rarity of the *kunstkamer*, with a substantial addition to scientific knowledge, in the form of one of the prouder achievements of the capitalist enterprises in the Indies.

The plates of the *Hortus Malabaricus* are even larger, more ambitious, and more useful taxonomically than those in the Amsterdam book. They are almost all life-size, as the title page proudly notes, and by the best native artists, "*naturali magnitudine a peritissimis pictoribus delineatas, & ad vivum exhibitas.*" The marriage of art and science is perfectly consummated, and the old tensions between precision and fantasy are resolved. The former governor of Malabar thus celebrated his long, brave, and prosperous years in the uppermost echelons of the company's servants in a publication of a local flora that was never again to be equaled in sumptuousness or in careful and minute visual detail and specification. And the great double-page plates are inscribed with the names of plants, first in a Latin version of their local form and then in Arabic and Malayalam (fig. 5).

The twelfth and final volume of the *Hortus Malabaricus*, dated 1703, came two years after the second volume of the *Hortus Amstelodamensis*. If botanical illustration could reach no greater heights of skill or ambition, at least two other areas of natural history remained where the summit of illustration had yet to be achieved. But this was reached swiftly enough, just two years later in 1705. That year saw the publication not only of Merian's book on Surinamese insects but also the appearance of Rumphius's *Amboinsche Rariteitkamer*. If Merian's plates represent the pinnacle of entomological illustration (figs. 1-3), equal to the finest insects in oil of Jan Bruegel or Jan van Kessel or to any of the worms that spoil the fruit and flowers and the butterflies that hover above them in the great still lifes of the century, then the lobsters of Jan Davidsz. de Heem, Willem Kalf, and Abraham van Beijeren find their scientific equivalents in the illustrations of the specimens in Rumphius's museum. It is impossible to imagine finer or grander illustrations of crustaceans than those by Jan Lamsveld and J. van Buisen



Fig. 6. Georg Eberhard Rumphius,
De Amboinsche Rariteikamer
(Amsterdam, 1705), fol. 10.
Photo: Courtesy History and Special
Collections Division, Louise M. Darling
Biomedical Library, University of California,
Los Angeles.



Fig. 7. Willem Piso [et al.],
De Indiae utriusque re naturali et medica
(Amsterdam, 1658), fol. 77.
Photo: Courtesy History and Special
Collections Division, Louise M. Darling
Biomedical Library, University of California,
Los Angeles.

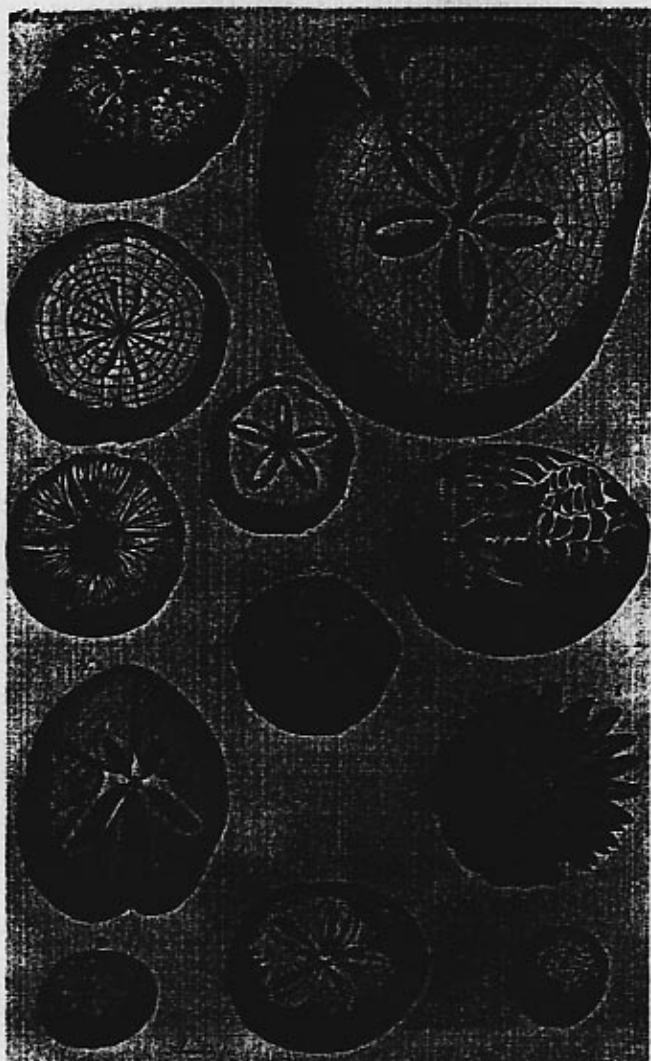


Fig. 8. Georg Eberhard Rumphius,
De Amboinsche Rariteitkamer
(Amsterdam, 1705), fol. 32.
Photo: Courtesy History and Special
Collections Division, Louise M. Darling
Biomedical Library, University of California,
Los Angeles.

in the *Amboinsche Rariteitkamer* (fig. 6), even though Marcgraf's example might have seemed hard to match (fig. 7).

The prints of sponges, fossils, and shells that follow the crustaceans are not as striking (fig. 8), but the shells mark an important juncture in the long history of conchology in the Netherlands. This is not a subject to dwell on at any length here, but of all the tokens of the Indies that could be acquired by the owners of *kunstkamers* or represented in art, shells were perhaps the easiest to come by and to preserve adequately. When we search for the place of the exotic in Dutch culture, shells play one of the earliest roles in still lifes, in shell studies (most famously in Rembrandt's etching of a single *Conus marmoreus*), and in portraits of their owners. In considering Rumphius, it is as well to record Goltzius's famous portrait of Jan Govertsen of 1603, or Jacques de Gheyn's picture of *Neptune and Amphitrite* in Cologne (to say nothing of his obsession with them in many of his graphic works), or the paintings by Jan Davidsz. de Heem, Adriaen Coorte, Jacques Linard, and many others with shells from the Caribbean, the Pacific, and Indonesia; and, finally, to think forward to the other end of the tradition, the conchological clubs that flourished in the eighteenth century. None of these matters have gone unremarked, and the whole still life tradition has been finely discussed by Sam Segal, most recently and notably in his catalog for the exhibition of the sumptuous still life (which he termed the *pronk* still life).⁵² But there are issues that remain, and Rumphius's work and his collection bring them to the fore.

It is all very well to interpret the shells in pictures as *vanitas* symbols or to see in them the visible evidence of the glory and intricacy of God's creation: but for every Philibert van Borssele walking along the local beach and picking up shells or describing the shell collection of his brother-in-law with such thoughts in mind,⁵³ there is a Cluyt, De Laet, or Rumphius, not on some beach in Zeeland but in a remote castle in Amboina. God the technologist swiftly recedes from their works to give way to man the all-resourceful investigator. Shells may be a miraculous testimony to God as the supreme technologist of nature, but in the years between Goltzius's portrait of Govertsen and the poem by Van Borssele, the supposedly Dutch invention of the microscope was being absorbed by Galileo and by the Lincei around him, to be used in the analysis of bees and other insects by the beginning of the next decade. With the development of the microscope, God the great artificer gives way to man the great investigator for whom no mystery

is too dark or too impenetrable, no phenomenon of nature beyond his cool analytic reach. With the microscope the eye acquired new and unheard-of powers. Nothing in nature remained beyond the capabilities of visual reproduction. It is no surprise that in the years of the first flowering of Dutch still life, the Lincei should have set out to document the whole of nature by reproducing its every aspect, and by employing artists to do so. By the time Rumphius had the contents of his museum reproduced on paper, man the artist was capable of reproducing nature as perfectly and as artistically as God made the originals.

To the objects, then, themselves. They are not just or only the tokens of the divine Other. They are much more than that, whether in still life or any other form of Dutch picture making. They are tokens of real and material value. They are of this world — the more exotic, the more precious; the more beautiful, the more precious. We linger over them with our eyes because we need to use them, handle them, and exchange them for other rarer, stranger, and more valuable objects. They are realistic precisely because they are of this earth; they cannot be too much of the spirit, since they would then neither be amenable to investigation and analysis nor capable of verification. If the all-powerful eye cannot see them, then they must be handled. Touch too becomes a criterion for representation. The more real, the better — but real because one cannot fetishize what is only present to the mind.

*Caecus habens oculos tam gnavae mentis acutos,
Ut nemo melius detegat aut videat:
RUMPHIUS hic vultu est Germanus origine, totus
Belga fide et calamo: caetera dicit opus.*

Thus runs the inscription beneath P. A. Rumphius's portrait of his father, the Pliny of the Indies (fig. 9), "Though blind, the sharp eyes of his vigorous mind see and uncover things better than anyone else. Rumphius may be German by origin, but in faith and in his writings he is wholly Dutch. The work tells all the rest."

