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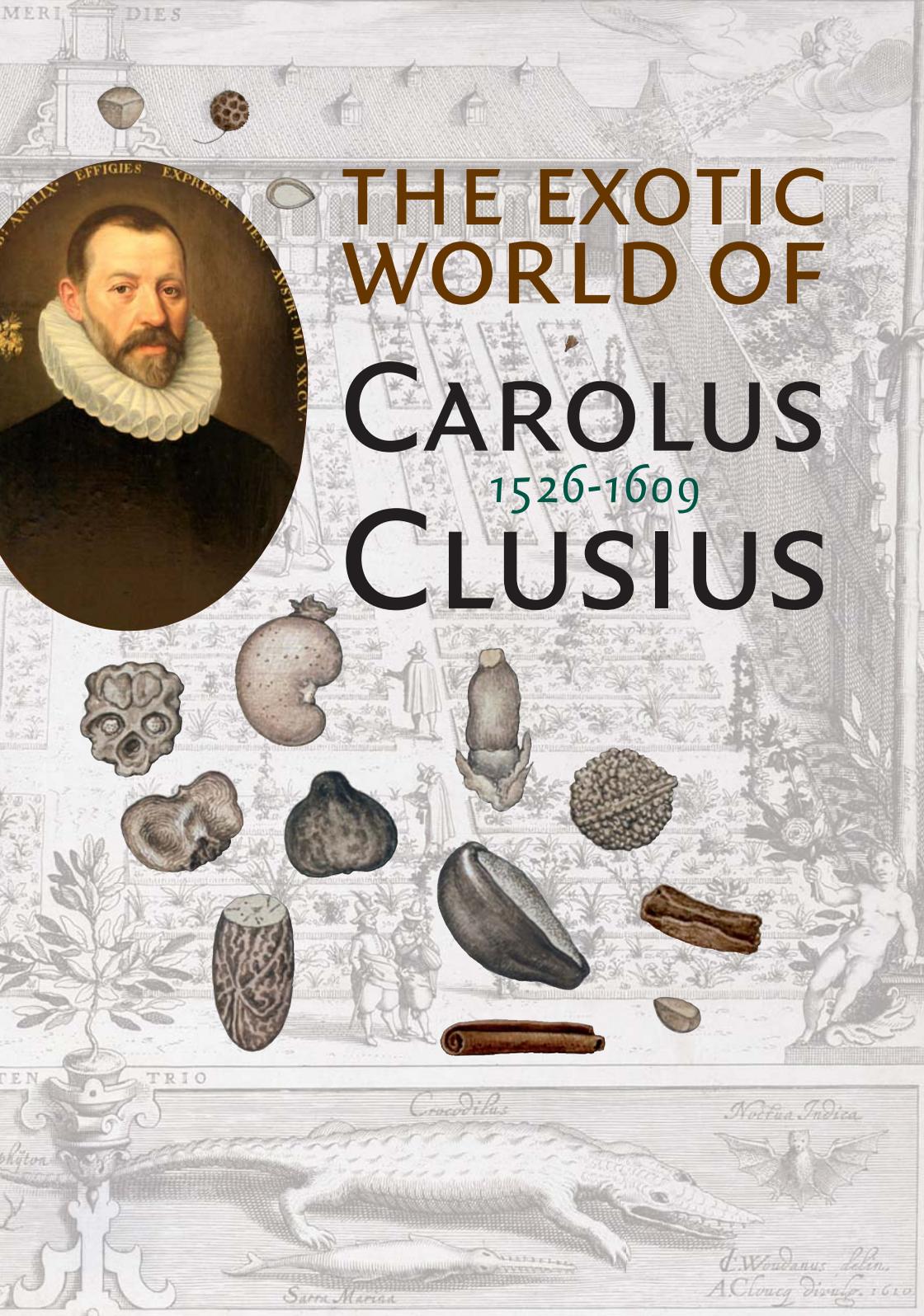
**The Exotic World of Carolus Clusius
1526-1609. Catalogue of an exhibition on the
quatercentenary of Clusius' death, 4 April 2009.
With an introductory essay by Florike Egmond**
Ommen, K. van

Citation

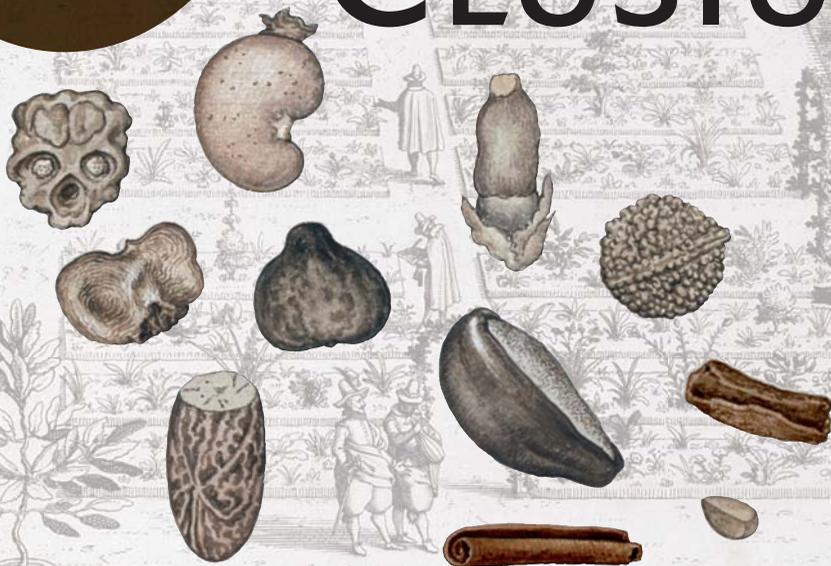
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THE EXOTIC WORLD OF CAROLUS 1526-1609 CLUSIUS

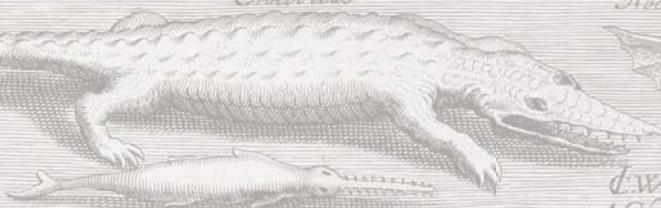


TEN TRIO

Concodilus

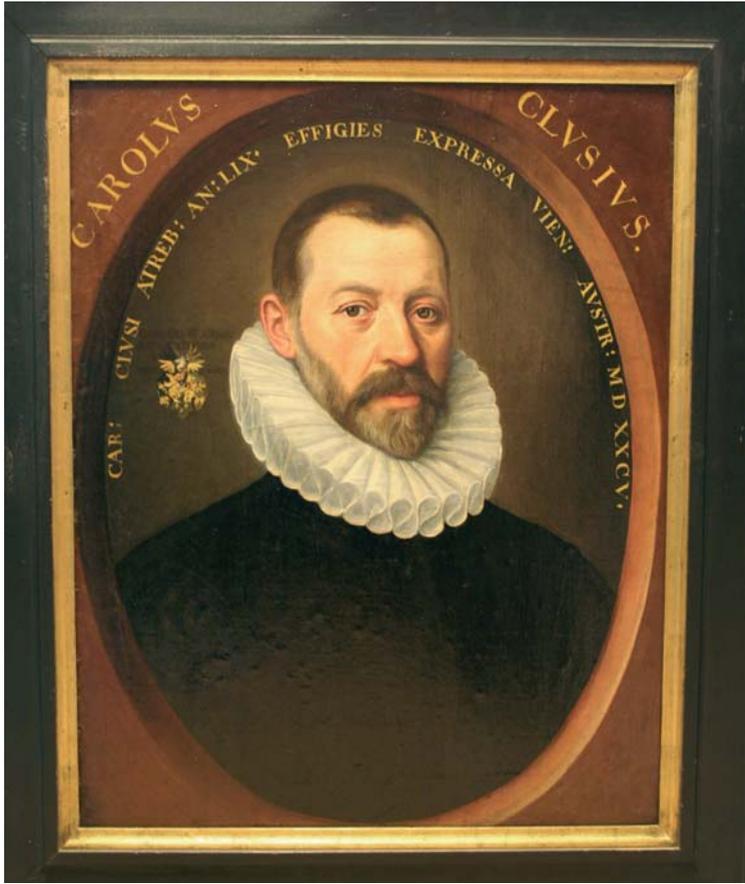
Noctua Indica

Phyton



*J. Wondanus delin.
A. Clouet dirigit. 1610*

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The Exotic World
of
Carolus Clusius
(1526-1609)

Catalogue of an exhibition on the quatercentenary of
Clusius' death, 4 April 2009

Edited by Kasper van Ommen

With an introductory essay by
Florike Egmond



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Cover: Jacob de Monte (attributed), *Portrait of Carolus Clusius at the age of 59*. Oil on canvas, 1585. [Leiden University Library, Scaliger Institute] (detail) and several elements taken from the *Libri Picturati* [Jagiellonian Library, Kraków].

Frontispiece: Jacob de Monte (attributed), *Portrait of Carolus Clusius at the age of 59*, oil on canvas, painted in Vienna in 1585. [Leiden University Library, Scaliger Institute].

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Foreword

Since my appointment as prefect of the Hortus botanicus Leiden in 2006, the reconstructed Clusius garden has become one of the parts most precious to me for its serenity as a Hortus conclusus as well as for being the product of the first director Carolus Clusius. This collection of living plants is still very impressive today. Clusius was what we would call nowadays a famous ‘networker’: he received plants and other items from friends and colleagues with whom he maintained a very extensive correspondence. This led to the exchange of a remarkable number of letters, many of which are kept in Leiden University Library. Modern technology and a grant from the Netherlands Organization for Scientific Research (NWO) to the Scaliger Institute for the project ‘Carolus Clusius and sixteenth-century botany in the context of the new cultural history of science’ have enabled the digitisation and study of the complete corpus of 1,500 letters by an international team of scholars, many of whom have also contributed to this exhibition. Material has been brought together from various institutes of Leiden University and studied by scholars from the University Library, the Scaliger Institute, the NHN-Hortus botanicus and further afield. As a modern scientist, it is fascinating to see in the exhibition how many exotics were already known by the end of the sixteenth century. These plants formed the basis of the present-day collections of the Hortus and the National Herbarium of the Netherlands.

The commemoration in 2009 of the quatercentenary of the death of Clusius is accompanied by other activities too. The reconstructed ‘Clusius garden’, which was situated at 5e Binnenvestgracht 8 until last year, will be moved to its original place behind the Academy Building. We hope that both the exhibition and the ‘new’ Clusius garden will offer visitors more insight into the early days of Leiden University.

Dr. Paul J.A. Keßler
Prefect Hortus botanicus, Leiden

The Exotic World of Carolus Clusius (1526-1609)

by Florike Egmond

Clusius' age is known as both the 'Age of Discovery' and that of the 'Botanical Revolution' – important names for historical developments which not only changed Europe but also had far-reaching effects on other parts of the world. In fact, Clusius became one of the most eminent and influential botanists and naturalists of the centuries before Carl Linnaeus partly because he was involved in the discovery of exotic nature far from Europe. That involvement did not entail his participation in voyages to America, Africa, or the Far East, however. Clusius never travelled outside Europe. But he was one of the first, and certainly the most important, of the early modern European naturalists to divulge information about exotic nature and, indeed, disseminate the exotic plants themselves.

The category of the exotic – for which Clusius employs the Latin words *exoticus* and *peregrinus* – was flexible. In his works Clusius deals with plants from America, Africa and Asia in much the same way as with the new plants (especially bulbs) that had begun to reach Central and Western Europe from the Middle East since about the middle of the sixteenth century. All of these plants were rare and needed to be identified, named, described, depicted and, above all, grown and propagated.

Clusius' involvement with exotic nature was manifold. He propagated it by means of his own research and publications, and through his translations into Latin of the very first European works on exotic naturalia and their medicinal effects by the Iberian authors Garcia da Orta (*Colóquios dos simples e drogas he cousas medicinais da Índia*, 1563), Cristóbal Acosta (*Tractado de las drogas y medicinas de las Indias orientales*, 1578), and Nicolás Monardes (*Historia medicinal de las cosas que se traen de nuestras Indias Occidentales*, 1571), to which he added comments and notes. Second, and by no means less importantly, he did so in practice. Together with head gardener Dirck Cluyt he created the Leiden *hortus* (1593-1594), which from the very start was not primarily a collection of

medicinal herbs, but a botanical garden which included rare plants from various parts of Europe and the Levant as well as some living exotica from other continents. Furthermore, from at least the 1570s onwards, Clusius distributed great quantities of seeds, cuttings, and bulbs of rare, non-European plants to friends all over Europe, who started growing them in their gardens. Clusius did not limit himself to distributing such seeds or bulbs, moreover, but also included information about how best to grow them. Clusius' publications ensured his fame during his lifetime and his lasting historical reputation. His plant introductions and his involvement in their propagation may have had even more permanent effects. As his friends already stated, gardens in Europe would have looked very different without his involvement, and his name is indissolubly linked with the tulip and numerous other bulbs from the Middle East, and with the potato from America.

Clusius was born in Arras in the Southern Netherlands. He studied there and in Germany and France, travelled and did botanical field research in Spain, Portugal, the Southern Netherlands, Austria, Hungary, Germany and England, lived, studied and worked in the Southern Netherlands, at the universities of Paris, Montpellier and some German towns, at the Habsburg court in Vienna, on aristocratic estates in Hungary, in Frankfurt, and at the newly founded University of Leiden. For half a century, at least from the early 1560s until his death in Leiden in 1609, he maintained friendly exchanges by letter with a large European network of collectors, fellow experts and other friends. Clusius was thus a well-travelled man who was familiar with a considerable part of Europe. His friends kept him informed about an even larger part of the world.

Clusius' contacts with the exotic did not develop in a regular or even way. He must have seen some exotic naturalia during his student days in Montpellier in the 1550s, but his first involvement with living exotic plants probably took place in the Southern Netherlands and the Iberian Peninsula in the 1560s. The aristocratic patrons of the young Clusius – himself a member of the lower nobility – in the area of Malines, Antwerp and Bruges showed him some rare plants from the New World in their gardens and collections. Already during the 1560s, the wealthy Antwerp apothecary Peeter van Coudenbergh (1517-1599) had, for instance, a rare

dragon tree from the Canary Islands in his garden, as well as Brazilian pepper, tobacco, ipomoea, tomato, and guaiacum from America, cotton, and zizyphus or jujube from the East Indies, and pomegranate, aubergine, gladiolus, artichoke, and acanthus from the Mediterranean. During Clusius' journey to Spain and Portugal in 1564-1565 he saw a dragon tree in Lisbon, and encountered various American plants, such as the aloe Americana, in the gardens of fellow naturalists in Spain.