The importance of this inscription is twofold. First, it makes clear the Dutchness of the German-born doctor's inspiration, commitment, and contribution; second, it emphasizes that despite his blindness, Rumphius sees — and discovers — better than anyone. And he does so, as the print so



Fig. 9. J. de Later after P. A. Rumphius, *Portrait of Georg Eberhard Rumphius in Georg Eberhard Rumphius, De Amboinsche Rariteitkamer* (Amsterdam, 1705), frontispiece, 21 x 34 cm. London, British Museum.

CONCLUSION

plainly shows, with his hands. He clutches at, and thereby discovers, the rare plants and shells on the table before him. The manual component of blind Rumphius's insight thus stands for the physical and sensual impulse that accompanies all looking.

The conference that gave rise to this paper and the others in this volume was based on the view that the twin disciplines of history and art history might fruitfully illuminate each other. This view was not novel, but it seemed time to take stock of the *potential* of history for art history and vice versa. Recognition of the mutually beneficial possibilities of the two fields has almost always been a basic assumption of art history (except, perhaps, in those areas involving the purer forms of connoisseurship and the more rarefied regions of formalism and style criticism). History, on the whole, has been rather slower to see the value of art historical methods and procedures, despite an increasing use of visual evidence by some historians. But in recent years the situation has changed considerably in both disciplines.

It could be argued that for art historians to say anything at all about a work of art, they have, to a greater or lesser degree, to act as historians, as Gary Schwartz may seem to suggest in his essay in this volume; and there have been few art historians, in the Dutch field in particular, who have not exercised more or less traditional historical skills in pursuit of their subjects. Recently, however, it has become fashionable in all fields of art history to claim that art historians have not been historical *enough* and that the social history of art, or the new art history, as it has come popularly to be known, should replace the older varieties. Although the use of social history to provide a context for works of art in the hope of illuminating them more directly is among the oldest procedures of art history, the proclamations of novelty are loud. But the *raison d'être* of the whole enterprise is forgotten. A significant and revealing shortcoming of the new social history of art is that while context is often richly provided, the work remains somehow isolated from that context, with its peculiarity and individuality as a work of art unilluminated. This is the chief burden of J. W. Smit's essay in this volume. Certainly, one of the great projects for the history of art remains the adequate integration of art as cultural production into the society that gives rise to it. The will has been there for some time, but the results have been meager. It would be difficult to claim any significant methodological

breakthrough in this area since Max Dvorak, and he is rightly no longer a model to be followed closely.

In history the situation is different. Many historians, especially in recent years, have turned to the evidence of pictures and prints; and increasing numbers of historical monographs are illustrated by works of art and by more everyday forms of representation. But an old allegation often made by art historians still holds. It is that the way historians use visual material does not go much further than the rather simplistic illustration of argument, and the pictures themselves play no role at all. Historians, so the allegations run, lack the art historian's skills in distinguishing genres, in iconographic interpretation, in correctly assessing internal histories of style and other internal pressures on the genesis of works of art, and so on. It is true that gross errors continue to be made, as in the case – to turn to the Netherlands specifically – of the frequent use of inappropriate visual material from the Southern Netherlands to illustrate works and arguments about the United Provinces. A glittering exception, of course, is Simon Schama's *The Embarrassment of Riches*.⁵⁴ Here a knowledge not only of the images themselves but of the most recent art historical developments results in a brilliant integration of art history with history, in which images play a crucial role in the unfolding of both the historical arguments and the ethnographical set pieces. No historian has yet devoted such full attention to the methods and findings of art history nor shown so deep an understanding of them.

If Schama uses art history for the benefit of history, the work of John Michael Montias provides the chief example of the way in which historical and economic research may enrich art history. His archival studies of Vermeer⁵⁵ and his more recent analyses of inventories, as exemplified by the essay in this volume, point to large areas of research yet to be exploited by those many scholars concerned with the place of works of art in seventeenth- and eighteenth-century Dutch society. Research of the kind undertaken by the economic historians writing in this volume gives art historians far more precise economic and statistical contexts than those with which they are accustomed to work. Heretofore, it has only been possible to make intuitive and sometimes gross generalizations about such contexts, often at considerable cost to chronological and iconographic accuracy. Richard W. Unger and Willem A. Brandenburg, on the other hand, provide taxonomic data normally passed over or left roughly grained by art historians. Their

data, just as the statistical material provided by Jan de Vries and Ad van der Woude, are of a kind that bears directly on the objects of art historical research but that could not have been generated by art historical methods. Such information arises from methods and skills peculiar to special areas of historical investigation. Here, then, is an excellent case where one discipline (art history) may benefit from another (whether economic, agricultural, or naval history) but where in the end — even with the work of Montias — there is little real integration of disciplines. The methods and findings of one discipline are simply brought to bear on the objects of another. Schama's project is fundamentally more ambitious, but while it provides inspiration for all those who would integrate the disciplines, it offers no real model, since its success depends on expository brilliance rather than on integrative method. And its ethnography, in all its picturesqueness, is unrepeatable.

What is called for is a much more closely interactive endeavor in which it becomes impossible to declare "here I act as a historian" and "here I act as an art historian." The disciplines, having taken from the best of each other, must look forward to becoming more wholly integrated. In this respect one might be inclined to argue — against the position set out by Jan de Vries in his introduction — that art historians in general have learned more from historians. Yet anyone who looks at the field of Dutch art history now would be hard put to claim even this with great conviction, despite the progress of recent years.

Let us consider five areas of research. With those studies that fall into the category of what its practitioners call the "new social history of art," rich contexts are provided, but the work itself often remains strangely unilluminated. A fine web is spun, the work of art is more precisely located, yet it remains incidental to the analysis. The work becomes a pretext for more or less random clusters of information relating to its production and consumption. While no one would deny that before T. J. Clark's recent impetus to the old social-historical modes best exemplified by Frederick Antal, art historians were too inattentive to modes of production and consumption and to the determining role of social structures and fundamental socioeconomic pressures, the majority of the new studies are rather hit-and-miss affairs. They do not have the courage of their convictions. They lack the rigor that would be provided by a strict Marxian or Gramscian view of the relations between base and superstructure or by more schematic Althusserian models

of the relations between works of art and ideological state apparatuses. Nor do they explore the potential of a strict working out of the kinds of inferential modes suggested by Michael Baxandall.⁵⁶ Indeed, considerably greater progress could be made by clearly recognizing the particular requirements of art history and the skills that it entails, without necessarily espousing its soft and retardataire forms. Too often the practitioners of the new art history attempt to do what straightforward historians do better and are better trained to do, and they forget that their training as analysts of art and of visual culture enables them to go beyond the provision of a context that either fitfully illuminates the work or is largely irrelevant to it. Take only one example from the Dutch field: how much might have been built on the now comparatively old work of Konrad Renger on peasant representation (for all its orientation toward symbolic readings) or the more recent work of students like Hans-Joachim Raupp!⁵⁷ But even if one were to claim that there is no preordained reason why the primary aim of the art historian should be to illuminate the work of art, the efforts of most current social historians of art leave readers with the feeling that the work itself plays no role in the analysis and illumination of context. In the dialectics of the new art history, the work is rendered doubly passive. It neither casts light nor has much light cast upon it. It stands some distance away from a vague target peppered with whatever buckshot happens to be available. The work does not even suffer, because it is absent.

The second recent development has been the revivification (and perhaps apotheosis) of connoisseurship in the Rembrandt Research Project. Here the old forms and principles of connoisseurship meet new scientific techniques; but while the project's value in refining the Rembrandt corpus is great, it is so unremittingly positivist that it needs no further discussion in the present interdisciplinary arena.

The great iconographic studies of E. de Jongh⁵⁸ have provided the basis for one of the most richly worked areas in the field, but one that has also turned out, a little surprisingly, to be perhaps the most rawly positivist, clinging to texts and seeking direct equivalents between word and image or between emblem and oil painting. Large numbers of iconographic investigations turned out to be little more than the seeking of literary equivalents – moralizing, spiritual, didactic – for pictures or parts of pictures. A number of cautionary articles have appeared, including those by Peter Hecht (urging common sense), Jan Baptist Bedaux (applying severe but salutary

CONCLUSION

strictures on excessive interpretative specificity), and Jochen Becker (in the present volume). But none of these has managed to arrest the positivist flow.⁵⁹ The high-water mark of the narrow lexicographic approach to the supposedly disguised symbolism of Dutch pictures was the introductory essay by Josua Bruyn in the catalog of the Dutch Landscape exhibition held in Boston and Amsterdam in 1986–1987.⁶⁰ Since there has already been a certain amount of auto-critique of the excessive or inappropriate use of emblems in the interpretation of pictures, since Eric J. Sluijter's piece in the present volume provides a magisterial overview and criticism of developments in this subfield,⁶¹ and since the subfield as a whole is reasonably well represented and subject to critique in this volume, it does not need further analysis here. And while it represents an area in which the disciplines of art history and literature come together, it is also one in which more purely historical concerns and principles have often been strangely absent – often to the detriment of the particular arguments. One of the more regrettable methodological developments in the field has been the uncritical and anachronistic use of texts to illuminate pictures that were produced long before the texts themselves, such as the use of seventeenth-century texts and emblems to illustrate sixteenth-century pictures, or late seventeenth-, or even eighteenth-century texts for early seventeenth-century pictures.

A fourth field in which one might have expected history and art history most logically to come together is that of political representation (whether in painting, sculpture, or prints) in both senses: representations with political subjects and representation for overtly political purposes. Propaganda in sixteenth- and seventeenth-century Dutch art has been comparatively little studied, and the challenge of Henri van de Waal's monumental *Drie eeuwen vaderlandsche geschieduitbeelding, 1500–1800*, and of Katherine Fremantle's book on the Amsterdam Town Hall, both published over thirty years ago, has largely gone unmet.⁶² Aside from the important work of Albert Blankert on the Amsterdam Town Hall and the revealing exhibition *Gods, Saints, and Heroes* (the title conveys rather more than the slightly cryptic Dutch version *God en de goden*),⁶³ little progress has been made. Recent recognition of the potential of this area is provided by Elisabeth Onians-de Bièvre's study of Dutch town halls and Perry Chapman's work on Philips Angel.⁶⁴ Alison McNeil Kettering's book on the Dutch Arcadia⁶⁵ has an important analysis of the complex interrelation between pastoral

and power, a relationship so much studied, for example, with regard to Britain in the seventeenth century.

The fifth field was pioneered by Alpers in *The Art of Describing*. Here, the author threw down an epistemological gauntlet to Dutch art history as a whole. Readers will have recognized the ways in which many of the remarks in this essay have been influenced by Alpers's book. In the face of a fast-growing tendency to hunt for the disguised symbolism of pictures, Alpers insisted on the importance in Dutch art of observation and description. While some scholars object to the stridency of her assault on the practitioners of an iconography too closely tied to the emblem books, her strictures on symbolism in the narrow iconographic sense developed by Panofsky were timely, and it is as a result of her work that the lines of debate between the iconographers and those who hold that the claims of description are greater than those of symbolism are now clearly drawn. But to its own detriment the mainstream in the field has failed to take full cognizance of the implications of her dense and often difficult arguments and has opted instead for varieties of the new positivism to which I have already alluded.

In the first part of this essay I pointed to the visual and artistic material produced as a direct result of the activities of the two great companies of the Indies. I did so not simply because this large body of material has been so neglected by historians of art or because it stands so clearly on the borders of a large number of disciplines — history, economics, natural history, art history, even psychology. I did so because it obliges the student to gauge the relations between description and art, to consider the links between artistic and scientific activity, and to assess the place of the representation of nature and mapmaking in the larger context of Dutch image making and art. All these issues are writ large in Alpers, even though she chooses to pass over the natural historical material discussed here in an explicitly cursory way. But there can be no doubt of the potential fruitfulness of her insistence not only on the role of this-worldly descriptiveness over other-worldly symbol and allegory but also on the relations between seventeenth-century Dutch science and art and on the parallels, in the descriptive treatment of surface, with mapmaking.

But Alpers seems to have pushed this last analogy too far, and in emphasizing the importance of the practical and scientific modes as constitutive

of Dutch art in general, she grossly overlooked the role of other modes, most notably the classical and pastoral traditions, usually but not always intertwined in Dutch culture. The traditions merge with the scientific, this-worldly, practical, and descriptive in works such as the *Historia Naturalis Brasiliae* and in the books by De Laet. There is no place in Alpers's account for the evidence offered by a figure like Anthonie Thysius, who in the foreword to his edition of Guillaume Postel's treatise on the government of the Greeks (published just one year after Thysius himself delivered the gratulatory oration on the return of Johan Maurits from Brazil) waxes lyrical on the outdoor delights of his cousin's estate. As the cousins wander through the garden comparing Greek and Roman legal systems, they cannot restrain themselves from praising its sylvan pleasures. The garden may have antique statues in it, but the ponds bursting to capacity with fish catch Thysius's eye and call forth his lyrical pen, as do the fountains, the portico with its rustications, the view toward the wide meadows beyond it, the gardens, the trees groaning with fruit ("*arbores sub ponderibus fructuum gementes*"), the maze of cherry trees, the tulips and other flowers, the hills that fend off the inclement winds, and, finally, the nearby sea with the boats bobbing up and down.⁶⁶ This is the context that Thysius provides for his conversation about ancient administration, bureaucracy, and law, and it is one, yet again, in which the works of man give way to the gentler amenities of nature, however tamed they may be – and however cliché-ridden the description. In a paper devoted to sketching interdisciplinary prospects, it is hard not to reflect on the way in which the most fruitful recent developments in garden history have been almost entirely ignored by historians of art.

Such are the difficulties that arise from the pursuit of a chimera – the essential nature of Dutch art – and from the need to establish something called realism as constitutive of Dutch art as a whole. The real shortcoming of *The Art of Describing* lies in the too-strenuous efforts in this direction and the consequent neglect of the importance of the *Italian* observational and descriptive traditions in the very years of the first burgeoning in Holland of an art that might be called realistic. Aside from the great sixteenth-century tradition of natural illustration in Italy – as can be seen in the work of men like Jacopo Ligozzi, Gherardo Cibo, and Fabio Colonna (all without equal in the North) – the illustrations in works such as Pietro Castelli's description of 1625 of the Farnese Gardens in Rome (written under the name of the Farnese gardener Tobia Aldini) and Giovanni Battista Ferrari's *De*

Florum Cultura of 1633 are at least as refined, sophisticated, and accurate as those in the contemporary Dutch and Flemish florilegia. They are also more valuable in accurately conveying useful botanical information for the purposes of analysis, classification, and taxonomy. Scientific and analytic descriptiveness come together with art at least as powerfully, for example, in the extraordinary body of material produced on behalf of the apparently conflicting claims of those who were first supposed to have cultivated the passion fruit in Italy; and considered in the light of the great illustrations and broadsheets that arose from this controversy in the 1620s, the work of the Dutch florists seems either too fussy or too visually evasive at the crucial analytic places. The illustrations in the works of someone like Cluyt appear amateurish beside even the most amateur of the illustrated works published by the Lincei around Galileo.

None of the early Dutch attempts at scientific description can match the marvelous prints showing microscopic studies of bees by Cesi and Stelluti; while their sense of excitement in the use of the new instrument is well conveyed by the accompanying texts and tables. It is worth remembering that Stelluti's pioneering illustrations of bees and wasps under the microscope were published in his edition and translation of the difficult poems of Persius. In this work too, which issued from the Mascardi presses in Rome in 1631, the classical was made vernacular and pressed into the service of furthering both literature and the practical advance of science. These first efforts with the microscope were made, as is well known, in the immediate wake of Galileo's development and use of the telescope. No one who reads the scientific literature of the second and third decades of the seventeenth century can escape the sense of excitement that accompanied the first great utilization of an instrument that arose from Dutch discoveries in the use of lenses for magnification but was perfected by Galileo. It was he, after all, who first recognized and publicized the cosmological significance of the close observation enabled by the telescope; and his contemporaries, especially Cesi and his fellow Lincei (the lynxes, those keen-witted and sharp-eyed animals who served as the emblem of the first modern scientific academy), immediately saw the profound significance of his discoveries for the exploration of the world of natural things. It is not surprising that the Lincei should have produced the first great body of visual recordings of nature — often commissioned from reputable artists — and that it was Dal Pozzo, antiquarian and scientist, who saved them for posterity.⁶⁷

Which brings one back, once again, to South America and to the Indies in general. Just as the great compilations made and assembled by the Spanish doctor of the Indies Francisco Hernandez in the course of his expedition to America between 1571 and 1577 provided renewed stimulus to the Lincean studies from 1625 on, so too the course of Dutch picturing was changed by the findings and publications that arose from Maurits's governorship of Brazil and his sponsorship of the medical and naturalist researches of both his and the West Indies Company's employees there. From this time on, and especially after the publication of the two books on the natural history of Brazil in 1648 and 1658, the Dutch far outstripped all other nations of Europe – and certainly Italy – in the artistic and scientific value of their illustrations of nature. How vastly superior, how much more scientifically useful, how much more closely descriptive are the fine engravings in the *Historia Naturalis Brasiliae* than the rough woodcuts in the *Rerum Medicarum Novae Hispaniae Thesaurus*. There could be no clearer indication of the great strides made by Dutch art and science than the difference between the books produced by Cluyt on the one hand and Marcgraf and Piso on the other. All, let it not be forgotten, were medical doctors.

For all this, however, and for all Alpers's neglect of the Italian observational and descriptive tradition, there is little doubt that this tradition hardly entered mainstream picture making in Italy as it did in the Netherlands. The great merit of *The Art of Describing* is to have raised the appropriate epistemological issues to account for such distinctions – for the issues are indeed epistemological.