A second phase of contact with exotic nature – this time mainly from the Middle East, and in particular comprising bulbs such as tulips, fritillaria, narcissus, hyacinths, muscari and lilies – occurred during Clusius' stay in Vienna in the 1570s and early 1580s. The frequent diplomatic missions between the Habsburg court and the Turkish sultan in Constantinople formed an ideal means of access to rare bulbs from the Middle East. From Vienna such plants reached court circles in Brussels or travelled via Frankfurt – the most important centre in Europe for commercial and monetary transactions, and the town where Clusius was based for many years after his Viennese period – to other parts of Europe. A third phase of even more intensive contact with exotic nature started upon Clusius' move from Frankfurt to Leiden in 1593. It lasted until his death in 1609, and during this phase – perhaps inspired by the frequent exchanges with his friends, the apothecaries Jacques Plateau in Tournai, and Christiaan Porret in Leiden – his interest in exotic animals (which had originated during his student days in Montpellier) seems to have revived, while his interest in exotic plants, trees, fruits, nuts, resins, and corals became stronger.

The 1590s and early 1600s formed a crucial period during which the Dutch and English broke the monopolies of the Portuguese and Spanish on access to the East Indies and the Americas. Thanks to the help of friends like Porret and Bernardus Paludanus in Holland, and James Garet and Hugh Morgan in England (to name but some of the most active ones), Clusius was as well informed as anyone in Europe about the English and Dutch voyages of exploration (in particular about those by Drake, Cavendish, Van Neck and Van Warwyck). Throughout the late 1580s, the 1590s and the early 1600s the key figures of James and Pieter Garet (the former in London, the latter in Amsterdam) – brothers, apothecaries, spice

traders, drugs merchants, and extremely well informed naturalists – kept Clusius up to date with information about exotic naturalia and sent him the naturalia themselves. In so far as exotica are concerned these two men are by far his most quoted sources. Clusius not only passively absorbed information about the great voyages of discovery, however; he also made Latin translations of accounts of them, for instance of Thomas Harriot's log of Sir Walter Raleigh's voyage to Virginia of 1585, and of the account by Gerrit de Veer of the Dutch voyages to the Arctic in 1594-1598.

Since Clusius did not travel outside Europe himself, he was dependent on people who had direct contact with seafarers, or on those who had actually visited such places. Above all he valued eye-witness accounts and direct knowledge of tropical plants and their uses as foodstuffs, drugs or otherwise. In the late 1590s, for instance, he interviewed two Indians (from Gujarat and Bengal) in Amsterdam about tropical plants. This dependence on others also implied that Clusius was generally not the one who chose what kind of exotics to describe in his works. The majority of the exotic naturalia described and depicted by Clusius ended up in his hands not because he had asked for them, but partly by chance, partly because other people were interested in them for a variety of reasons and, of course, because these naturalia had survived the journey to Europe. Clusius maintained good contacts in Holland with the organisers of the first voyages of exploration to the East Indies and, from 1602 onwards, with the governors of the VOC. A memorandum by Clusius was distributed on all Dutch ships to the East in which apothecaries and ship's surgeons were asked to bring back exotic naturalia, but the results were – at least according to Clusius – disappointing. It seems that information which reached him via private informants and friends was far more important than that which reached him via VOC channels.

How important exotica were to Clusius can be deduced not only from his publications and practices, but perhaps even from Clusius' own migrations. His move from Frankfurt to Holland in 1593 should at least in part be understood in relation to the shifting access to exotic naturalia which was intimately linked with shifting patterns in the intercontinental drug and spice trade. Pushed by the fact that the death of his patron Wilhelm IV of Hessen-Kassel in 1592

had put an end to Clusius' stipend, and pulled by Leiden University, Clusius was well aware that Dutch shipping was rapidly assuming a major role in the long-distance exploration of the Far East, and that the ports of Middelburg and Amsterdam promised access to exotica. This may, in fact, not have been the first occasion in his life in which he was involved with the drug trade and the connected information market. Earlier in the sixteenth century the shift of the centre of the drug market from Venice to Antwerp had also entailed a transfer in scientific printing. Works of Da Orta, Acosta and Monardes (the first two on Asiatic, the last on American plants and drugs) were translated and reprinted in both Venice and Antwerp; as we have seen, the translator of all three (into Latin) was Clusius, who may be said to have played the dual role of scientist and disseminator of economic information.

The most important of Clusius' publications concerning exotic nature is the *Exoticorum libri decem* of 1605. It is, in fact, the second part of his collected works (after the *Historia rariorum plantarum* of 1601) and brings together in a complex compilation new texts and illustrations concerning plants and animals from the New World, South-East Asia, Africa, et cetera which Clusius mainly gathered during the 1590s and 1600s; his translations of Da Orta, Acosta, and Monardes; and various shorter texts, appendices and translations relevant to nature outside Europe. For the first time in European history a work was dedicated to exotic nature as such, and not to its medicinal effects. Published when he had reached the ripe old age of 79, it includes an Appendix to Clusius' collected works of four years earlier (the *Rariorum*) which lists newer discoveries without even bothering to include page numbers. The sense of the urgency of discovery that emerges from these pages symbolizes Clusius' involvement with the exotic and his unwavering fascination with rare naturalia.

We have chosen to interpret the term exotic as loosely as Clusius himself did, focusing on exotic naturalia from Asia, America, and Africa and on Clusius' involvement with them, but not excluding those from the Middle East where relevant. The exhibition and catalogue show examples of Clusius' involvement with the exotic from the collections of Leiden University. The first two segments concern Clusius' involvement with the Leiden *hortus*, his printed

works dealing with exotic nature, and the very first voyages of the Dutch to the East Indies. The main (third) part of the exhibition concerns exotic naturalia in Clusius' printed works and correspondence.

This exhibition and the accompanying catalogue celebrate the quatercentenary of Clusius' death on 4 April 1609, and the concluding year of the Clusius Research Project. They are the result of close cooperation between the members of the Clusius Research Project (initiated by the Scaliger Institute at Leiden University and financed by NWO), the Scaliger Institute, the Hortus botanicus at Leiden, the Nationaal Herbarium at Leiden, and Leiden University Library, which owns the incredibly rich Clusius correspondence.

Although the focus is therefore on Leiden, neither the Clusius Research Project nor this exhibition would have been possible without the involvement and support of a large international network – a virtual and multidisciplinary community of scholars – which in a modern form and thanks to digital media replicates Clusius' own, Europe-wide correspondence network. Several of its members have written entries for the present catalogue; nearly all have over the past four to five years given disinterested support and advice to the Clusius Research Project. This catalogue contains contributions from scholars from Italy, Spain, Germany and The Netherlands. They are marked with their initials, and more information on the authors can be found at the end of this book. Peter Mason was a great help in editing the English and in providing useful comments on the text.

The whole international community benefits from the free access to the digitized Clusius Correspondence (on <https://socrates.leidenuniv.nl>) which has been made possible by Leiden University Library, the Scaliger Institute, and the Clusius Project.



CAROLVS CLVSIVS ATREB. AET. AN. XLIX
M · D · LXXV

[1] Martinus Rota, Carolus Clusius as a courtier (1575).

Clusius and the Leiden Hortus botanicus

[1] Martinus Rota, *Carolus Clusius as a courtier*, 1575, Engraving, 11.5 x 9 cm.

[UBL, Printroom, I 152 Rot/1]

¶ This beautiful portrait of Clusius at the age of 49 was made by the Croatian engraver Martinus Rota (1520-1583). Clusius is portrayed as a dignified courtier, wearing the expensive clothes of the imperial court in Vienna. In the background we see the surroundings of the imperial city: the river Danube flanked by fertile hills.

Between 1573 and 1577 Clusius directed the construction of a kind of botanical garden for Emperor Maximilian II (r. 1564-1576). Thanks to his personal physicians, who were good friends of Clusius, the emperor had become interested in Clusius' knowledge and expertise concerning exotic plants. He instructed the botanist to lay out 'a medical garden where all species that could stand the climate should be brought together'. Clusius felt honoured by the status, salary, and stimulating environment which the imperial court offered. Even more important, Maximilian's patronage gave him the opportunity to collect a large amount of exotic and rare plants. The years at the imperial court were among the happiest in his life, as Clusius would later recall. Unfortunately, when Emperor Maximilian died in 1576, his son Rudolf II (r. 1576-1612) turned out not to be interested in the botanist or his garden. He dismissed Clusius and replaced the new garden with a riding school. Clusius, however, stayed in the imperial city until 1588 and continued his research in another field: the local flora of the surroundings of Vienna. (EvG)

Hunger, Vol. II (1942); Riedl-Dorn (1989).

[2] Jacques de Gheyn the Younger, *Portrait of Carolus Clusius*, 1600, Engraving, 22 x 18 cm.

Inscription, in the middle around the portrait: CAROLI CLUSII ATREBATHI LXXV. AETATIS ANNUM AGENTIS EFFIGIES: A NATO CHRISTO CI).I).C, and at the bottom VIRTUTE ET GENIO non nitimur; at the top CHRISTO/ Qui nobis istaec donat, et Ingenium and underneath IDG heijn fecit.

[UBL PK SIN 17577; UBL BN 331]

This portrait by the Antwerp artist Jacques de Gheyn the Younger (1565-1629) shows Clusius at the age of 75 as a tormented and weary man. Clusius was not a good walker and moreover he suffered from a dislocated hip that he sustained short before he arrived in Leiden in autumn 1593. Clusius is more or less trapped within a rich decorative border in the mannerist style. Above the portrait is the coat of arms of Clusius, but the most attention is drawn to the rich emblematical border. On both sides of Clusius two winged *Naiads* arise from intertwined *cornucopias*. On their heads is a crown of piled up sea urchins (echinoderms), topped by a vase with tulips (left) and Turk's cap lilies and fritillaries (right). Underneath the cartouche with the motto VIRTUTE ET GENIO non nitimur: at the top CHRISTO Qui nobis istaec donat, et Ingenium ('We do not rely on Virtue and Talent, but rather on Christ who gives us these as well as Intelligence') a collection of exotica are displayed on the ground. Identifiable are the peanut, different pods, pine cones and coral of the sea. These naturalia are evidently a reference to the botanical activities of Clusius, but possibly also a reference to the *Wunderkammer* of Clusius in Leiden. The engraved portrait is also used for the edition of Clusius' *Rariorum plantarum historia*, published in 1601 by Johannes Moretus I (ca. 1543-1610) in Antwerp. The portrait is accompanied by a verse of Bonaventura Vulcanius (1538-1614), Professor in Greek at Leiden University. This portrait of Clusius is repeated in several occasions but without the ornamental border. The most famous of them was published in Joannes Meursius' *Athenæ Batavæ* of 1625. (KvO)

De Nave 1993, p. 139-140, nr. 97; Hunger 1927, I, p. 253; 388, nr. 8.



[2] Jacques de Gheyn the Younger, Portrait of Clavius as an old man (1600).

[3] Willem van Swanenburg(h) after J.C. Woudanus (publisher J.C. Visscher), *View of the Hortus botanicus*, 1610. 32.8 x 40.3 cm. Etching and engraving. Inscription at the top: HORTI PUBLICI ACADEMIAE LUGDUNO-BATAVAE CUM AREOLIS ET PULVILLIS VERA DELINEATIO.

[UBL BN 315-II-42]

This is a bird's-eye view of the Leiden *Hortus botanicus* as it was in 1610. The layout of the garden and the position of the ornamental pavilion in the centre, as well as the orangery (*Ambulacrum*) built in 1599, matches an engraving of the *Hortus* by Jacques de Gheyn II (1601) and the plan of the *Hortus* in the *Index Stirpium* that is also preserved in Leiden University Library. The most precious plants in the garden are in the flowerbed on the left enclosed by a wooden fence. The *Ambulacrum* was also used for teaching and as a museum for exhibiting all kinds of medical and physical objects, some of which are depicted here: a turtle shell, the jaw of a polar bear from Nova Zembla, two small crocodiles (most likely Indonesian monitor lizards), a globefish, a piece of coral, a bay tree, a large crocodile, a swordfish, and a flying fox or Kalong from the East Indies. Bamboo stalks inscribed 'bandus' flank the engraving. These were probably part of the collection in the *Ambulacrum*, which included maps and charts; chained books, such as a copy of Dioscorides, Theophrastus' *De Plantis* and Pliny's *Naturalis Historiæ*, could be consulted by students there. The putti seated at the foot of the bamboo are holding bouquets of fritillary, iris, tulip and lily, a popular floral combination in the 17th century. The number of visitors of both sexes in the garden is an indication of the popularity of botany in the Netherlands at the time and of the role of the garden as *Hortus Publicus*. (KvO)

De Nave, ed. 1993, p. 145, nr. 105 ; Ekkart (1997); Tjon Sie Fat & De Jong, eds. (1991), p. 3-12; 37-60; Veendorp & Baas Becking 1990, p. 31-59; De Jong & Langenakens 2000, p. 129-142.

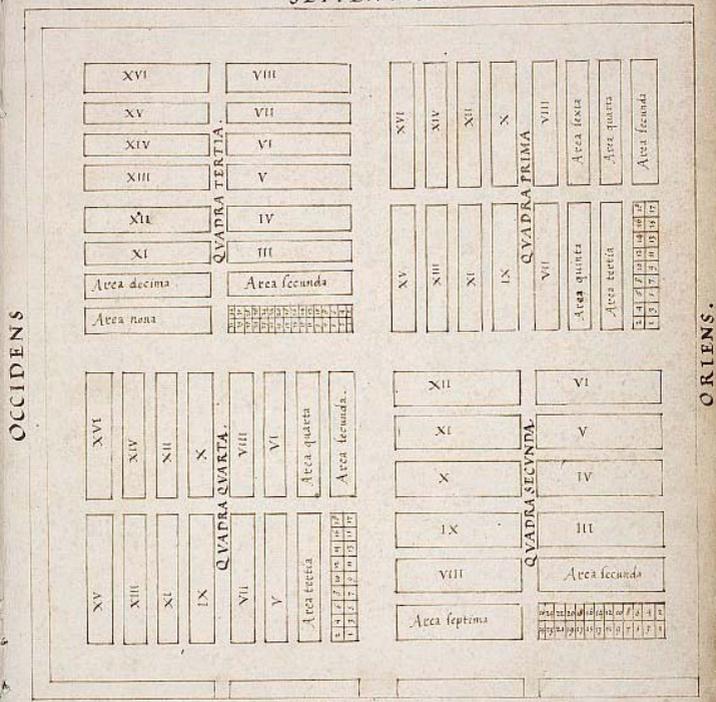
[4] *Index Stirpium* – plant lists and plan of the Leiden *Hortus botanicus* (1594-95).

[AC1 101 fol. CXVII]

*Index Stirpium terrarum commissarum sub extremum Septembrem
anni 1594 in Lugdunensi Academia apud Laurentium Bruni.*

1594

SEPTENTRIO.