One would have thought, after Foucault, that the meanings of representation would have been more deeply scrutinized when it comes to Dutch pictures. Alpers made a beginning, it is true, with an inquiry almost negligently shirked by others, but we still need to know more about the *kinds* of knowledge embodied in Dutch pictures, prints, and book illustrations. We need to be clearer about the value – both use value and exchange value – that they *and what is represented in them* entail. Artistic criteria enter into consideration here, but so do the pressures, exigencies, and requirements of scientific investigation. So too does the status of objects within the trade economy, both local and international. All this, in turn, imposes a further task. 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 not exist between particular kinds of knowledge on the one hand and individual representational genres on the other. We need to move toward a closer determination of the degree to which a genre may be more fitted to the embodiment of one form of knowledge than another. The pressures may be epistemological, or social and economic, or a combination of these factors; yet we are far from possessing the necessary data to identify them adequately. The practical requirement is simply one of further research into the kinds of areas I have suggested here. The theoretical issues have to do both with the general shape of knowledge and with particular knowledge, as well as with the relationship of such knowledge to representation.

One thing, however, should be made clear. In speaking of the freight of pictures and of the objects they show, I do not speak only of their cultural baggage or even of *how* they are fraught culturally. This is precisely the form of information that may be obtained from a writer like Schama, however selective or random such information may be alleged to be. The information may also seem to be embodied in emblems, but we cannot put the evidence of emblems to full and appropriate use until we know better how to locate allegorical knowledge on the epistemological map. The difficulties are clear, the investigative requirements plain. And the questions that arise are ones that art historians may most fittingly address, rather than the kinds of tasks (chiefly social and historical) that under the pressure of fashion they have usurped from regular historians. It is precisely in the area of the relationship between epistemology and visual representation that the art historian has a distinctive contribution to make. Here is at least one area where the skepticism about the art historian's taste expressed by Jan de Vries in his introduction to this volume is unjustified.

But, as De Vries also noted, it is clear that the barriers between disciplines must still come down — not that one field should usurp another but that each may benefit from the findings of the other. For example, only by considering the status of objects within the overseas trade may we begin to assess their status within representation in the Netherlands. The status of objects at home, after all, is directly affected by the perception and value of objects from abroad. If we cannot yet arrive at an adequate psychological theory of the fetishization of objects or — even more complexly — of the fetishization of representational forms, we can at least begin to examine the turning of exotic and imported objects into fetishes or into things bound to be fetishized.

In the Netherlands we see perhaps more clearly than anywhere else the connections between fetishism and exoticism on the one hand and trade and finance and investment in art on the other — investment in art and investment in the broader sense. Every European *kunstkamer* contained objects from the East (they were of its essence, its *sine qua non*), but in seventeenth-century Holland the *kunstkamer* was rooted in the commercial world of the two companies of the Indies. Once we consider this commerce (and I have shirked the task of detailing it here; this must remain for the historians), we may begin to consider its importance for science and for representation — whether descriptive, analytic, allegorical, or narrowly subject to the rules of art and intellect. It will never be possible to capture the excitement of the Dutch discovery of the Indies again or of the flora and fauna brought back from there. But if we start with the kinds of books and events that I have described, we might at least focus on an area where the meeting of academic disciplines may for once unequivocally clarify the status of an area of cultural productivity.

The aim of this essay has been simple. I have attempted to assess the potential of certain kinds of natural historical research — chiefly botanical, entomological, and zoological — for the interdisciplinary study of history and art history. I have not taken explicit account of a number of works, often as ambitious as the ones discussed here, that also grew out of the overseas experience of the Dutch Republic but are of less interest for the development of natural history. Thus I have omitted books such as those written or edited in the second half of the seventeenth century by Olfert Dapper on north and south Africa, the Indies, Iran, China, and so forth, and eighteenth-century projects such as François Valentijn's huge *Oud en Nieuwe Indien* published in Dordrecht in 1724–1746. Not every illustrated work on natural history that appeared in the most fruitful periods has been discussed here, and only tacit account has been taken of works that emerged as a result of travel to places like Japan.⁶⁸ The whole field of cartography, obviously relevant to many of the issues raised in this paper, has of necessity been alluded to only briefly. But the potential interest of *all* such works for those exploring these still unmarked borders will be plain.

Along with the shells, sponges, minerals, the lions' hides, costumes, and boxes from the Indies, and the seventy-three weapons from such places that Rembrandt kept in his *kunstkamer*, he also had a bird of paradise, which he

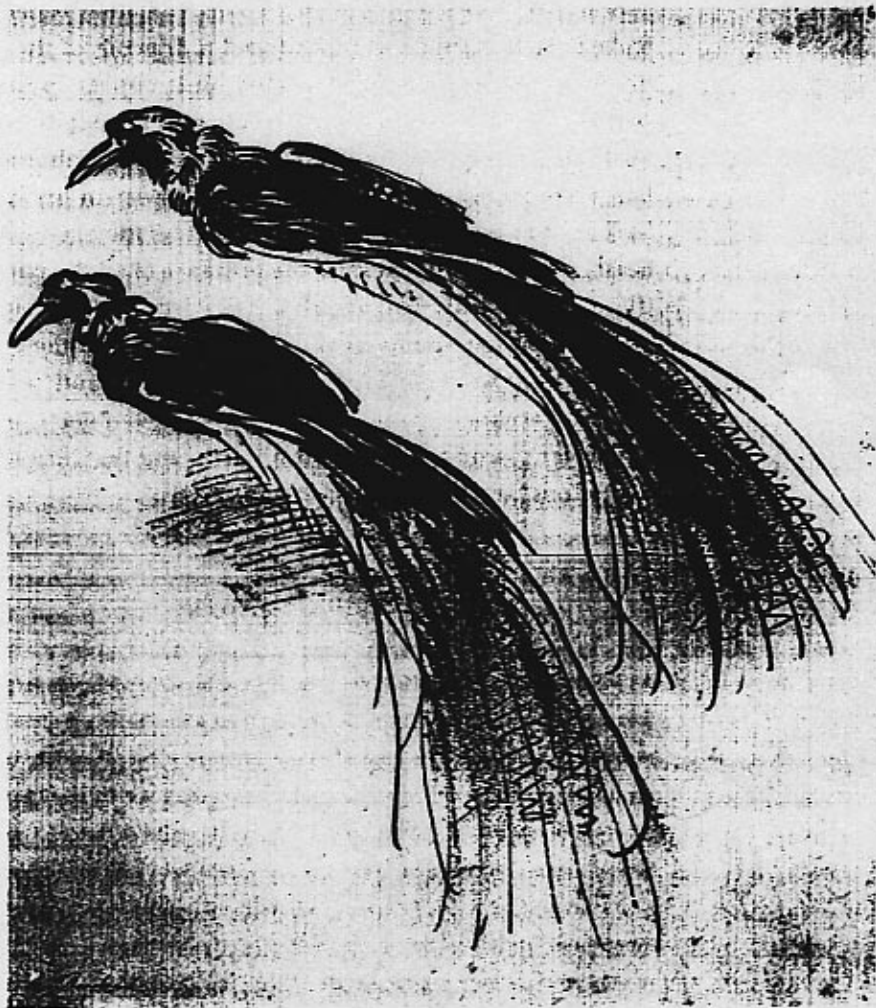


Fig. 10. Rembrandt Harmensz. van Rijn,
Two Studies of a Bird of Paradise, ca. 1640.
pen and ink, heightened with white, on
paper, 181 x 154 cm.
Photo: Courtesy Giraudon/Art Resource,
N. Y., no. 14191.

kept in a drawer together with six fans. Johannes Faber, the friend of Cesi, Rubens, and Elsheimer, reproduced a drawing of the bird of paradise in his *Animalia Mexicana*, and related birds appear in the *Historia Naturalis Brasiliae*. In each case the animal is presented in all its parts, ready for study, analysis, description, and classification. Yet Rembrandt's own drawing,⁶⁹ taken from a dead specimen kept in a drawer in his *kunstkamer*, makes it look as if it were sufficiently lively to fly off the page – something the other beast could never do, despite the presence of all the parts that enable flight (fig. 10). It is analytic (roughly), it is descriptive – but it is to Rembrandt that we turn, again and again, for the essence of the animal. All this may be just what we expect from Rembrandt, but until we cross into the less familiar territories represented by the exotic objects in his *kunstkamer*, we will never discover what makes his art – and that bird – doubly marvelous, marvelous beyond all description.

NOTES

As will be evident from the notes that follow, this essay depends largely on material derived from seventeenth- and eighteenth-century texts whose titles are often extremely unwieldy and resistant to citation in any kind of consistent form. I have therefore taken the liberty of citing the full texts of titles only where absolutely necessary; for the rest I have simply given the main title (where more than one title exists for a single work) or the chief elements of the more cumbersome titles. To have done anything else would have been to burden a piece already too long with even bulkier notes. In general I have included the names of publishers and passed over the printers in silence; but, given the frequently overlapping roles of these professions in the seventeenth and eighteenth centuries, I have not always been consistent. To those who find the inconsistencies troubling, I can only plead that in many instances the usual forms of citation are even less informative than the ones that I offer here. All translations are my own.

1. Maria Sibylla Merian, *Der Raupen wunderbare Verwandlung, und sonderbare Blumen-Nahrung, worinnen durch eine ganz-neue Erfindung der Raupen, Würmer, Sommer-Vögelein, Motten, Fliegen, und anderer dergleichen Thierlein, Ursprung, Speisen, und Veränderungen, samt ihrer Zeit, Ort und Eigenschaften, den naturkündigen, Kunstmahlern, und Gartenliebhabern zu Dienst, fleissig untersucht, kurtzlich beschrieben, nach dem Leben abgemahlt, ins Kupfer gestochen, und selbst verlegt von Maria Sibylla Graffinn, Matthai Merians, des Eltern, seel. Tochter* (Nuremberg: Johann Andreas Graffen, Mahlern; Frankfurt & Leipzig: David Funken, 1679–1683). Every element in this extraordinary title deserves attention, from the specification of the

prospective users of the book to the stipulation about the *ad vivum* representation of the insects, the last use of the author's married name, and the proud announcement of her personal responsibility for the publication. All these recur in one form or another in her subsequent publications; see notes 2 and 5.

2. As evinced in the Dutch version of the text cited in note 1, *Der Rupsen Begin, Voedzel en wonderbare Verandering, Waar in de Oorspronk, Spys en Gestaltverwissling: als ook de tyd, Plaats en Eigenschappen der Rupsen, Wormen, Kapellen, Uiltjes, Vliegen, en andere diergelyke bloedelooze Beesjes vertoond word; Ten dienst van alle Liefhebbers der Insecten, Kruiden, Bloemen, en Gewassen: ook Schilders, Borduurders &c. Naauwkeurig onderzocht, na't leven geschildert, in print gebragt, in in't kort beschreven door Maria Sibilla Merian* (Amsterdam: the author and Gerard Valk, 1683-1717). Observe here that the work was destined for lovers not only of insects but of herbs, flowers, and shrubs. Although Merian refers to her works in such a way as to make the reader think of them as purely entomological, nothing could be more misleading. The chief focus of attention in every plate is arguably the flower or plant on which the insects are shown. Indeed, the text itself reinforces one's sense that the work is almost more about flowers than insects. Note also the use of diminutives in the title, and see the discussion of this practice in note 11.

3. This is most important. Like Merian's earlier work on insects, the book is at least as valuable as a study of plants as it is a study of insects. Cf. note 2.

4. Most of the plates were engraved by Jan Sluijter and Jozef Mulder.

5. Maria Sibylla Merian, "Ad Lectorem," in *Metamorphosis Insectorum Surinamensium, In qua Erucae ac Vermes Surinamenses, cum omnibus suis Transformationibus, ad vivum delineantur & describuntur, singulis eorum in Plantas, Flores & Fructus collocatis, in quibus reperta sunt; tum etiam Generatio Ranarum, Bubonum rariorum, Lacertarum, Serpentum, Araneorum & Formicarum exhibetur; omnia in America ad vivum naturali magnitudine picta atque descripta* (Amsterdam: Sumptibus Auctoris, 1705). A Dutch version appeared in the same year. The original Latin text for the quoted passage is as follows:

Insectis jam ab ipsa juventute mea examinandis occupata, primum de bombyce Francofurti ad Moenum in patria civitate feci initium; dein vero, Papiliones multo pulchriores & diurnos & nocturnos ex aliis produci erucis, animadverso, ut omnes, quas invenire licuit, erucas congregarem, earumque metamorphoses notarem, commota sum. Quamobrem humana plane deserens consortia, unice his vacavi observationibus, quo me in arte pictoria magis exercere, & ad vivum singulas tum adumbrare, tum vivis coloribus exprimere possem. Ita factum est, ut cuncta, quae initio Francofurti & postea Noribergae reperi Insecta, in Pergamenis mihi pulchre admodum picta congregarem. Haec ubi postmodum casu in quorundam curiosorum inciderunt conspectum, maxime illi, ut hasce de Insectis observationes meas publico darem,

atque sic industriis naturae examinadoribus eorumque expectationi satisfacerem, tum temporis cohortati sunt. *Permota tandem persuasionibus, figuris mea manu aeri incisis, easdem edidi, Partem Primam in Quarto, Anno 1679. Secundam Anno 1683. In Frisiam deinde ac Belgium profecta, porro in examine Insectorum continuavi, praesertim in Frisia, cum in Belgio magis quam alibi deesset occasio, illis praecipue investigandis, quae in ericetis ac locis caesosis reperiuntur. Aliorum tamen curiosorum solertia istum saepissime supplevit defectum, qui erucas mihi attulerunt, ad explorandas ulterius earum metamorphoses: quemadmodum plures ejusmodi collectas mecum servo observationes, mihi praecedentibus binis Partibus alias adhuc addendi ansam suppeditantes. Verum in Belgio, quot animalium genera ex utraque India & Orientali & Occidentali advehi curarentur, cum admiratione perspexi, maxime cum egregium dignata fuisset perlustrare thesaurum Nobilissimi & Amplissimi Viri, Nicolai Witsen, in Urbe Amstelodamensi Consulis & in Societate Orientalis Indiae Assessoris meritissimi, &c. ut & Nobilissimi Viri Jonae Witsen, eidem civitati à secretis. Vidi etiam postea thesaurum Clariss. Friderici Ruischii, M.D. Anatomiae & Botanices Professoris, nec non Livini Vincent, & aliorum quamplurimos, ubi haec atque alia numero innumera conspexi Insecta, ita tamen, ut in illis tum origo, tum generatio deficeret, qua ratione scilicet ex erucis fierent aurelliae, & quomodo ulterius transformarentur. Hoc ipso incitata, longinquum & sumtuosum iter tentavi, atque in terram Surinamensem in America, (regionem calidam & humidam, unde Viri praedicti ista acceperunt Insecta,) mense Junio anni 1699. transnavigavi, ut accuratius eadem indagarem, & in studio meo pergerem, ad mensem Junii anno 1701. ibidem commorata: tum autem Belgium versus iterum vela feci, atque insequente mense Septembris die 23. ibi rursus appuli. Sexaginta has figuras cum illarum observationibus isthuc loci in Pergamenis naturali magnitudine summo cum studio pinxi; veluti apud me una cum animalculis siccatis cerni possunt. Quam vero animo conceperam, in regione illa opportunitatem Insecta examinandi non inveni, quippe cum ejusdem clima sit calidissimum, atque hic aestus naturae meae adversetur: qua de re coacta domum citius reverti, ac mihi antea propositum erat. Posteaquam in Belgio essem redux, picturasque meas nonnulli cernerent rerum amantes, hi prelo easdem committerem & publici juris facerem, valde à me contendere coeperunt, primum hoc & pulcherrimum ex Operibus unquam in America pictis esse, arbitrati. Verum initio sumtus, ad perficiendum librum impendendi, me ab eo deterruerunt, donec tandem hoc quoque onere suscepto, illi manus admoverem.*

Consistit itaque hoc Opus ex figuris aeneis sexaginta, quibus ultra nonaginta Observationes de Erucis, Vermibus & Acaris exhibentur, quomodo illa cum exuviis pristinum mutant colorem & formam, & tandem in Papiliones, Phalaenas, Scarabaeos, Apes & Muscas transfigurentur. Omnia haec animalcula iisdem quaeque apposui plantis, floribus ac

fructibus, quae singulis escam praeberunt: illisque adhuc addita est generatio Araneorum Indiae Occidentalis, Formicarum, Serpentum, Lacertarum, rariorum Bufonum atque Ranarum; omnia in America à me observata & ad vivum delineata, paucis solum exceptis, quae ex ore Indorum percepta junxi.

Quaestum in Opere hoc conficiendo non quaesivi, modo adhibitos mihi reddat sumtus, contenta: neque enim his ad perficiendum illud peperci, sed a peritissimis artificum tabulas aeneas incidi, atque optimam huic scopo chartam eligi curavi; ut ita artis non solum gnaris, verum etiam cunctis Insectorum & Plantarum studiosis, rem facerem jucundam eorumque expectationi responderem. Quod si illum me consecutam esse finem, atque simul & satisfecisse, & non displicuisse, animadverto, non parum gaudebo.

6. See the text of the title in note 5.

7. Johannes Faber, *Animalia Mexicana* (Rome: Iacobum Mascardum, 1628). For the terminological discussion, see 746–48 of the 1651 edition of this work, which is incorporated in the work cited in note 37.