*Quadra prima continet areas XVI. In singulis areas, areolas XVIII. Sunt 200.
 Quadra secunda habet areas XII. In singulis areas, areolas XXVI. Sunt 312.
 Quadra tertia dat areas XVI. In singulis areas, areolas XXVII. Sunt 312.
 Quadra quarta continet areas XVI. In singulis areas, areolas XVIII. Sunt 200.
 Ad summam areolarum sunt in hisce 12400
 exceptis ac parietibus et portis continet.*

[4] The ground plan of the Hortus botanicus in the Index Stirpium (1594-95).

Clusius arrived in Leiden on 19 October 1593. Infirmity prevented him from doing any strenuous labour, but he was assisted by the pharmacist Dirck Outgaertsz Cluyt, who was appointed *Hortulanus* on 8 May 1594.

Already by the end of September 1594 the new garden had been laid out at the back of the Academy building of Leiden University. It measured 39.9 by 30.9 m² and contained four large squares (*quadra*), each of which consisted of 12 to 16 long beds or *areolae*, 60 in all. Each bed contained 16 to 32 numbered plant locations, totalling 1,400 plots; not all were occupied, however. The four large *quadra* were surrounded by further beds on three sides. Separate lists mention the plants that were grown there, as well as pot plants and those that still had to be planted or even acquired. The *Index Stirpium* of 1594-95 contains 1,585 names of many different plants – some European, many Mediterranean ones, and some of even more exotic origins, such as sugar cane and tomatoes. The potato was still on the list of desiderata – although Clusius already knew it. The garden had a large number of bulbous and tuberous plants, such as crocuses, hyacinths, anemones, and tulips. Most of the plants had no medicinal function; it was a *Hortus botanicus*, with a collection for research, teaching, and pleasure, rather than a *Hortus medicus*. Cluyt presented the *Index Stirpium* – the garden plan and the lists – as a report of activities to the Board of the University on 9 February 1595. It has been kept in the University Library for over four centuries. (GvU)

Hunger (1927), [p. 216-35]; De Koning, Van Uffelen, (a.o.) 2008, [p. 54-59]; Molhuysen (1913); Veendorp & Baas Becking (1990).

[5] Clusius and Cluyt depicted on the title page of Dirck Cluyt, *Van de Byen, haren wonderlijcken oorspronck, Natuer, eygenschap, crachtige ongehoorde ende seltsame wercken [...]*. Antwerpen: P. Stroobant 1618.

[UBL 168 H 19]

This vignette on the title page matches the text of the booklet *Van de byen* (*About the bees*, 1618) by Dirck Cluyt (also Theodorus Clutius), which is written in the form of a dialogue between Clusius and Clutius. It shows two men (possibly Clusius and Clutius), a bee-

2470^t

Van de
BYEN,

**Haren Wonderlijcken oorspronck /
Natuur / eygenschap / crachtige / ongehoorde
ende seltsame wercken: Waerin gemect werden
hare wonderlycke Politien; en o:denlycke Bege-
ringen/die sy met haren Coninck ende on-
der malcanderen onderhouden.**

Vervaset in dry Boecken: Seer ghenuechlyck om telesen.

VVaer af het inhoud inde navolghende zijde in't
corte begrepen staet.

Gheschelt in forme van een Gesamenstekinghe:

Door

THEODORVM CLVTIVM.



THANTVVERPEN,

**By Pauwels Stroobant inde Cammerstrats/
inden witten Hasewint. Anno 1618.**

[5] Clusius and Cluyt depicted on the title page of Dirck Cluyt, *Van de Byen, haren wonderlijcken oorspronck, Natuur, eygenschap, crachtige ongehoorde ende seltsame wercken* [...]. Antwerpen: P. Stroobant 1618.

stall with six straw beehives, bees, and some plants, one of them a tulip. The inscription on the border says: 'Godt Voet Alle Creaturen' ('God Feeds All Creatures'). The border of this vignette is more elaborately decorated and the two men are more richly dressed than on another, possibly older vignette, which is printed in reverse. Reading the text and observing the vignette, it looks as if Clusius and Clutius were good friends. The text starts with speech by Clusius: 'I see, it begins to get very beautiful weather / it is almost time for me to go to the Garden / to see what my good friend T.Clutius is doing in the University Herbal Garden; it is still early / I must talk a bit with him / about the Bees: will he be in the Garden? I will knock at the Garden / perhaps he will be busy in the Garden with his Bees. Hola: are you in there? Greetings Clutius'. Cluyt continues: 'and the same to you: Welcome I did not expect you here: What gets my friend so early here .?...' It is sad to know that this friendship was cut short by the early death of Cluyt in 1598. Clusius not only lost a good friend, but an outstanding plantsman with an extensive knowledge of medicinal plants and a great interest in new and exotic plants, of which the tulip, first propagated in Holland by Clusius, was to become the most famous. (CT)

Hunger 1927.

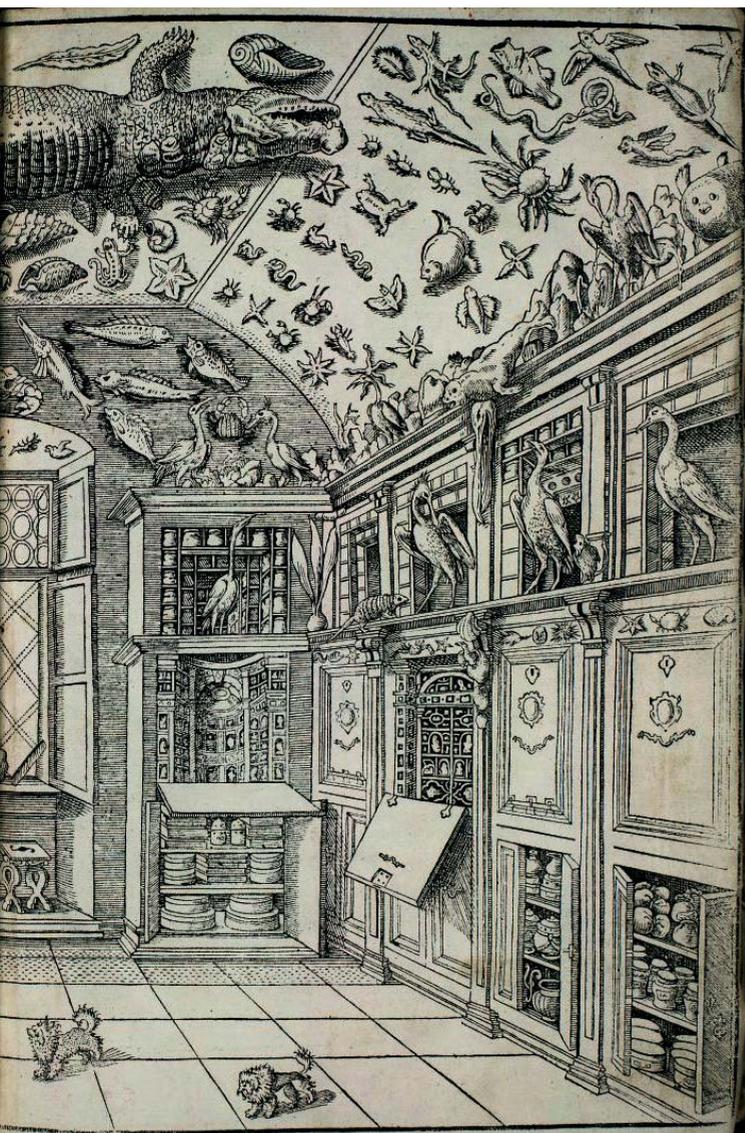
[6] Ferrante Imperato, *Dell'Historia Naturale Libri XXVIII*. Napoli: C. Vitale, 1599.

[UBL 656 A 5]

The Italian naturalist and pharmacist Ferrante Imperato (c.1550–c.1631) owned a prosperous pharmacy in Naples and was the founder of the botanical gardens of this city. Imperato travelled extensively in the southern part of Italy, collecting a large variety of minerals, vegetables and animals. His *Dell'Historia Naturale Libri XXVIII*, a catalogue of his collection, describes the world of natural history, including botany, mineralogy, metallurgy, mining and zoology. The *Kunstammer* of Imperato displayed at the Palazzo Gravina in Naples, as depicted in the book, was a classic example of this kind of collection in the 16th century. It is probably the earliest illustration of a natural history cabinet in the world. His collection consisted of many books, a herbarium, shells and other marine creatures, birds, fossils, clays, metallic ores, different kinds of



[6] The Wunderkammer of Ferrante Imperato in Naples.



marble, and gems. The eye-catcher in the engraving is the huge crocodile hanging from the ceiling. Imperato corresponded with Clusius and many other scholars in Europe. This copy of the *Dell'Historia Naturale* was presented by the author to Clusius (letter from Imperato to Clusius 28 June 1600), who wrote his name on the title page. The book hardly seems to have been read by Clusius, perhaps because it contains only a modest amount of botanical information and focuses on other fields of interest. The cabinet of Imperato, however, could have been an example, or at least a stimulus, for Clusius's own *Wunderkammer* in Leiden. (KvO)

Findlen 1994; Olmi (1985), p. 5-16; Stendardo 2001.

[7] Letter from Paludanus to Clusius, dated 25 July 1597.

[UBL Vulc 101/Paludanus]

The Enkhuizen physician Berent van den Broecke – better known as Bernardus Paludanus (1550-1633) – is known as the creator of the earliest Dutch curiosity collection with an international reputation. During the sixteenth and early seventeenth centuries he was a key figure of a small group in Enkhuizen with an interest in the exotic world, along with the explorer and author Jan Huygen van Linschoten (1563-1611), the cartographer Lucas Janszoon Waghenaer (1533/34-1606), and Francis Maelson (1538-1601), a physician and advisor on navigational matters to Prince Maurits of Orange. Exotic items – such as ivory, tropical fruits, a nest of weaver birds from Africa, birds of paradise from the Moluccas, Chinese paper, seeds from Goa, and wooden idols from the 1594 journey to Staten Island and the Arctic Ocean – began to form a more prominent element in Paludanus' collection after the start of his cooperation with Linschoten (1592-93). In the early seventeenth century the share of East Asian objects in it increased, and Paludanus' attention shifted from plants and fruits towards the more easily preserved artificialia-ethnographica, minerals, fossils, and shells. Over time Paludanus changed from a physician-collector into a collector and international broker of rare and exotic naturalia and artificialia. Curiously, references in Clusius' printed works suggest that Paludanus was *not* a key figure for the latter as

a source of exotica or of information about them, in spite of Paludanus' large collection, their friendly relationship, and their joint interest in exotica. (FE)

Cook (2007), p. 120-30; Van Gelder, Parmentier, Roeper (1998), p. 95-110; Van Berkel (1992), p. 169-191; Jorink 2007, p. 275-85; Hunger 1934, p. 249-268; Van Wijk (1948), p. 265-286.

[8] Clusius, the VOC and exotica.

[UBL Vulc 101/Os]

Clusius' two visits to Amsterdam after his move to the Dutch Republic (1593) were both connected with the return of the first major Dutch expeditions to the East Indies: the First Voyage (*Eerste Scheepvaart*) under Cornelis de Houtman (returned August 1597), and the Second Voyage under Jacob van Neck (four ships of which returned in 1599). Clusius wanted information about exotica from men who had been on the spot and were familiar with tropical nature. In Amsterdam he interviewed two Indians involved with these expeditions, Abdala from Gujarat and Franciscus Rodriguez from Bengal, about the names and uses of certain leaves, pieces of wood, nuts, trees, and tropical fruits.

Immediately after the foundation of the VOC in 1602, one of its governors, the merchant Dirck van Os, had a memorandum by Clusius distributed in which apothecaries and ship's surgeons were asked to bring back small branches, leaves, fruits, and flowers of many of the spices growing in the Indies, of cotton, of all trees that looked foreign, and of the small trees that grow under water (coral). Drawings were welcome, and they were also requested to gather information about the names and uses of these plants, and whether they were evergreen or deciduous. Clusius remained dissatisfied, however, with the material obtained via these channels, as he wrote in the Preface to his *Exoticorum* (1605). His French correspondent Nicolas Fabri de Peiresc showed himself unimpressed by what Clusius had received from the VOC. (FE)

Cook (2007); Baas (2002), p. 124-137; Heniger (1973), p. 27-49; Van Berkel (1993), p. 39-58; Hunger (1927-1942).

d'Orta
Coloquios dos simples, e
drogas he cousas medicinais da India, e
alsi dalgũas frutas achadas nella onde se
tratam algũas cousas trocantes a medipina,
praticaõ e outras cousas boas, pera saber
cõpostos pesto Doutor garçia d'orta : fffico
del Rey nosso senhor, vistos pello muyto
Reuerendo senhor, ho liçenciado
Alexos diaz : falcam desenbar-
gador da casa da supricaça
inquisidor nestas
partes.

ACADIVGD

Com priuilegio do Conde visõ Rey.

Im presso em Goa, por Ioannes
de endem as x. dias de
Abril de 1563. annos.

De...
R...

- [9] Title page of Garcia d'Orta, *Coloquios dos simples e drogas he cousas medicinais da India* (1563) with crossed out owner's name of Jan Huygen van Linschoten at the top.

Clusius and his Publications

[9] Garcia d'Orta, *Coloquios dos simples e drogas he cousas mediçinais da India* [...]. Goa 1563.

[UBL 1366 G 12]

Between 1583 and 1588 Jan Huygen van Linschoten served as secretary to the archbishop of Goa, the capital of the Portuguese sea-borne empire in Asia. During this time Linschoten collected all kinds of reports about Asian countries and peoples, kept a diary of current events, and made drawings of plants and animals. As the inscription at the top of the title page indicates, in 1585 he received this copy of the *Coloquios* of Garcia d'Orta, a pioneering work in tropical medicine, printed in Goa twenty-two years earlier by the German or Dutch printer Johannes van Enden. The – only partially legible – inscription at the bottom of the title page suggests that this copy was in the hands of a Portuguese owner before entering the magnificent library of cardinal Franx Xavier von Dietrichstein in Nikolsburg Castle, Moravia. During the Thirty Years War, this collection was requisitioned by the Swedes and the book was transferred to the library of Queen Christina in Stockholm. A few years later it was presented to Isaac Vossius, the royal librarian, who must have taken it to England when he decided to move there. After Vossius' death it was acquired by the University Library Leiden. This is an exceptionally well-travelled publication. (EvdB)

Pos 1998, p.135-151; Balsem 2007, p.69-86.

[10] Francis Drake's exotic nuts and fruits in: Carolus Clusius, *Aliquot notae in Garciae Aromatum Historiam*. Antverpiae: ex off. Chr. Plantini, 1582.

[Herbar Folio Room B.00.25]

Clusius' *Aliquot notae in Garciae Aromatum Historiam* was published in 1582. This booklet of only 43 pages was meant as a supplement to a work about exotic plants by the Portuguese physician Garcia da Orta; Clusius' Latin translation of da Orta's work was published in 1567. *Aliquot notae* contains Clusius' descriptions of many kinds of botanical novelties brought to Europe by Sir Francis Drake, who

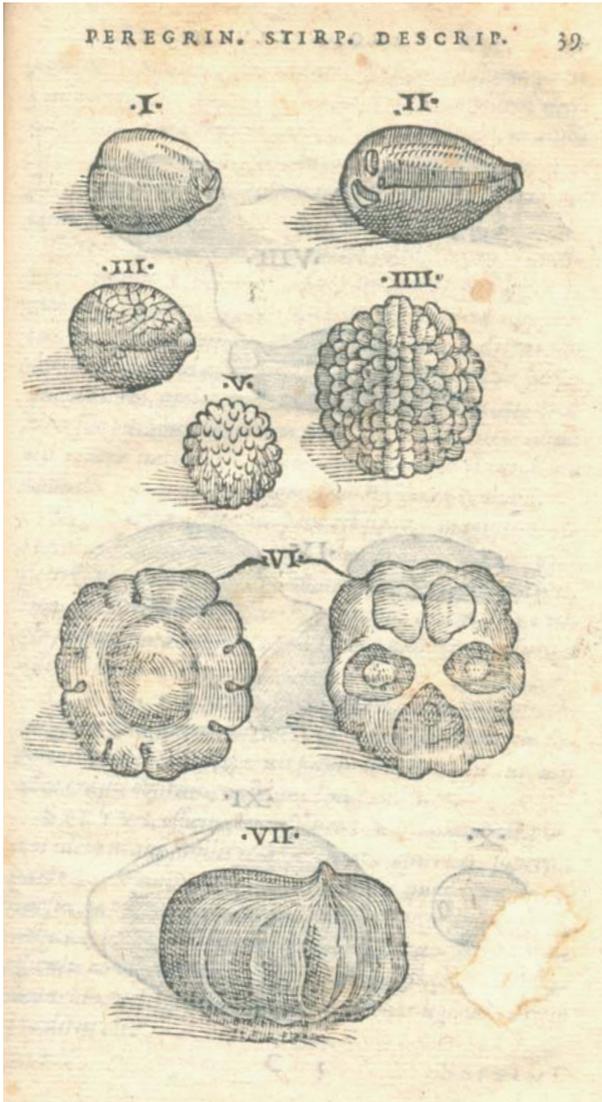
returned from his voyage around the world in September 1580. Clusius visited England (probably for the fourth time) at the beginning of 1581, when he obtained some of the exotica collected by Drake. The university library of Erlangen in Germany owns a unique letter by Clusius addressed to his publisher Christopher Plantin in Antwerp. It is, as far as we know, the only extant manuscript in Clusius' hand intended for publication. The opening lines in French state that Clusius has made five additional descriptions of exotic nuts and fruits. He instructs his publisher that the new text should be placed at the end of, but typographically separated from, his treatise on the exotics supplied by Drake. These French lines are in the distinctive handwriting of Clusius: small, but extremely legible. The rest of the very carefully written lines include – in Latin, and in a different hand – the text for the last pages of *Aliquot notae in Garciae Aromatum Historiam*.

The typesetter in the Plantin printshop accurately followed Clusius' instructions, only taking the liberty of making some minor changes in punctuation and typography, as can be clearly seen from a comparison of the two. (SvZ)

[11] Jan Huygen van Linschoten, *Itinerario, voyage ofte schipvaert van Jan Huygen van Linschoten naer Oost ofte Portugaels Indien inhoudende en corte beschryvinghe der selver landen ende zee-custen*. t'Amstelredam: by Cornelis Claesz., 1595/1596.

[UBL 1372 B 11: 1-4]

By publishing the *Itinerario*, Linschoten made the knowledge he acquired in Goa available to Dutch merchants eager to challenge the Portuguese monopoly of trade to the East Indies. The book was rushed off the press just in time to be picked up by the men in charge of the first Dutch fleet to Asia. Primarily a description of Portuguese Asia, the *Itinerario* also contains a translation of Orta's *Coloquios* into Dutch. As in Clusius' earlier translation of the work into Latin, the dialogue form was sacrificed in favour of the straightforward communication of botanical knowledge. Although Linschoten's drawings of plants and trees may be deemed amateurish, they were used for the illustrative plates. These images, which give some idea of the physical appearance of the plants and fruits, were



[10] Several exotic seeds, collected by Francis Drake in Carolus Clusius' *Aliquot notae in Garciae Aromatum Historiam* (1582).

Planteboten

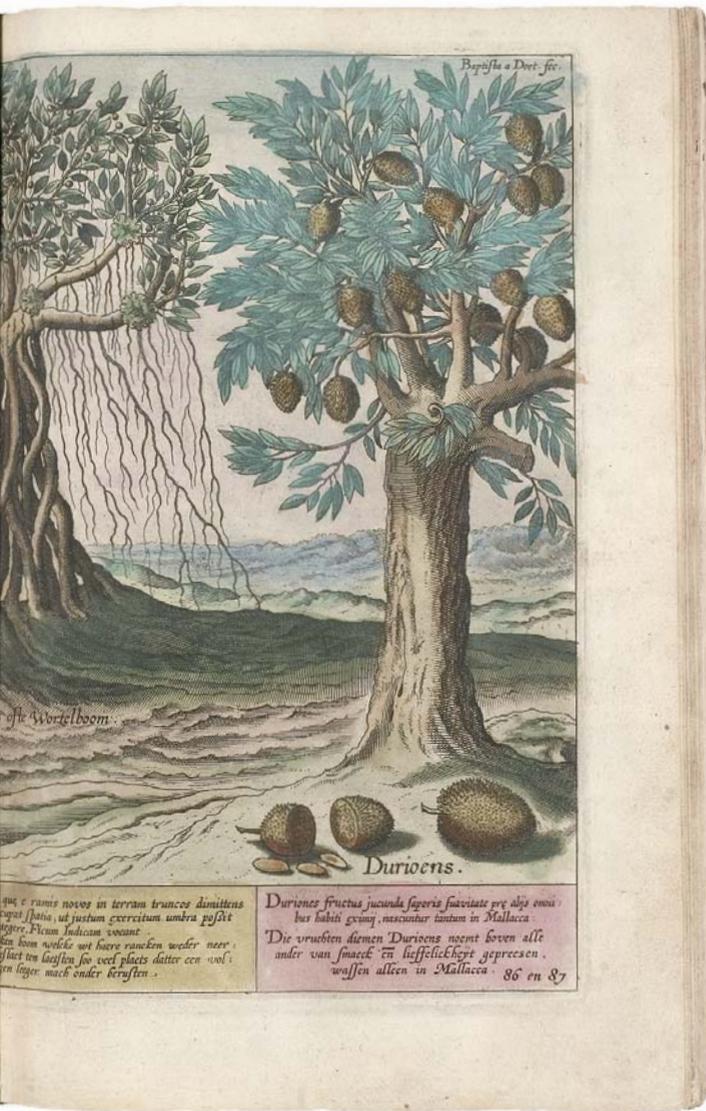


Bambus.

Arundo Indica femoris penè
 habiti crassitudine.
 Indiacens riet wasschende inde dick:
 te van een mans dijje ofte been.

Indicus en truncus brachijis spandit opacis
 Gruta etiam ut justis umbræ sit agnibus
 Vi nova protrudens in apertis exerat auras
 Grandæ germinibus sustinet ipsa suos.
 Ploeger.

Arbor admiranda
 tam lata tendens
 Etenim wondeloo
 waerts overtrek
 sijn



[11] The Bambus, Durioens and Wortelboom in: Jan Huygen van Linschoten, *Itinerario, voyage ofte schipvaert van Jan Huygen van Linschoten [...]* (1595/1596).

XV.
 IDEA LANTOR, ASSA, PIMEN-
 TA DEL RABO, TALASSE, MANGO-
 ftans, & Piperis.



LANTOR è Coquos seu nucum Indicarum classe est, folia proferens porrecti viri longitudine, quibus Papyri loco indigena utuntur. Pimenta del Rabo seu cubebe, uuarum modo in arbore quadam proueniunt: quas Indii in tanto habent pretio, ut non nisi coctas eas in terras alienas exportent.

Simul addita arbor Tamarindi seu Assa est, ut & herba Talasse, in Iaua celebris: nec minus fructus alius Mangostans, & rotundi nigri piperis in Iaua prodeuntis, quod Sahang incolae uocitant.

- [12] A plate with a.o. pepper, a palm tree and a mano tree in: Johann Israel and Johann Theodor de Bry, *Pars quarta Indiæ Orientalis: qua primum varij generis animalia, fructus [...] sicut in India tum effodiantur [...]* (1601).

grouped in such a way, perhaps by Karel van Mander, as to give the reader some general advice for the right use of his wits. The plate shown here demonstrates that persistent empirical inquiry pays, if you avoid being deceived by appearances. Bamboo is a hollow wood that is nevertheless very strong and useful. The wood of the impressive ‘arbre de rais’, the banyan tree, is practically good for nothing. The fruits of the durian stink, but are in fact delicious. (EvdB)

Van den Boogaart 2003.

[12] Johann Israel and Johann Theodor de Bry, *Pars quarta Indiae Orientalis: qva primvm varij generis animalia, fructus [...] sicut in India tum effodiantur [...]*. Francofurti: apud Matthaevm Becker, 1601.

[UBL 1368 C 7:2]

The De Bry brothers published a German and Latin translation of Linschoten’s *Itinerario*, together with the report of the first Dutch fleet to Asia, as parts 2-4 of the *India Orientalis* series. This collection of travel literature dealt with the East and formed a complement to the better known series dealing with America. The De Brys combined the natural historical texts and plates from the two Dutch books in one volume. Unlike Clusius’ *Exoticorum*, this was a book not for specialists, but for well-educated men of means. The plate shown here is from the report on the first Dutch fleet. The accompanying text gives straightforward but not particularly detailed or systematic information about the shape of a plant, where it grows, and what its uses are in indigenous societies. Indirectly, some texts inform the reader about the level of civility encountered in faraway places. In this instance, the author tells us that the lantor leaf was used as a writing material instead of paper. This bit of information implied that the Javanese lived in a literate society and were not ‘savages’, unlike many peoples of sub-Saharan Africa and America. Another plate in this volume shows a Javanese cock fight, another example of the bond between *historia naturalis*, the inquiry into the natural conditions for civil living, and *historia moralis*, the inquiry into man’s actions as a member of civil society. (EvdB)

Van den Boogaart 2003, p.71-105; Van Groesen 2008.

[13] Carolus Clusius, *Rariorum Plantarum Historia*, Antverpiae: ex. off. Plantiniana, apud Ioannem Moretum, 1601.

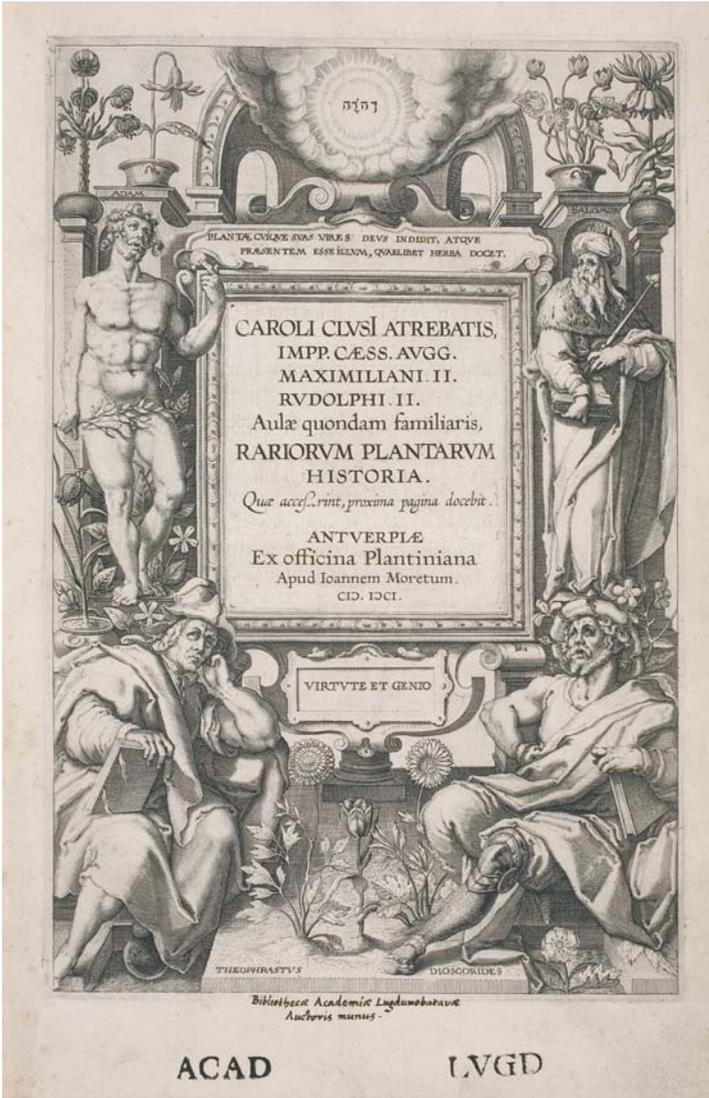
[UBL 661 A 3; 755 A 3:1; THYSIA 2208]

The *Rariorum Plantarum Historia*, printed by Plantin in Antwerp in 1601, is the first part of Clusius' collected works. It contains a synthesis of material presented in Clusius' *Rariorum aliquot Stirpium per Pannoniam et Austriam Observatarum Historia* (1583) and his *Rariorum aliquot stirpium per Hispanias* (1576), adds descriptions of new plants, and includes the first published treatise on fungi, *Fungorum historia*, which Clusius had composed during his stay with Count Batthyány in Hungary. Approximately one hundred new species are described in this book for the first time.