8. On Goedaert as a painter, see Laurens J. Bol, "Johannes Goedaert, schilder-entomoloog," *Tableau* 7, no. 4 (1985): 48–54.

9. Johannes Goedaert, *Metamorphosis Naturalis/Metamorphosis et Historia Naturalis cum Commentariis D. Ioannis de Mey Ecclesiastis Medioburgensis ac Doct. Med & duplici eiusdem appendice una de Hemerobiis, altera de Natura Cometarum & varia ex iis divinationibus* (Middelburg: Jacob Fierens, 1662), sig. 2v: "Et quamvis animalcula haec ab omnibus fere hominibus, ob exilitatem suam contemni soleant.... Reliquum tamen in nobis est lumen aliquod naturae quo diligenti observatione, creaturarumque attenta consideratione, ex visibilibus Dei operibus, ea percipere atque assequi mente possumus quae alioquin in Deo per se invisibilia sunt"; "Interpretis praefatio ad lectores," in idem, *Metamorphoseos et Historiae Naturalis Pars Secunda. De Insectis... latinitate donata, commentariis & notis, textui insertis, illustrata & auctuario notarum sive Appendice locupletata. De Insectorum origine utilitate & usu a Paulo Veezaerdt, Ecclesiaste in Insula Wolfphardi Zelandorum* (Middelburg: Jacob Fierens & Johannes Martinus, 1667): "Nihil in universa rerum, quae sub coelo sunt, Naturae, Homine divinius. Divina tamen etiam sunt Insecta.... Admiranda sunt Naturae miracula, indubitata Infiniti sapientiae, & Potentiae testimonia. Exteriore licet adspectu faeda, & abjecta esse videantur, si tamen propius ea intueamini, multo secus apparebunt."

10. The original German edition has garden lovers on this list of possible customers for the book, while the Dutch title page specifically includes embroiderers. See the full titles cited in notes 1 and 2.

11. Jan Swammerdam, *Historia Insectorum Generalis, ofte Algemeen Verhandeling van de*

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Bloedeloze Dierkens, waar in de waaragtige Gronde haare langsaame aangroeyngen in ledemaaten, klaarelyk werden voorgesteld, kragtlyk van de gemeene dwaaling der vervorming, anders Metamorphosis genoemt, gesuivert: ende beknoptelyk in vier onderscheide Orderen van Veranderingen, ofte natuurelyke uytbottingen in leeden, begreepen (Utrecht: Meinardus van Dreunen, ordinarius drucker van d'Academie, 1669). The characteristic and evidently affectionate use of the diminutive to describe the objects of the entomologist's study (*dierkens, beesjes, animalcula*, etc.) should be noted not only in this title but in Merian's (see note 2) and in the recommendations to the reader by Goedaert's editors, as cited in note 9. See also Laurens J. Bol, *Bekoring van het kleine* (Amsterdam: Stichting Openbaar Kunstbezit, 1963), and, most recently, idem, *Goede onbekenden: Hedendaagse herkenning en waardering van verscholen, voorbijgezien en onderschat talent* (Utrecht: Tableau, 1982), for material on the painters of insects.

12. The deservedly well-known article by R. W. Scheller, "Rembrandt en de encyclopedische kunstkamer," *Oud-Holland* 84 (1969): 81-147, provides a rich body of material that is still too little considered in its full ramifications.

13. Charles R. Boxer, *The Dutch in Brazil, 1624-1654* (Oxford: Oxford Univ. Press, 1957); idem, *The Dutch Seaborne Empire, 1600-1800* (London: Hutchinson, 1965); Jonathan I. Israel, *Dutch Primacy in World Trade, 1585-1740* (Oxford: Oxford Univ. Press, 1989).

14. Hendrik Adriaan van Reede tot Drakenstein, *Hortus Indicus Malabaricus, continens Regni Malabarici apud Indos celeberrimi omnis generis plantas rariores*, 12 vols. (Amsterdam: Theodori Boom, 1673-1703).

15. Carl von Linnæus, *Hortus Cliffortianus plantas exhibens quas in horti tam vivis quam siccis, Hartecampi in Hollandia coluit Georgius Clifford* (Amsterdam: Lehre, J. Cramer, 1737).

16. Georg Eberhard Rumphius, (*Herbarium Amboiense*), *Het Amboinsche Kruid-Boek*, 12 vols. (Amsterdam; The Hague; Utrecht: François Changuion, 1741-1755).

17. See E. Kris, "Georg Hoefnagel und der wissenschaftliche Naturalismus," in *Festschrift Julius Schlosser zum 60. Geburtstag*, ed. Arpad Weixlgärtner and Leo Planiscig (Zurich: Amalthea Verlag, 1927), 243-53; and Th. Wilberg Vignau-Schuurman, *Die emblematischen Elemente im Werke Joris Hoefnagels* (Leiden: Universitaire Pers, 1969). See also the valuable catalogs of the 1988-1989 exhibitions on Rudolf's patronage and collections, Kunsthistorisches Museum Vienna, *Prag um 1600: Kunst und Kultur am Hofe Rudolfs II*, exh. cat., 2 vols. (Freren: Luca Verlag, 1988); *Rudolf II and his Court*, Leids Kunsthistorisch Jaarboek 1 (Delft: Delftsche Uitgevers Maatschappij, 1982); and T. DaCosta Kaufmann, *The School of Prague: Painting at the Court of Rudolf II* (Chicago: Univ. of Chicago Press, 1988).

18. Jan and Caspar Commelin, *Rariorum Plantarum Horti Medici Amstelodamensis Descriptio et Icones* (Amsterdam: P. & J. Blaeu & Abraham a Someren, 1697 and 1701). Each volume has four separate title pages; the first volume, published by the Blaeus and Abraham van Someren, is credited to Jan Commelin; the second (which contains African and East Indian plants in

addition to the West Indian varieties of the first volume) was published by the Blaeus and the widow of Abraham van Someren and is credited to Caspar Commelin. The first volume by Jan Commelin was posthumously published but was translated and edited by Frederik Ruysch and François Kiggelaar.

19. Georg Eberhard Rumphius, *De Amboinsche Rariteitkamer* (Amsterdam: François Halma, 1705).

20. Johannes de Laet, *Nieuwe Wereldt ofte Beschrijvinge van West-Indien* (Leiden: Isaack Elzevier, 1625; reprint in Dutch, Leiden: Elzeviers, 1630; in Latin, Leiden: Elzeviers, 1633; and in French, Leiden: Elzeviers, 1640); idem, *Historie ofte jaerlijck verhael van de verrichtingen der Geocroyeerde West-Indische Compagnie zedert haer begin tot het eynde van het jaer 1636* (Leiden: Elzeviers, 1644).

21. Alison McNeil Kettering, *Drawings from the Ter Borch Studio Estate in the Rijksmuseum*, 2 vols. (The Hague: Staatsuitgeverij, 1988).

22. For Scheller, see note 12. On the Reynsts' collection, see the work by Logan cited in note 23.

23. Anne-Marie S. Logan, *The "Cabinet" of the Brothers Gerard and Jan Reynst*, Verhandelingen Afdeling Letterkunde: Koninklijke Nederlandse Akademie van Wetenschappen, n. s., vol. 99 (Amsterdam and New York: North-Holland, 1979).

24. See the excellent discussion in Simon Schama, *The Embarrassment of Riches: An Interpretation of Dutch Culture in the Golden Age* (New York: Alfred A. Knopf, 1987), 151-66. P. Biesboer, "Tulipa Turcarum": Über die "Tulipomania" in Europa," in *Europa und der Orient 800-1900*, ed. G. Sievernich and H. Budde, exh. cat. (Berlin: Berliner Festspiele, 1989), regrettably adds very little to this subject, nor do the sections on the Netherlands in the catalog: a missed opportunity.

25. T. Aldini (*recte et iuste* P. Castelli), *Exactissima Descriptio Rariorum Quarundam Plantarum, Quae continentur Romae in Horto Farnesiano* (Rome: Jacobus Mascardi, 1625).

26. J. T. de Bry, *Florilegium Novum* (Frankfurt, 1612); E. Sweerts, *Florilegium tractans de variis floribus et aliis Indicis plantis* (Frankfurt, 1612); C. de Passe (with C. de Passe II and W. de Passe), *Hortus Floridus* (Arnhem, 1614).

27. Charles Clusius, *Fungorum in Pannoniis Observatorum Brevis Historia*, appended to the *Rariorum Plantarum Historia* (Antwerp: Johannes Moretus, 1601).

28. See note 17.

29. A. Clutius, *Opuscula Duo Singularia, I De Nuce Medica; II De hemerobio sive Ephemero Insecto, & Majali Verme* (Amsterdam: Typis Jacobi Charpentier, 1634), sigla ***2v and ****2v.

30. Outger Cluyt, *Memorie der Vreemder Blom-bollen, Wortelen, Kruiden, Planten, Zaden ende Vruchten: Hoe men die sal wel gheconditioneert bewaren ende overseynden* (Amsterdam: Paulus Aertsz. van Ravesteyn, 1631); A. Clutius (see note 29); idem, *De Cocco Maldivensi*

(generally bound together with the preceding). The numeration and pagination of these works are a bibliographical nightmare; I have not yet attempted to deal with these issues thoroughly. The work on nephritis is generally appended to G. Lauremberg, *Historica descriptio Aetitis seu Lapidis Aquilae... Cui adjunctus est eiusdem Tractatus de Lapide Caluae, nec non Methodus conficiendi Herbaria Viva* (Rostock: A. Ferber, 1627), since it was Lauremberg who edited the text by Cluyt, A[ugustus] Clutius, *Caluae, sive Dissertatio, Lapidis Nephritici, seu Jaspidis viridis, in quaedam callois dicti, naturam, proprietates & operationes exhibens, quam sermone latino recenset M. Gulielmus, Gulielmi F. Lauremberg* (Rostock: Joachim Pedanus, 1626 or 1627).

31. [Jan Swammerdam], *Exquisita Demonstratio Vasorum Spermaticorum, Testium sive Ovarii, Tubarum seu Cornuum, &c. Uteri Humani, in aedibus Anatomici praestantissimi D. van Horne A. 1667 21 Januar. primo adumbrata* (n. p., 1671).

32. Guido de Werd, ed., *Soweit der Erdkreis reicht: Johann Moritz von Nassau-Siegen, 1604-1679*, exh. cat. (Kleve: Stadt Kleve, 1979); and E. van den Boogart et al., eds., *Zo wijld de wereld strekt: Tentoonstelling naar aanleiding van de 300ste sterfdag van Johan Maurits van Nassau-Siegen op 20 december 1679* (The Hague: Stichting Johan Maurits van Nassau, 1979-1980). An extremely valuable collection of essays that appeared in the same year as these exhibitions and should be consulted in considering the topics discussed here is E. van den Boogaart, ed., in collaboration with H. R. Hoetink and P. J. P. Whitehead, *Johan Maurits van Nassau Siegen, 1604-1679: A Humanist Prince in Europe and Brazil. Essays on the Occasion of the Tercentenary of His Death* (The Hague: Johan Maurits van Nassau Stichting, 1979). Rüdiger Joppien's article is entitled "The Dutch Vision of Brazil: Johan Maurits and His Artists," 296-376. For a useful, brief catalog of pictures, see J. de Sousa Leão, *Os Pintores de Mauricio de Nassau* (Rio de Janeiro: Museu de Arte Moderna, 1968).

33. Published by Johannes Blaeu. The plates were reused in the same year to illustrate the epic poem by Franciscus Plante (Brugensis), *Mauritiados Libri XII. Hoc est rerum ab illustrissimo Heroe Joanne Mauritio Comite Nassawiae & c. In Occidentali India Gestarum* (Leiden: Johannes Maire, 1647).

34. As readers of Svetlana Alpers, *The Art of Describing: Dutch Art in the Seventeenth Century* (Chicago: Univ. of Chicago Press, 1983), might be inclined to conclude.

35. [W. Piso, G. Marcgraf, and J. de Laet], *Historia Naturalis Brasiliae, Auspicio et Beneficio Illustrissimi I. Mauriti... In qua non tantum Plantae et Animalia sed et Indigenarum morbi, ingenia et mores describuntur et iconibus supra quingentas illustrantur* (Leiden: Franciscus Hack; Amsterdam: Ludovicus Elzevir, 1648). For the role of these figures in the making of this book and the *De Indiae utriusque re naturali et medica libri quatuordecim* (Amsterdam: Ludovicus & Danielis Elzevir, 1658), as well as their mutual relations, see D. de Moulin, "Medizinische und naturwissenschaftliche Aspekte der Regierungszeit des Grafen Johann Moritz von Nassau als Gouverneur in Brasilien 1637-1644," in Städtisches Museum Haus Koekkoek Kleve, *Soweit der*

Erdkreis reicht: Johann Moritz von Nassau-Siegen, 1604-1679 (Kleve: Der Stadt Kleve, 1979), 33-46.
 P. J. P. Whitehead, "Georg Markgraf and Brazilian Zoology" and F. Guerra, "Medicine in Dutch Brazil" in Van den Boogaart (see note 32), 424-93, now stand as the fundamental studies of Marcgraf's zoological contribution and of the significance and context of Piso's work in Brazil.

36. On Marcgraf, see the articles cited in note 35. On the work of Post and Eckhout, see the outstanding survey by Joppien cited in note 32. Joppien's article also provides many other invaluable insights into the topics discussed in this essay.

37. *Rerum Medicarum Novae Hispaniae Thesaurus seu Plantarum Animalium Mineralium Mexicanorum Historia. Ex Francisci Hernandez Novi Orbis Medici Primarij relationibus in ipsa Mexicana Urbe conscriptis. A Nardo Antonio Reccho... Iussu Phillippi II... collecta ac in ordinem digesta. A Ioanne Terrentio Lynceo Notis illustrata. Nunc primum in naturalium rerum studiosorum gratia lucubrationibus Lynceorum publici iuris facta* (Rome: Vitalis Mascardi, 1649 and 1651). A further title was added in 1651 as follows: *Nova Plantarum Animalium et Mineralium Mexicanorum Historia a Francisco Hernandez Medico in Indijs praestantissimo primum compilata, dein a Nardo Antonio Reccho in volumen digesta a Io. Terrentio, Io. Fabro, et Fabio Columna Lynceis, Notis, & additionibus longe doctissimis illustrata, Cui demum accessere Aliquot ex Principis Federici Caesii Frontispicijs Theatri Naturalis Phytosophicae Tabulae*. These titles alone give a sense of the ambition and scale of this majestic collaborative undertaking. To give an exact date for the publication of the definitive version of the *Rerum medicarum* is not easy. Clearly the printer and the guiding force, Francesco Stelluti, were eager to get it out as soon as possible, but it seems that matters were never quite ready, so that several versions appeared before the "definitive" one of 1651. Most copies carry this date. The problem was complicated by the complex position of the recently disgraced Barberini family (Francesco Barberini was one of the chief original sponsors of the project). Publication was held up, I believe, by indecision about the dedication of the book and references to the family within the text: whether to omit or tactfully rephrase them. But this is not the place to resolve such matters. See note 38 for further references.

38. The basic article on the publication of the Lincean work is G. Gabrieli, "Il cosiddetto 'Tesoro Messicano' edito dai primi Lincei," *Rendiconti della Accademia dei Lincei: Classe di scienze morali, storiche e filologiche*, 7th ser., 1 (1940): 110-21. See also the important collection of articles on Cesi and the *Tesoro Messicano* that appeared as *Atti dei Convegni Lincei, 78: Convegno celebrativo del IV centenario della nascita di Federico Cesi (Acquasparta, 7-9 ottobre 1985)* (Rome: Accademia Nazionale dei Lincei, 1986). For a summary of Cassiano's role, see David Freedberg, "Cassiano, Natural Historian," *Quaderni Puteani* 1 (1989): 10-15.

39. Johannes de Laet, *Commentarius de Pelagianis et Semi-Pelagianis* (Harderwijk, 1617).

40. Johannes de Laet, *Notae ad dissertationem Hugonis Grotii de origine gentium Americanarum et observationes aliquot ad meliorem indaginem difficillima illius questionis* (Amsterdam:

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Ludovicum Elsevirium, 1642 and 1643); Hugo Grotius, *Dissertatio de origine gentium Americanarum adversus obtractatorem opaca bonum quem facit barba* ([Paris?: n. p.], 1642); Johannes de Laet, *Responsio ad dissertationem secundam Hugonis Grotii* (Amsterdam: Ludovicum Elsevirium, 1643, 1644, and 1646).

41. *Gemmarum et Lapidum Historia, quam olim edidit Anselmus Boetius de Boot Brugensis, Rudolphi II Imperatoris Medicus. Postea Adrianus Tollius... recensuit; figuris melioribus & commentariis pluribus illustravit... tertia editione longe purgatissima. Cui accedunt Ioannis de Laet Antverpiani De Gemmis & Lapidibus Libri II. Et Theophrasti Liber de Lapidibus, Gr. & Lat. cum brevibus notis* (Leiden: Joannes Maire, 1647). On De Boodt, see M. C. Maselis, A. Balis, and A. Marijnissen, *De Albums van Anselmus de Boodt, 1552-1632: Geschilderde natuurobservatie aan het Hof van Rudolf II te Praag* (Tiel: Lannoo, 1989), reproducing over one hundred of the colored natural history drawings painted and commissioned by De Boodt, which survive in eleven volumes in the Soenens collection in Belgium.

42. See note 30.

43. *M. Vitruvii Pollionis De Architectura Libri Decem... Cum variis indicii copiosissimis. Omnia in unum collecta, digesta & illustrata a Ioanne de Laet Antwerpiano* (Amsterdam: Ludovicus Elzevir, 1649).