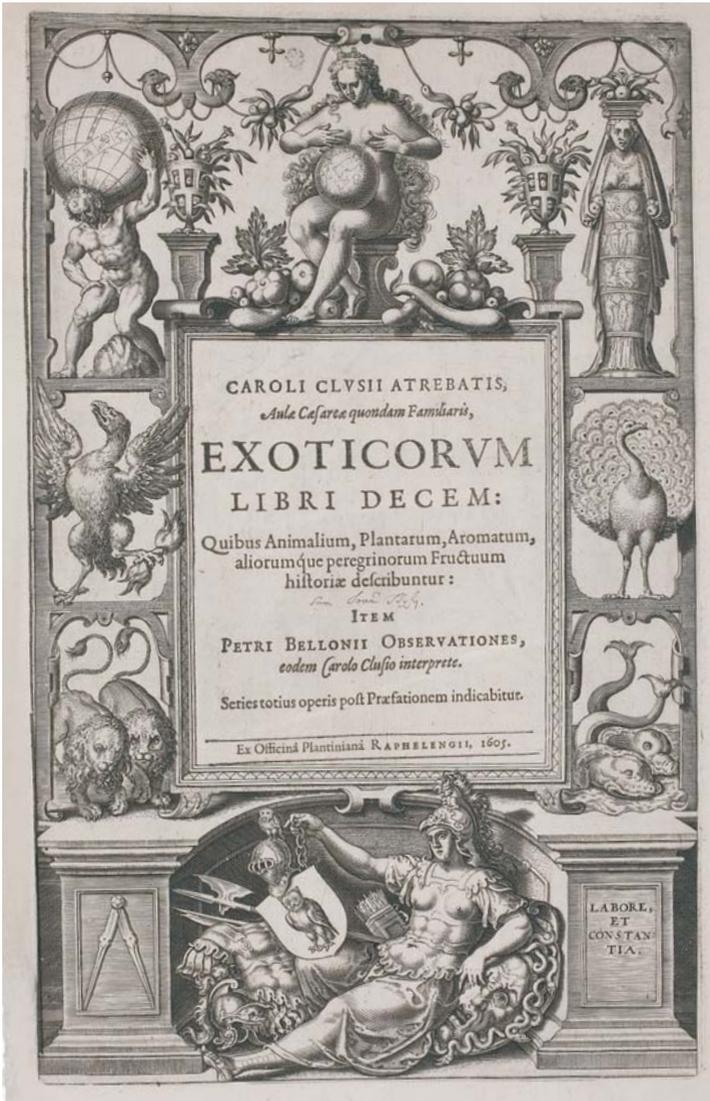
The title page, probably designed by Jacques de Gheyn II, has an elaborate architectural border with representations of Adam, King Solomon, the Greek philosopher-scientist Theophrastus (371?-286 BC) and the Roman physician and botanist Dioscorides (1st c. AD), surrounded by exotic plants, such as lilies and tulips, in pots or in the ground. God, represented by the letters יהוה (Yahweh), surveys the scene. Above the author's name and title is the distichon: 'God gave each plant strength to live, and each plant teaches us about his presence', while below them is Clusius' motto: VIRTUTE ET GENIO. Three of the four figures are holding a book – perhaps to be identified as the Book of God (Solomon), the Book of the classical heritage (Theophrastus), and the Book of the medical heritage (Dioscorides) – while the branch that Adam holds represents the Book of nature. The 1109 woodcuts, including 233 from the Spanish flora and 356 from the Austro-Hungarian flora, were prepared by Gerard Janssen van Kampen after drawings by Clusius and Pieter van der Borcht (c. 1540-1608). The remaining blocks were cut by the son of Virgil Solis in Frankfurt. The inscription at the bottom of the page shows that this copy of the *Rariorum Plantarum Historia* was presented by Clusius to the University of Leiden. (KvO)

De Nave, ed. 1993, p. 118, nr. 55; p. 138, nr. 93; Hunger (1927-1943).

[14] Carolus Clusius, *Exoticorum libri decem: quibus animalium, plantarum, aromatum, aliorumque peregrinorum fructuum historiae describuntur. Item Petri Bellonii observationibus [...]*. [Lugd. Bat.]:



[13] Title page of Carolus Clusius, *Rariorum Plantarum Historia* (1601) with the dedication by Clusius to Leiden University Library at the bottom.



[14] Title page of Carolus Clusius, *Exoticorum* (1605) with the owner's name of Johannes Thysius in the middle of the page.

ex Officina Plantiniana Raphelengii, 1605.

[THYSIA 2202; UBL 775 A 3:2]

This first edition of the sequel to Clusius' *Rariorum plantarum historia* (1601) contains works not included in the former volume. They are mostly devoted to exotic plants and animals. The first six books contain new writings by Clusius on new species of plants, animals, and natural history from the Americas, South-East Asia, Africa, and other parts of the world. This work is important for the number of new descriptions of non-European plants (and some animals), including the first published record and illustration of a South African plant. There is an extensive account of exotic seeds sent to him by various explorers. Books VIII comprise Clusius' translations, with commentary, of works by Da Orta, Acosta, Monardes and Belon. The allegorical title page shows Mother Earth with the globe on her lap, providing the planet with nourishment from her breasts. She is surrounded by all kinds of fruit and vegetables and is flanked by Atlas and a fertility goddess. The decorative border contains a variety of exotic animals: the mythical phoenix, two lions, a peacock, and two whales. These animals represent the four elements: fire, earth, air and water respectively. At the bottom of the page the goddess of wisdom Pallas Athena is seated amid various pieces of armour and weapons (including the shield with the head of Medusa); the two owls are signs of wisdom. She is flanked by a pair of dividers and the motto of the Plantin Press *Labore et constantia*. (KvO)

De Nave, red. 1993, p. 120, nr. 57.

[15] Clusius' personal copy of his collected works: Carolus Clusius, *Rariorum Plantarum Historia*, (&) *Exoticorum libri decem: quibus animalium, plantarum, aromatum, aliorumque peregrinorum fructuum historiae describuntur. Item Petri Bellonii observationibus [...]*. Antverpiae: ex off. Plantiniana, apud Ioannem Moretum, 1601 ; [Lugd. Bat.]: ex Officina Plantiniana Raphelengii, 1605.

[UBL 755 A 3: 1-2]

Even when Clusius was 80 years old, his interest in exotic plants remained vivid, as is beautifully shown by the annotation he made in his personal copy of his collected works. Pages 182 and 183 show the printed descriptions of some exotic bulbous plants. Next to the description of the ‘Hyacinthus stellatus’ (*Scilla bifolia*) Clusius noted that he had seen a variety of this plant in the garden of the apothecary Christian Porret. Carefully glued to the same page, moreover, we find a printed fragment concerning Clusius’ description of the ‘Hyacinthus stellatus Baeticus’. It recounts that Clusius had bought a specimen of this plant from a French rhizotome, who claimed that it was African.

This convolute contains both volumes of Clusius’ collected works: the first comprises all his writings about plants which were published by Moretus in 1601 as *Rariorum plantarum historia*; the second presents all his publications and translations concerning exotic flora and fauna which were published by Raphelengius in 1605 as *Exoticorum libri decem*. The convolute is an intriguing assemblage: it is full of notes in the hands of Clusius and his friend Justus Raphelengius, the brother of the man who published Clusius’ last publications. Besides the handwritten notes, we find printed fragments from Clusius’ appendices and his posthumously published work, all carefully added to the correct pages. The annotation and cuttings record later observations based on his own experience or on information he or Raphelengius received from friends. (SvZ/ EvG)

Van Gelder & Van Zanen 2007, p. 90-98; O’Malley & Meyers, pp. 69-71.

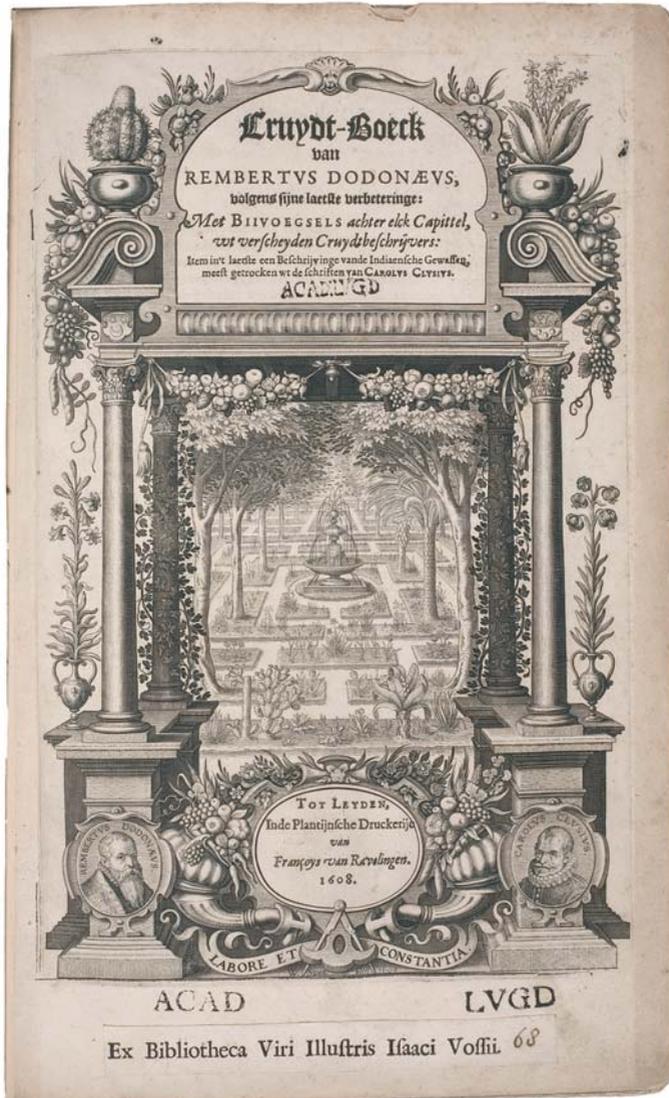
[16] Rembertus Dodonaeus, *Cruydt-Boeck, volgens sijne laetste verbeteringe: Met bijvoegsels achter elck Capittel, uut verscheyden Cruydtbeschrijvers: Item in’t laetste een beschrijvinge vande Indiaensche Gewassen, meest getrocken uit de schriften van Carolus Clusius*. Leiden: François van Ravelingen, 1608.

[UBL 659 A 7]

Rembert Dodoens, better known under his latinized name Rembertus Dodonaeus (Mechelen, 29 juni 1517/1518 – Leiden, 10 maart 1585) was appointed professor in medicine at the University of Leiden in 1582. The first edition of Dodonaeus’ herbal or *Crujjdeboeck*, was published in 1554. Three years later a French



[15] Clusius' personal copy of his collected works *Rariorum Plantarum Historia*, (& *Exoticorum*) (1601-1605) with elaborate additions and annotations.



[16] Title page of Rembertus Dodonaeus, *Cruydt-Boeck* (1608) with the medallion portraits of Dodonaeus and Clusius at the bottom.

translation by Clusius of the herbal was published. A revised edition of the *Cruydeboeck* in Dutch was published in 1563. The popular book was reprinted many times ever since: in 1583 and 1616 in Latin as the *Stirpium historiae pemptades sex sive libri XXX*; and in 1608, 1618 and 1644 (revised and expanded) in Dutch as the *Cruydt-Boeck*. The 1608 edition of the *Cruydt-Boeck*, in the adaption of Joost van Ravelingen (Raphelengius), was supplemented by a part with descriptions of the exotic plants and trees taken from several other books by Clusius. This 'Beschriivinghe van de Indiaensche oft Wtlandtsche Boomen, Heesteren ende Cruyden' were not described by Dodonaeus before. Many woodcuts illuminate the precise descriptions of Clusius of the exotica in this part of the book. The engraved title by Willem van Swanenburg(h) depicts a Hortus botanicus with a central fountain within a classical architectural border. Besides some deciduous trees we see an 'Indiaensche Note-boom' or Dadelboom on the right hand side, symbolizing the added supplement of Clusius' Exotica amongst the herbal of Dodonaeus. At the bottom, flanking the impressum, are two portrait medallions of Dodonaeus and Clusius. The architectural ornaments are adorned with plants, flowers and fruit. Some of them have an exotic origin, for example the Melon thistle and an Aloë. This copy of the *Cruydt-Boeck* is from the library of the famous scholar Isaac Vossius. (KvO)

Andries 1917; Louis (1954), pp. 235-280; Sabbe (1937), p. 86-106; De Nave p. 106-107, nr. 37; p. 138-139, nr. 94.

Paris le 6 Fevrier 1601

LIBR. HAT.
BIBL.

Je vous prie de m'excuser de ce que je ne vous envoie pas
de plus de livres de la bibliothèque de la ville de Paris
car elle est si petite que je ne puis en tirer que ce qui est
de la dernière édition. Je vous prie de m'excuser de ce que
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Folio 101

[17] Letter from Jacques Noiroto to Clusius, dated 6 February 1601, on the transportation of exotic plants.

Clusius and the Exotica

Plants, trees, bulbs and seeds

[17] Transporting exotic plants, in: Letter from Jacques Noirot to Clusius, 6 February 1601.

[UBL Vul 101/Noirot]

Clusius must have written and received thousands of letters in the course of his long life. Many of these were accompanied by seeds, bulbs, tubers, or even living plants. Transporting those plants was far from easy. Packages frequently took a long time to arrive, given the vast distances that had to be bridged, and the plants often lacked proper care. Weather conditions too caused problems. Clusius and his correspondents frequently complained that the plants which they received were mouldy, rotting, or frozen. This was the case, for example, with a large shipment of plants – including some exotics – which the Spanish physician Juan de Castañeda sent to Clusius in Leiden. The impressive number of plants included a so-called *figus indica*: the American opuntia cactus. A ship transporting cargo from Seville to the Netherlands normally took some three to four weeks to reach its destination. On this occasion, however, the ship arrived in Middelburg only after eleven weeks. Although the captain had watered the plants once in a while, as agreed, they did not survive the crossing. The temperature had been far below zero for weeks. The soil in which the plants were kept was ‘frozen as hard as an egg’, according to Jacques Noirot, an intermediary from Middelburg, who gives a lively account of the poor condition of the plants in his letter of 6 February 1601 to Clusius. On 14 February 1601 Clusius could only inform Castañeda that all his plants had perished in transit. (SvZ)

[18] Egyptian arum, supplement to a letter from Alfonso Panza to Clusius, April 1596.

[UBL Vulc 101/Pantius]

More than 400 years ago this unimpressive-looking dried piece of a plant travelled from Italy to the Southern Netherlands. The Italian

physician Alfonso Panza (also Pancio or Pantius) plucked this 'flower (...) of the Egyptian arum and sent it in 1569 from Ferrara to Clusius in Malines. Probably, a plant, a tuber or seeds had earlier reached him from Egypt. At present four indigenous aroid (Araceae) genera can be found in Egypt: *Arisarum*, *Biarum*, *Eminium* and *Pistia*. This dried specimen might be a species of *Biarum* or *Eminium*. However, because the greater part of the spadix bearing the diagnostic male parts is missing, it is difficult to attribute the material to one of the Egyptian species, either *Biarum olivieri* or *Eminium spiculatum*. It is even possible that it represents another species of either of the two genera. *Biarum* (22 species) occurs in most of the Mediterranean region (though far from the Ferrara area), while *Eminium* (8 species) is found in its eastern part and in western Asia. Panza was professor of medicine (1550-1574) at the University of Ferrara and acted as court physician to the Duke of Ferrara, for whom he created various gardens, and corresponded with the famous naturalist Ulisse Aldrovandi in Bologna. In his letters to Clusius (1568-1571) Panza often refers to exotic fruits, tulips, and in particular to plants and fruits from Egypt. The Egyptian arum, as he wrote, very rarely flowered in his part of the world, possibly because it grew there far from its natural habitat under inadequate conditions. (FE/RvdH)

Luzzatti (1953); The Aldrovandi-website of the University of Bologna: <http://www.filosofia.unibo.it/aldrovandi/>; Boulos (2005), p. 108-12; Mayo, Bogner & Boyce (1997).

[19] Red narcissus, drawing accompanying the letter from Carolus Clusius to Matteo Caccini, Florence, 10 October 1608.

[UBL, BPL 2414/14b]

The case of the red narcissus is an as yet unsolved mystery. Was it a rare exotic variety? Did it even exist? Or should the bright red colour be interpreted as very dark yellow? This picture belongs with a letter which Clusius sent in October 1608, about half a year before his death, to his friend, the rich plant collector, plant seller and garden architect Matteo Caccini in Florence. Clusius wrote that he had never seen a red narcissus and that no one he knew in



[18] A dried Egyptian arum as a supplement to a letter from Alfonso Panza to Clusius, April 1596.



[19] Water colour of a Red narcissus, accompanying the letter from Carolus Clusius to Matteo Caccini, dated Florence, 10 October 1608.

Bulbus Eriophorus.



[20] The 'Bulbus Eriophorus' (*Scilla hyacinthoides*) from the Ottoman Empire in the 'Appendix of some strange and fine plants brought from Thrace' in *Rariorum aliquot stirpium per Hispanias observatarum historia* (1576).

the Low Countries had one. A picture, of which the present illustration probably is a copy, had been sent to Clusius many years earlier by another correspondent, who clearly was as curious. Half a year earlier, in April 1608, Clusius had told Caccini that he still had the narcissus with the yellow corona and red tube which looked similar to the one he had earlier received with the exotic-sounding name of 'Devebohini or camel's head'. But that was apparently not the rare red narcissus. Nor was the red narcissus the same as an exotic plant that Clusius calls 'broad-leafed Indian narcissus with a red flower' or *Narcissus jacobeus*. This was a spectacular type of amaryllis, now known as the Aztec or Jacobean lily (*Sprekelia formosissima* L. Herbert), native to Mexico and Guatemala. Its American name was *Azcal xochitl* or 'bulb with the red flower'. That plant had already been seen by Clusius in 1596, and described and illustrated in his *Rariorum* (1601, p. 157-58). (FE)

Koning, Van Uffelen (a.o.) (2008); Ramón-Laca (1999), p. 97-107.

[20] Plants from the Ottoman Empire: 'Bulbus Eriophorus' (*Scilla hyacinthoides*) in the 'Appendix of some strange and fine plants brought from Thrace' in *Rariorum aliquot stirpium per Hispanias observatarum historia* (Antwerp, 1576).

[UBL 579 E 30:1]

Clusius saw an oriental 'Bulbus Eriophorus' (*Scilla hyacinthoides*) in full bloom for the first time in a garden in Vienna in 1575. After years of experimenting, he finally had the opportunity to observe the flowers of the 'wool-bearing bulb'. A year later Clusius published his observations, which included a careful description of its appearance (the form of the stem, the colour of the flowers, and the structure of the bulb) and of the the taste of its leaves. The flowering plant was skillfully depicted by the court engraver Martinus Rota. As a member of the imperial household in Vienna, Clusius had access to a large network of merchants, ambassadors, and other visitors from many different parts of Europe who visited the court. Clusius was especially interested in the ambassadors who returned from the Ottoman Empire, because they brought strange and elegant plant species which were rare in Europe. The Turkish sultans were, after all, well known for their love of colour-

ful and fragrant plants. In his description of the flowering *Scilla*, Clusius mentions that the bulb was given to him by Philibert de Bruxelles, a member of the imperial delegation to Constantinople. This description forms part of Clusius' first publication about oriental plants. In twenty pages Clusius discusses several colourful garden plants which were almost unknown to his fellow plant lovers, for example the tulip. This interesting little work shows that access to precious research material was one of the most important contributions of the imperial court to the botanist's career. (EvG)

Hunger (1942); Von Martels (1989), p. 437-454; Wijnands (1991), p. 75-84.

[21] Letter from Clusius in Vienna to Ludwig VI, Elector Palatine, in Heidelberg, 11 January 1580, published as 'Appendix cultori plantarum exoticarum necessaria', in: J. Horstius, *Herbarium Horstianum, seu de selectis plantis et radicibus*. (Marburg: Casparis Chemlini 1630).

[HERBAR Archief 1800]

In 1580 Clusius sent a large shipment with seeds and bulbs to the court of Ludwig VI, the Elector Palatine in Heidelberg (r. 1576-83). This 'botanical present', as Clusius called it, comprised 150 different species: local and exotic plants, flowers, and fruit trees. Clusius wrote that he had been able to obtain most of the plants for which the Elector had asked either from his own garden or from friends in Italy. Clusius provided important indications, moreover, for the cultivation of the exotic plants. He divided the species into the correct order and class: bulb or tuber, annual or perennial, et cetera. For every category of plants he indicated when they should be planted, whether they could endure the German winter, and how much sunlight they needed. Jacob Horstius published the list of contents of the package and Clusius' accompanying letter in 1630, because he considered them still valuable as documentation for the knowledge of exotic plants. Clusius' present of seeds and bulbs was meant for Ludwig VI's new 'Herrengarten' (created in 1581), a mixture of a pleasure garden, a medical garden and a botanical garden. Besides a labyrinth and flowerbeds in the shape and colours of the family coat of arms, it contained medicinal

ILLUSTRISSE Princeps, & Domine Clementissime, ut fidem Liberarem, quam Illustriss. vestr. Celsitudini Heidelbergâ discedens dederam; postquam Viennam, DEI beneficio, incolomis redii, illud potissimum mihi cura fuit, ut quam plurima semina colligerem, quæ Illustriss. V. Celsitudini grata esse existimarem. Ex his itaque, quæ meus famulus per meam absentiam coëgit, quæque ab amicis, eôm ex Italia, tum aliunde accepit, fasciculum composui, quem Illustriss. V. Celsitudini nunc mitto, sperans eam boni consulationem hoc tenuè & qualecunq; nostrum munusculum herbarium. Eorum verò seminum catalogum confeci, singula suo ordine, & per classes distribuens, ut cõgeneres plantæ facilius suum locum obtinere possint. Ad singulas autem classes additum est, quo quæque tempore, quo loco,

loco, & solo, terræ sint committenda: longa etenim experientia didici, pleraque imò fere omnia felicius provenire, si Autumno & ante hyemem ferantur, quam novo Vere, quoniam pleraque terræ gremio foveri diutius desiderant, & pauca admodum esse, quæ non nisi Vere sint serenda. Studui etiam, quantum potui, eundem ordinem in fasciculorum colligatione observare: ideoque, ne ordo perturbetur, eos circumspicè solvendo censeo, tamen ex catalogi præscripto facile (si perturbetur) denuo restitui possit. Arbitror autem in eo cumulo circiter quinquaginta esse, quæ ex Illustriss. V. Celsitudinis catalogo ipsam desiderare animadverti. De reliquis, quæ in eo catalogo continentur, meam sententiam Clariss. Viro D. GEORGIO MARIO, Illustriss. V. Celsitudinis Medico aperui: nempe pleraque esse, quæ non modo ex universa Germania, sed ne ex Italia quidem omnino loco accerri possint: nonnulla etiam

Cc 2 mihi

[21] Published letter from Clusius in Vienna to Ludwig VI in Heidelberg, dated 11 January 1580, in: J. Horstius, *Herbarium Horstianum* (1630).

herbs, Mediterranean fruit trees, and exotic plants such as tulips, sunflowers, and cacti. During the last quarter of the sixteenth century Clusius' kind of expertise was considered extremely valuable by the German princes: it helped to make their gardens the most beautiful ones of the Empire. (EvG)

Schofer (2003); Metzger (2000), p. 275-302.

[22] The exotic Horse Chestnut (*Aesculus hippocastanum*) in: Carolus Clusius, *Rariorum aliquot stirpium, per Pannoniam, Austriam, & vicinas quasdam provincias observatarum historia* [...]. Antverpiae: ex off. Christophori Plantini, 1583.

[UBL 1413 F 18]

The horse chestnut (*Aesculus hippocastanum*) is now a well-known tree with large hand-shaped leaves and prickly fruits which contain the dark brown seed known as conker, but it only became known in Western Europe in the 16th century and is native to the Balkans. It was introduced in the Netherlands by Clusius himself. One of the first references to the horse chestnut can be found in a letter from Willem Quackelbeen, physician to the ambassador of Emperor Ferdinand II in Constantinople, to the Italian naturalist Pier Andrea Mattioli (1501-1578). The German edition of Mattioli's commentaries on Dioscorides, which appeared in 1563, contains the first printed illustration and description of the horse chestnut. The Turks used conkers to cure chest complaints in horses – which may explain why the tree is now called horse chestnut – and called it *castenesi* or *ceestanesi*. Clusius mentions these names in his description in *Rariorum Stirpium per Pannonias observatarum Historiae* (1583), where he also depicts a leafy twig and a seed of *Castanea equina*, and reports that he had not seen the flower or fresh fruit. Apparently he had studied a small tree in Vienna, for he describes the development of new leaves and twigs. Almost twenty years later, in *Rariorum Plantarum Historia* (1601), Clusius reused the woodcut made for his work of 1583, but he added the fruit and mentioned that classical authors apparently did not know the horse chestnut. The edible sweet chestnut (*Castanea sativa*), on the contrary, has been cultivated for over 2000 years. It is native to the eastern part of the Mediterranean and was probably taken to north-western Europe by the Romans. Clusius discussed the horse

chestnut once more, in his *Exoticorum Libri Decem* (1605), where a rather clumsy woodcut shows the inflorescence. It is based on a coloured picture of a flowering branch which he had received from a friend in Vienna. (GvU)

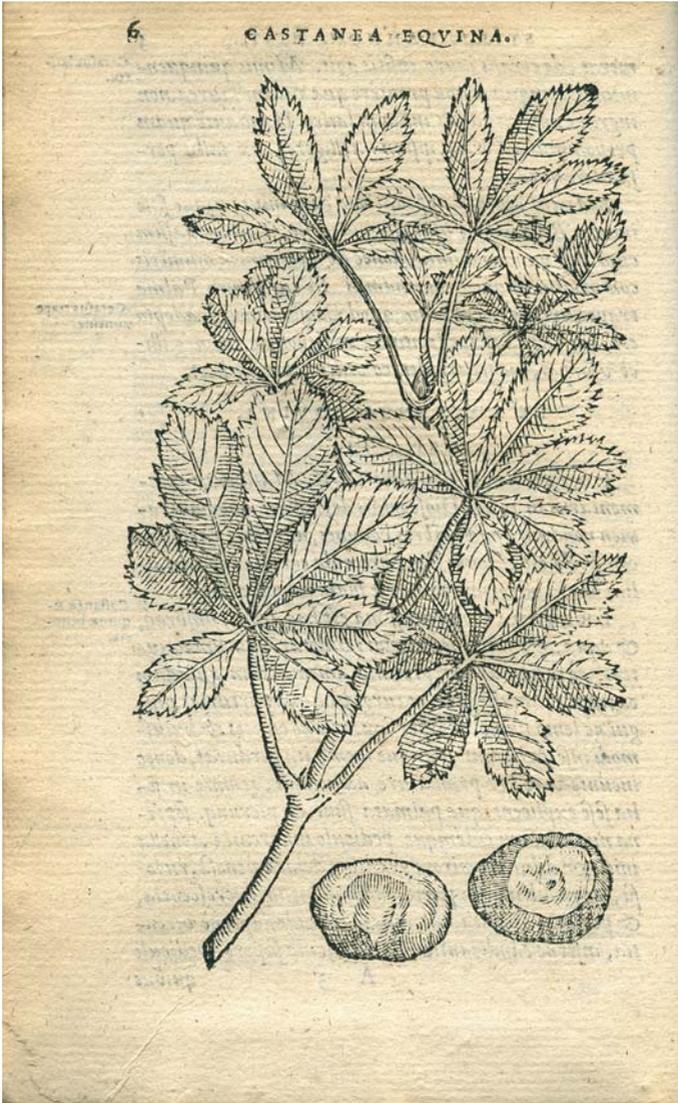
Mabberley (2008); Walter Lack, *Arnoldia* 61 (4), p.15-19.

[23] The triumph of the Tulip, in: Carolus Clusius, *Rariorum aliquot stirpium per Hispanias observatarum historia, libris dvobvs expressa [...]*. Antverpiæ: ex officina Christophori Plantini [...], 1576.

[UBL 579 E 30: 1]

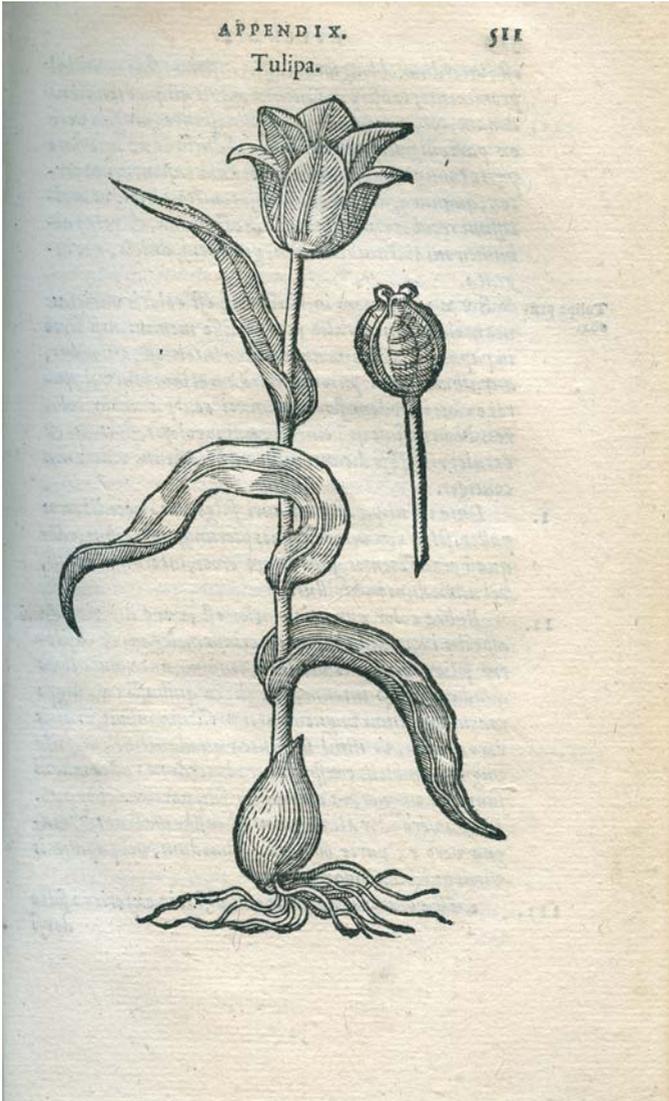
The specimens of *Tulipa gesneriana* depicted in a collection of watercolours made during the 1560s for Clusius' first patron, Charles de Saint Omer, who lived near Bruges, may form the first tangible evidence of their joint fascination with the tulip. Clusius was probably involved in the production and annotation of these watercolours, known as *Libri Picturati A16-30*. By 1569 Clusius lived in Malines (Mechelen) with his (second) patron and friend Jean de Brancion, who had a garden with many exotic plants. The tulip is also mentioned in Clusius' correspondence of that period. The first printed work in which Clusius mentions the tulip is an appendix to *Rariorum aliquot stirpium per Hispanias observatarum Historia* (1576), which deals with 'most strange and elegant plants from Thrace'. *Tulipa* is the name employed by the common people, but the locals ('Turcs') call it *Cavalá lalé* or *Café lalé*. Clusius is not sure which name was used by Dioscorides, but mentions the name *Satyrion*. He depicts one complete plant – with a flower and a bulb, and a separate stem with a fruit – and describes both early-flowering tulips (*Tulipa praecox*) with various colours, such as yellow, red, white and purple, and late-flowering ones (*Tulipa serotina*), which are only yellow or red. Clusius states that these tulips came from Constantinople. In 1573 he left for Vienna to become director of the imperial garden of Maximilian II, where he was able to collect and study more tulips thanks to the excellent contacts between Vienna and Constantinople. (GvU)

De Koning, Van Uffelen, (2008), p.334-335.