44. *Guilielmi Pisonis Medici Amstelædamensis, De Indiae utriusque re naturali et medica libri quatuordecim* (Amsterdam: Ludovicus & Danielis Elzevir, 1658).

45. *Iacobi Bontii Bataviae in majore Java novae Medici Orinarii I De conservanda valetudine. II Methodus medendi. III Observationes in cadaveribus. IV Notae in Garciam ab Orta. V Historia Animalium. VI Historia Plantarum*, in the work cited in the preceding note.

46. See note 14.

47. Jan Commelin, *De Nederlantze Hesperides, dat is, Oeffening en gebruik van de limoenen oranje-boomen, gestelt na den aardt, en climaat der Nederlanden* (Amsterdam: Marcus Doornik, 1676).

48. Giovanni Battista Ferrari, *Hesperides sive de Malorum Aureorum Cultura et usu Libri Quatuor* (Rome: Herman Scheus, 1646). On the work and circle of Ferrari, see David Freedberg, "From Hebrew and Gardens to Oranges and Lemons: Giovanni Battista Ferrari and Cassiano dal Pozzo," in Cassiano dal Pozzo, *Atti del Seminario Internazionale di Studi su Cassiano dal Pozzo: Napoli 18-19 dicembre 1987*, ed. F. Solinas (Rome: De Luca, 1989): 37-72; and David Freedberg, "Cassiano dal Pozzo's Drawings of Citrus Fruits," *Quaderni Puteani* 1 (1989): 16-36.

49. I shall have more to say about the fame and influence of Ferrari (whose 1633 *De Florum Cultura* was republished by Jan Janssen in Amsterdam in 1646) in my forthcoming biography.

50. See note 18.

51. See note 14. Jan Commelin's participation is recorded from volume 2 onward, even after his death.

52. S. Segal, *A Prosperous Past: The Sumptuous Still Life in the Netherlands, 1600-1700*, ed. W. B. Jordan (The Hague: SDU Publishers, 1988).

53. P. V. B. [Philibert van Borsselen], *Strande, oft Ghedichte van de Schelpen, Kinkhormen ende andere wonderlijcke zee- schepselen, tot lof van de Schepper aller Dinghen* (Amsterdam: Doen Pietersz., 1614). His brother-in-law was Cornelis van Blyenburgh.

54. See note 24.

55. Now brought together in John Michael Montias, *Vermeer and His Milieu: A Web of Social History* (Princeton: Princeton Univ. Press, 1989); see also idem, *Artists and Artisans in Delft: A Socio-Economic Study of the Seventeenth Century* (Princeton: Princeton Univ. Press, 1982).

56. Set forth schematically in "The Language of Art History," *New Literary History* 10 (1979): 453-65; but brilliantly and innovatively exemplified in Michael Baxandall, *Painting and Experience in Fifteenth-Century Italy: A Primer in the Social History of Style* (Oxford: Oxford Univ. Press, 1972); and idem, *The Limewood Sculptors of Renaissance Germany* (New Haven and London: Yale Univ. Press, 1980).

57. See, among several possible examples, Konrad Renger, *Lockere Gesellschaft: Zur Ikonographie des verlorenen Sohnes und von Wirtshausszenen in der niederländischen Malerei* (Berlin: Gebr. Mann Verlag, 1970); and Hans-Joachim Raupp, *Bauernsatiren: Entstehung und Entwicklung des bäuerlichen Genres in der deutschen und niederländischen Kunst ca. 1470-1570* (Niederzier: Lukassen, 1986).

58. The groundbreaking early pieces were E. de Jongh, "Erotica in vogelperspectief: De dubbelzinnigheid van een reeks 17de-eeuwse genrevoorstellingen," *Simiolus* 3 (1968-1969): 22-74; E. de Jongh, *Zinne- en minnebeelden in de schilderkunst van de zeventiende eeuw* (Amsterdam: Nederlandse Stichting Openbaar Kunstbezit en Openbaar Kunstbezit in Vlaanderen, 1967); E. de Jongh, "Realisme en schijnrealisme in de Hollandse schilderkunst van de zeventiende eeuw," in Paleis voor Schone Kunsten, *Rembrandt en zijn tijd*, exh. cat. (Brussels: La Connaissance, Europalia, 1971); and *Tot lering en vermaak: Betekenissen van Hollandse genrevoorstellingen uit de zeventiende eeuw*, exh. cat. (Amsterdam: Rijksmuseum, 1976). These were followed by a succession of articles and catalogs that, while containing much in the way of new iconographic material, exemplified the method set out in these earlier works rather than significantly modifying it. These catalogs include E. de Jongh, *Still Life in the Age of Rembrandt*, exh. cat. (Auckland: Auckland City Art Gallery, 1982); and idem, *Portretten van echt en trouw: Huwelijk en gezin in de Nederlandse kunst van de zeventiende eeuw*, exh. cat. (Haarlem: Frans Halsmuseum; Zwolle: Waanders, 1986).

59. Peter Hecht, "The Debate on Symbol and Meaning in Dutch Seventeenth-Century Art: An Appeal to Common Sense," *Simiolus* 16 (1986): 173-87; Jan Baptist Bedaux, "Fruit and Fertility: Fruit Symbolism in Netherlandish Portraiture of the Sixteenth and Seventeenth Centuries," *Simiolus* 17 (1987): 150-68.

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60. Josua Bruyn, "Toward a Scriptural Reading of Seventeenth-Century Dutch Landscape Paintings," in *Masters of Seventeenth-Century Dutch Landscape Painting*, ed. Peter C. Sutton, exh. cat. (Boston: Museum of Fine Arts, 1987): 84-103. See the more complex variant of Bruyn's general position in the earlier thesis by R. L. Falkenburg, "Joachim Patinir: Het landschap als beeld van de levenspelgrimage" (Ph.D. diss. Nijmegen, 1985); as well as the interesting modifications recently proposed by Falkenburg in "De betekenis van het geschilderde Hollandse landschap van de zeventiende eeuw: Een beschouwing naar aanleiding van enkele recente interpretaties," *Theoretische geschiedenis*, 16 (1989): 131-54.

61. It first appeared as "Belering en verhulling? Enkele 17de-eeuwse teksten over de schilderkunst en de iconologische benadering van Noordnederlandse schilderijen uit die periode," *De zeventiende eeuw* 4 (1988): 2-28.

62. Henri van de Waal, *Drie eeuwen vaderlandsche geschied-uitbeelding, 1500-1800: Een iconologische studie*, 2 vols. (The Hague: Martinus Nijhoff, 1952); Katherine Fremantle, *The Baroque Town Hall of Amsterdam* (Utrecht: Haentjens, Dekker & Gumbert, 1959).

63. Albert Blankert, *Kunst als regeringszaak in Amsterdam in de 17de eeuw: Rondom schilderijen van Ferdinand Bol*, exh. cat. (Amsterdam: Historisch Museum, 1975); Albert Blankert et al., *Gods, Saints and Heroes: Dutch Painting in the Age of Rembrandt*, exh. cat. (Washington D.C.: National Gallery of Art, 1980).

64. Perry Chapman, "A Hollandse Pictura: Observations on the Title Page of Philips Angel's *Lof der schilder-konst*," *Simiolus* 16 (1986): 233-48; Elisabeth Onians-de Bièvre, "Violence and Virtue: History and Art in the City of Haarlem," *Art History* 11 (1988): 303-34. Chapman has recently announced a study of the impact of political history, most notably the struggle for independence and the national self-consciousness it engendered, on Dutch painting between 1609 and 1648.

65. Alison McNeil Kettering, *The Dutch Arcadia: Pastoral Art and Its Audience in the Golden Age* (Montclair, N. J.: Allanheld & Schram, 1983).

66. Guillaume Postel, *De Republica, seu Magistratibus Atheniensium Liber. Ex Museo Joan. Balesdens... Accessit Antonii Thysii IC Discursus Politicus et eadem materia collatio Atticarum & Romanorum Legum* (Leiden: Ioannis Maire, 1645), 2-3v.

67. See note 38. For a summary of the neglected activities of Cassiano as a natural historian, see the article by Freedberg cited in note.

68. In both respects readers will want to consult the excellent survey by D. O. Wijnants, "Hortus Auriaci: The Gardens of Orange and Their Place in Late Seventeenth-Century Botany and Horticulture," *Garden History* 8 (1988), nos. 2 and 3 (special double number), J. Dixon Hunt and E. de Jong, eds., *The Anglo-Dutch Garden in the Age of William and Mary*, 61-86, which also offers an invaluable supplement to many of the other topics I discuss here.

69. O. Benesch, *The Drawings of Rembrandt, Complete Edition Enlarged and Edited by E. Benesch* (London: Phaidon, 1973), no. 456, Louvre, Cabinet des Dessins, Inv. RF 4687.