[22] The exotic Horse Chestnut (*Aesculus hippocastanum*), in: Carolus Clusius, *Rariorum aliquot stirpium, per Pannoniam, Austriam* (1583).

Tulipa.



[23] The Tulip as depicted in Carolus Clusius',
Rariorum aliquot stirpium per Hispanias observatarum (1576).

[24] Mad plums, in: Carolus Clusius, *Exoticorum libri decem: quibus animalium, plantarum, aromatum, aliorumque peregrinorum fructuum historiae describuntur. Item Petri Bellonis observationibus [...]*. [Lugd. Bat.]: ex Officina Plantiniana Raphelengii, 1605.

[THYSIA 2202; UBL 775 A 3:2]

The picture of a small fruit, the mad plum, accompanies a story in Clusius' *Exoticorum* about a hallucinatory experience in South-East Asia which was related to him by Jacob Ceulener, a merchant on the ship *Amsterdam*. The ship took part in the Fourth Dutch Voyage to the East Indies and returned to the Dutch Republic in 1603. It carried not only a load of black pepper but also some mad plums, the consumption of which had caused the hallucinations. As Ceulener told Clusius, he and his fellow shipmates had anchored in 1601 in a bay called Camboya, where they saw monkeys eating these mad plums. The hungry sailors followed their example, and soon afterwards began to suffer from dizziness and hallucinations of the most colourful and strange kind. Some believed that a brewery or a whole new ship was being constructed in their bunks; another could look straight through the bottom of the ship into the depths of the sea; the skipper's son saw little men running through his father's nose; and one man saw the heavens open, which almost caused him to fall into the sea. Clusius compares the narrow leaves of the mad plum tree with those of the *Malus persica* (Persian apple), at that time the name for the peach (modern scientific name *Prunus persica*). The mad plum has not yet been identified by botanists; it may belong to the solanum family. (FE)

Baas (2002), p. 124-137; Heniger (1973), p. 27-49; Hunger (1927-1942).

[25] The decorated Maldive coconut, in: Carolus Clusius, *Exoticorum libri decem: quibus animalium, plantarum, aromatum, aliorumque peregrinorum fructuum historiae describuntur. Item Petri Bellonis observationibus [...]*. [Lugd. Bat.]: ex Officina Plantiniana Raphelengii, 1605.

[THYSIA 2202; UBL 775 A 3:2]

This illustration of a richly decorated *Kunstkammer* object is not

Lactime Job vulgo appellare feminibus, olivarum officulis, & similibus. Inerat etiam
 Xii capitulum integrum cum suo tomento & feminibus, Abbel fructus, nucis unguenta
 nec gratia nonnullis *Mehelbelite* nuncupatum: ad quam nucem hanc etiam commode
 auctori possit mea sententia. Etenim vidit illi similis erat, quam olim Granata in Hispania
 a Petro de Velez in Africa recenter aliam anno M.D.LXVI. mihi donabat Illustris Vir
 Dn. D. D. Scitica, Illustrissimi Ducis de Bejar nepos, & in supremo illius urbis Sena-
 tus Regi consilio, sed minor, & magis orbiculata, spadice coloris cortice, eoque laxi con-
 sistens, aque veluti in binas partes secto. An vero alio cortice, siue involuero tota tunc
 hanc usque (ut venissem) esse) me lateri alia tamen addita erat minus crassa, sed paullo oblon-
 gior, neque adeo spadice coloris, quae mediâ ex parte redâ erat suo involuero nigro & ru-
 goso, cui petiolus adhaerebat, quo in ramo firmata fuerat.

OCTAVVS, Jota quodammodo formam habebat, & uncalem longitudinem iuli figuram
 quasi exprimens, gracilis, cineracei coloris, aliquot grana (ut ex involucri rupturâ appare-
 bat) lata crassa, continens spadice coloris, laxa, ab alterâ parte plana, insipida, vicia, & ve-
 ritate exanda.

NOVVS Brasilia delatum ferrebat, sed nullo nomine insignitum, semen venis quam
 fructus nam picea nucis nucleo, nec formâ nec magnitudine valde ab similibus erat, glabret,
 coloris ex flavo spadice, satis lento cortice consistens, internâ parte hirsuta, & duram ex-
 succo, qui medullam continente, ut de ejus sapore nihil pronunciate possent.

Hæc commixta erant Ricini grana adeo exilia, ut illis minora videre non mitterentur:
 alios præterea nucleos mihi ignotos, & aliae quaedam minutæ.

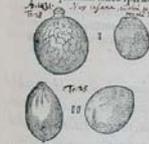
DECIMVS similiter et Brasilia dicebatur quem quo *Decima fructu* mitebant sed arboris
 excrescentiam aliquod instar gallæ venis nuncupandum censebat, quoniam fructum simili
 enim massâ conflare videbatur, & gallæ similes penne forme videri memini. Vnicâ nu-
 cem minus erat, quinque angulis velut alis consistens, supernâ parte aliquantulum protube-
 ram, & centro dudâs habebat quinque lineas ad extremos usque angulos: internâ longi-
 tudinem, sensim gracilescens usque ad sedem, quâ ramo inhaerere videbatur.

ARBORISNE AN FRUCTUS ALICUIUS FUISSET RAMULUS CUM SUPERIORIBUS REPERTUS, CUI PO-
 steriorum locum damus, quin vobis florem tulisset, ex sicuto difficile erat judicare: aliquam
 tamen affinitatem habere videbatur cum illis ramulis, qui in coronario frutice, siue Syring-
 gâ vulgo Herbariorum appellata, odoratos albos flores, racemî instar compositos quinos
 aut septenos ferente, nam ejusmodi ferè capitula habebat, octo exilibus frus norata, quæ
 in binas partes rotellæ aviculæ in modum dividebantur, contrâ quàm in coronario frutice,
 cujus capitula in plures particulas divisâ nullâ autem semen continebant, sed inania erant.

Kázva manud, Insanae nucis.

C A P. XXVI.

ICORVS Cuclenerus, vir ornatissimus, & Commisarius in ea nave cui nomen Amel-
 redamum, illius classis, quæ in Indiam Orientalem adegata, quoque cum Jacobo var
 Neck, anno à Christi nativitate millesimo sexcentesimo tertio rediit, quædam exotica
 referret, & inter illa fructum quendam, quem nautæ ab effectu *malæ prismæni*, hoc est,
 fima sine insana prunula appellarent, ego nucem dicere maluissim, quia majorem similitu-
 dinem cum nucleis hactec mihi videbatur, quam cum prunis, nisi ab officulo, quod con-
 tineret, prunis silvestribus in spinis nascentibus non diffimilî, appellationem sumendam esse
 censebam. Illum autem fructum in subiecta tabella exprimentium curabam cum suo
 officulo, aliâ quadam nucis ipsi addidit.



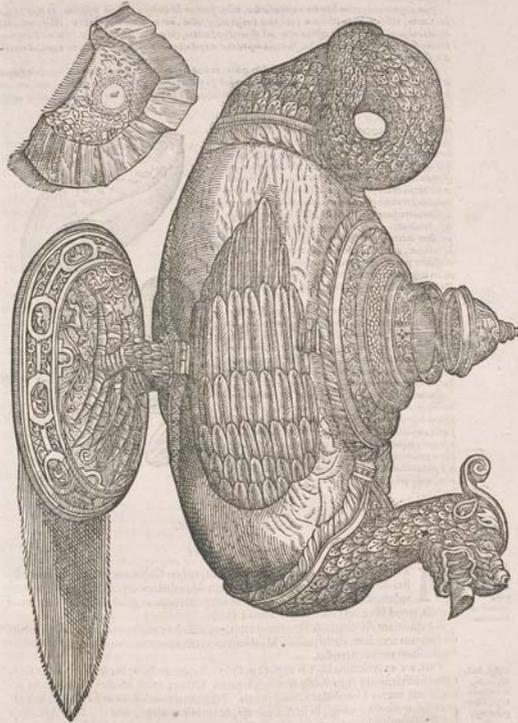
haec ipsa nux brevi crassiusculoque petiolo prædita erat, quam maxima ex parte singu-

ERAT porro hæc Nux protius orbicularis for-
 mæ: nam ejus ambitus, siue a pediculo per longitu-
 dinem, siue per transversum metretis, paullo plus
 quam binarum unciarum erat, piramine non valde
 densa, satis tamen firmo consistens, foris subsistio, &
 non laxi, internâ autem parte spadice coloris & la-
 vi, officulum membranaceum continens nigra qua-
 dam pulpâ tectum, pruno silvestri nec formâ, nec
 magnitudine ab similibus, insana & scilicet parte, quæ
 petiolo respondebat alibi maxillâ frustamplâ insigni-
 tum, sub quo nucleus cineracei coloris durissimus
 latet,

[24] Description and illustration of the *Insanae Nucis* or Mad plums in: Carolus Clusius, *Exoticorum* (1605).

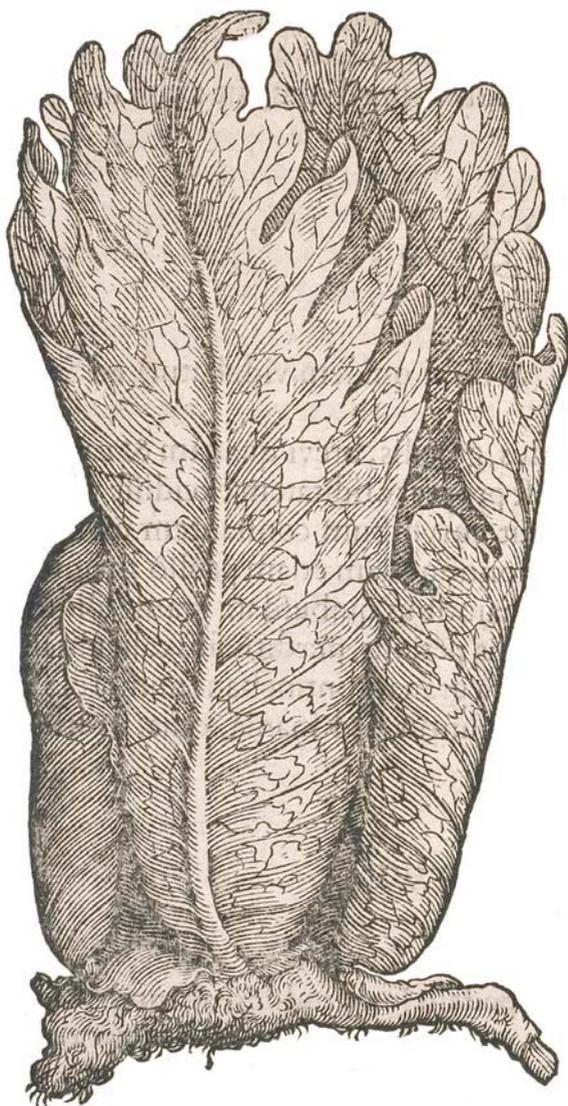
L I B E R I.
C O C C Y S D E M A L D I V A
a r g e n t o i n c l u s u s .

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R N O N

[25] A decorated Maldive coconut in the form of a fantasy dragon-chicken, in: Carolus Clusius, *Exoticorum* (1605).



[26] The tropical fern *Polypodium indicum*, in: Carolus Clusius, *Exoticorum* (1605).

exactly what one would expect to find in a work on natural history, but it was the only picture available to Clusius of the extremely rare Maldive coconut or Coco de mer. The nut is mounted in silver and forms the body of a fantasy dragon-chicken. Clusius' illustration is taken from a picture sent to him from London by James Garet, an apothecary-naturalist and merchant specializing in exotic drugs. That picture represented, life-size, the mounted nut which had been seized from a flagship captured by the English in 1592. In the late sixteenth and early seventeenth centuries Maldive coconuts were regarded as great rarities. They found their way into princely *Kunst- und Wunderkammern*, such as that of the Habsburg Emperor Rudolf II in Prague. The nuts were generally mounted in silver or gold and made into giant goblets, ships, or the bodies of animals such as dragons. Even undecorated, such nuts were worth a fortune. In 1626 Cassiano dal Pozzo, one of the key figures of the Italian Accademia dei Lincei, noted: 'These coconuts are so highly esteemed that they are worth more than their weight in silver; Clusius in his work on exotic things has a design of one'. The palms (*Lodoicea maldivica*) on which the Maldive coconuts grow bear fruits which can weigh up to 20 kg and contain the largest seed ever known. The fruit takes 6 or 7 years to mature. The palms grow on a few islands in the Seychelles, and are now a protected species. (FE)

Anselmi (2004), p. 288); Fučková et al. (1997), p. 195-96.

[26] '*Polypodium indicum*', a tropical fern in Leiden, in: Carolus Clusius, *Exoticorum libri decem: quibus animalium, plantarum, aromatum, aliorumque peregrinorum fructuum historiae describuntur. Item Petri Bellonii observationibus [...]*. [Lugd. Bat.]: ex Officina Plantiniana Raphelengii, 1605.

[THYSIA 2202; UBL 775 A 3:2]

This 'very elegant Polypodium, or kind of fern' was collected in the East Indies by the physician Nicolaas Coolmans (also: Colius) and brought to Amsterdam in 1601. Clusius received its picture from Petrus Paauw, Professor of Medicine and at that moment Rector of Leiden University. Clusius describes the plant as having a rhizome, like European polypodiums, but rusty brown and with thick, upright leaves, shaped like oak leaves, and with a colour like dead

leaves, 'which the French call *couleur de feuille* [sic] *morte*'. This is an exact description of the polypodiaceous fern *Drynaria sparsisora*, which belongs to a genus with 14 species and mainly occurs in South-East Asia. It is an epiphyte, i.e. a plant that grows on trees. Because of this way of life, ferns of the genus *Drynaria* form two kinds of leaves: those depicted, which are upright and brown, and larger and softer green ones, which obviously did not survive transport from the East Indies to the Netherlands. The brown leaves form a so-called nest, a natural flower pot in which dead leaves and water accumulate and turn into humus in which the fern sends out roots. When the plant dies, the green leaves decay, but the nest leaves remain attached to the rhizome, as depicted by Clusius.

Many specimens of the fern family *Polypodiaceae* are grown in the modern *Hortus botanicus* in Leiden and form part of a research collection which has given rise to several monographs, such as *Phylogenetic systematics of the Drynarioideae (Polypodiaceae)* by M.C. Roos (1986). (GvU)

Roos (1986).

[27] Piece of Bark, supplement to a letter from Evangelista Quattrami to Clusius, dated 5 May 1596.

[UBL Vulc 101/Quattrami]

More than 400 years ago, in 1596, this very same piece of bark accompanied a letter of the Augustinian monk Evangelista Quattrami in Italy to Clusius in Leiden. Quattrami was born in Gubbio and had a doctorate in theology, but spent most of his life as botanist and distiller in the service of the famous Este family, in particular of Duke Alfonso II d'Este, ruler of Ferrara. Quattrami undertook many botanical excursions in Italy, and may have also visited Constantinople. In his letter Quattrami discusses the preparation of theriac: a medicine known since classical antiquity which was supposed to be efficacious against many kinds of illness. There was much controversy at the time about its composition. Should plant-based ingredients from the Indies – East or West – be included, even if these had been unknown in antiquity? The piece of bark on show was regarded as a potential medicinal ingredient. Quattrami



[27] A piece of bark, sent together with a letter to Clusius
by Evangelista Quattrami.

千三百六十五

一ダラアカボウム シラシタ名

一タラコアルル ラシ名

騏驎 渴

一婦人月水多キニ用テヨシ

一瀉痢ヲ止ル方中ニ入用ユ

一吐血ヲ止ルニ用テヨシ

一蠟ト合テ火傷又スリハギ疵ニ附テヨシ

[28] The Dutch influence in Japan: The Dragon tree in Noro Genjo, Oranda Honzō Wage.

wanted to hear from Clusius what it was. He had received it some time before from the Indies (probably the East Indies) without a name, but he had understood it to be the true *Costus indicus* and not the Arabian, Syrian, or Indian variety. It was a piece of wood, he wrote, and not a root, as Garcia da Orta related, and had a taste between cinnamon, clove and nutmeg. The theriac component listed in old pharmacopoeias as ‘costi’ probably represents the root of a plant belonging to the genus *Costus*, a relative of the ginger family. This is hard to reconcile with the material sent by Quattrami, which indeed seems to be a piece of bark. Comparison with *Costus* material, preferably from an old pharmacological collection, and further examination under the microscope may reveal the identity of the object. (FE/RvdH)

[28] Noro Genjō, *Oranda Honzō Wage*.

[Cabinet Library, Tokyo, No. 17586/2/196/172]

Japanese scholars learned about Clusius’ work for the first time in the eighteenth century. In an attempt to reduce the import of drugs by Dutch and Chinese traders, the shogun Tokugawa Yoshimune decided that Dodoens’ *Crujdtboeck* should be examined for useful products. He ordered his personal physician Noro Genjō to study Dutch and to interview the Dutch surgeons during the court journey to Edo. These interviews took place between 1742 and 1750. Their purpose was to collect data on the medicinal properties of plants and to identify corresponding indigenous plants. The selected entries were compiled under the title *Oranda Honzō Wage*. Each entry usually starts with the Dutch, Latin, Chinese and Japanese names of the plant, followed by its therapeutic properties.

Genjō interviewed the surgeon Pieter Philip Musculus about the contents of the chapter on exotic plants in 1745. This chapter, added by Franciscus Raphelengius to Dodoens’ original work, was mainly based on Clusius’ publications. Genjō selected sixteen items from this chapter, including the dragon tree, the camphor tree, the myrrh tree, and ‘Indian hazel-nuts’. The medical applications of the dragon tree listed in the compilation are the treatment of menstrual problems (月水), diarrhoea (瀉痢), the vomiting of

blood (haematemesi) (吐血), and burns (火傷). They were in essence identical to those given by Dodoens; only the treatment of eye diseases is missing. The Chinese name given by Genjō is *Ch'i Lin Chih* (麒麟竭). This, however, refers not to *Dracaena draco* L. [see nr. 29 in this catalogue], but to the dragon's blood palm or *Daemonorops draco* Blume (*Calamus draco* Willd.), a climbing rattan palm, the main source of dragon's blood. (HB)

Beukers (2001), p. 281-297; Beukers (2007), p. 53-61.

[29] Drago, in: Carolus Clusius, *Rariorum aliquot stirpium per Hispanias observatarum historia, libris dvobvs expressa [...]*. Antverpiæ: ex officina Christophori Plantini [...], 1576.

[UBL 579 E 30:1; JL Libri Picturati A23.028]

Endemic to the region in the eastern North Atlantic consisting principally of the Azores, Madeira, the Canary Islands and the Cape Verde Islands, the dragon tree (*Dracaena draco* L.) owes its name to the resemblance it bears to the mythical creature. The tree is said to have played a role in the cultic life of the native peoples of those islands, for the Guanche council of nobles used to meet beneath its branches to administer justice. The official plant symbol of Tenerife since 1991, it is now a protected tree under various regional and international provisions.

The first mention of the dragon tree of Icod de los Vinos, Tenerife, which still survives today, dates from 1503. The first botanical description of *Draconum arbor* was by Clusius, who travelled through the Iberian peninsula in 1564-5. It was in the course of this journey that he saw the dragon tree behind the convent of Nossa Senhora da Graça in Lisbon. Clusius kept a branch, a piece of its bark and some of the sap that exuded from its trunk. He was so impressed by this exotic tree that it was the first plant to be described in his *Rariorum aliquot stirpium per Hispanias observatarum historiae* (Antwerp, 1576). Both the preliminary drawing and the woodblock used to print the woodcut are still extant. The Clusian image was recycled by Mathias Lobel in his *Kruydtboeck* (Antwerp, 1581) and was still used in the eighteenth century in the *Encyclopédie* of Diderot and D'Alembert. (PM)

Casper 2000; De Paz-Sánchez 2004, vol. I, p. 13-109; Mason 2006, p. 169-185.



[29] The Dragon tree as depicted in the *Libri Picturati* [Jagiellonian Library, Kraków].

[30] Simon de Tovar & Roderigo Zamorano and their letters on (American) exotica to Clusius.

[UBL VUL 101/Tovar]

The relationship of Clusius with Spanish scientists came as a result of a trip during 1564 and 1565 across Spain and Portugal with Jakob Fugger. After his return, Clusius translated a group of works on exotic flora into Latin: the *Aromatum et simplicium aliquot medicamentorum apud indos nascentium historia* (Antwerp, 1567) and *Aliquot notae in Garciae aromatum historiam* (Antwerp, 1582); *De simplicibus medicamentis ex occidentali India delatis quorum in medicina usus est* (Antwerp, 1574) and Cristóbal Acosta's *Aromatum et medicamentorum in orientali India nascentium liber* (Antwerp, 1582). Clusius correspondent in Seville was only a small group, consisting of Simón de Tovar, Juan de Castañeda, and Rodrigo Zamorano. Tovar (died in 1596) was a well-known doctor from Seville, founder and director of an important botanical garden, where he carried out experiments in acclimatisation and exchanged seeds. He made periodic catalogues and lists of, mainly American, plants, and exchanged information with European naturalists, such as Paludanus and Clusius. Zamorano (died 1620) was a cosmographer who worked in the *Casa de Contratación* of Seville where he taught the art of navigation and the manufacturing of scientific instruments. Zamorano devoted his skills to cartography and astronomical observation. He was appointed *piloto mayor* in the *Casa de Contratación*, the highest position for the scientific and technical activities. During the period in which he maintained an epistolary relation with Clusius, Zamorano created a botanical garden and assembled a rich collection of curiosities, exotic animals and plants from the colonies. The exchange of information between Clusius and Tovar refers to plants and seeds for acclimatisation purposes. The letters also contain references to and reflections on the vernacular and Latin names of new botanical species, and discuss terminology. When the exchange of letters with Tovar ended, Zamorano and Juan de Castañeda stepped in as correspondents. From the last letter of Zamorano to Clusius, dated 3 June 1603, it is clear that a truly international framework susceptible to piracy and theft existed. (JLB)

Backer & Vandewiele 1982; Barona & Gómez Font 1998; Jordán de Asso 1793; Pardo Tomás & López Terrada 1993.

app.

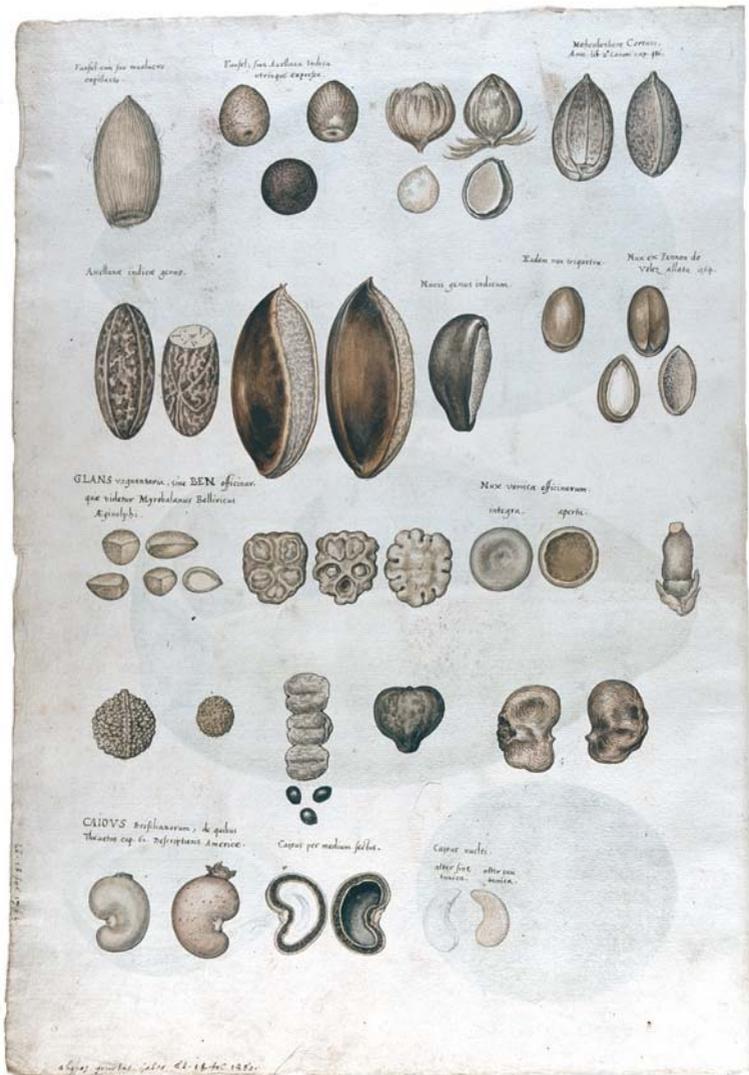
Magister Johannes de Castañeda Matanda arthum et medicum
 sapientissimo, amantissimo q̄ suo viro prudenti in universitate
 civitatis Leyde, Caro Clusio: ut
 decies eius nomen, in carminibus legatur
 D. - C. - . 0 - /



Cantu, nec se Cus loto a C ambula Chro
 Ambiq̄ quas, m Ate troy Adu concert A
 Relituant Rosis et Ne Reyder se Rta
 Quantes p̄ Olyce ceru O rula vath O:
 Liaz q̄ fu Lepenti Iludans sione L chro
 Viro r Vm cult V Aruba Vm refero
 Symbola, hoc go St quam xi Sonans de Serta
 Camena Choru con Cinat de sa Chro:
 Lilijsq̄ amp Lulders Liuro te Latchu.
 Viam, iam Virgo, q̄ Vj Deni, sec Vram
 Subterri S, ne alteria S tribam Solo:
 Indus tr Lum at te, t Lmeo de d Igneth
 Vim iter Vm, ne xef Vea, pass Vram
 Se dubitan S, aut si S ne et ip Se Apollu.

Fuld. 101

[30] An acrostic in a letter by Juan de Castañeda to Clusius.



[31] *Nux vomica* and other exotic nuts and seeds as depicted in the *Libri Picturati* [Jagiellonian Library, Kraków].

[31] *Nux vomica* in the *Libri Picturati*.

[JL *Libri Picturati* A23.020v]

Nux vomica, on the right of the third row in this very attractive collection of seeds, is the seed of *Strychnos Nux vomica* L., a small tree, indigenous in British India, Ceylon and Australia. Clusius mentions these seeds in the chapter 'Indian and exotic herbs' in Dodoens' *Cruydtboeck* of 1644. He does not give an illustration, but his description corresponds very well with the illustration here. In the 16th century *Nux vomica* was known in Europe, but at first the seeds were not used as a medicine, but merely to poison animals. Clusius tells us that bigger animals, like deer and dogs, die when they have eaten the seeds, but birds and fish only become tame and surprised and then can be caught easily. The name 'poison nut' refers to this use. Clusius refers also to the medicinal use as an emetic.

Nux vomica seeds are extremely hard and should be boiled in water for at least an hour in order to soften them sufficiently for dissection. *Nux vomica* seeds contain the alkaloids strychnine and brucine, and an extract of the seeds was used in very small quantities as a stimulating medicine. In larger doses it causes vomiting and finally leads to death.

Zörnig 1909, p. 630-5.

[32] Guaiacum, in: Carolus Clusius, *Exoticorum libri decem: quibus animalium, plantarum, aromatum, aliorumque peregrinorum fructuum historiae describuntur. Item Petri Bellonii observationibus [...]*. [Lugd. Bat.]: ex Officina Plantiniana Raphelengii, 1605.

[THYSIA 2202; UBL 775 A 3:2]

Only a few years after Columbus' first voyage to America, there was already a brisk trade in *palo santo* or *quayacan* in Europe. A beverage derived from boiling the branches and trunk of this tree, which grew in the Greater Antilles and on the continental Caribbean coast, was believed to cure venereal diseases, especially the *morbus gallicus*, syphilis. The idea that this disease came from

the Europeans' contact with the Amerindians strengthened the belief that the remedy should proceed from the same source as the disease. When in 1574 Clusius translated into Latin what the Sevillian physician Nicolás Monardes (c. 1508-88) had written about the plant a few years earlier, most of the information contained in that text was by no means novel to the European public. It is interesting to note that Clusius continued to add comments to the successive editions that he published (1574, 1579, 1582, 1605) of the text by the Spanish physician. The 1605 edition – published as Book X of the *Exoticorum* – was the first to include this engraving of a guaiacum branch complete with leaves, flowers and fruits, drawn from life. Clusius had obtained various guaiacum fragments at different points in his life, but even after 1582 he was unable to find one good enough to serve as the model for a drawing and engraving. He received this splendid gift from the Italian apothecary Giovanni Pona in Verona. (JPT)

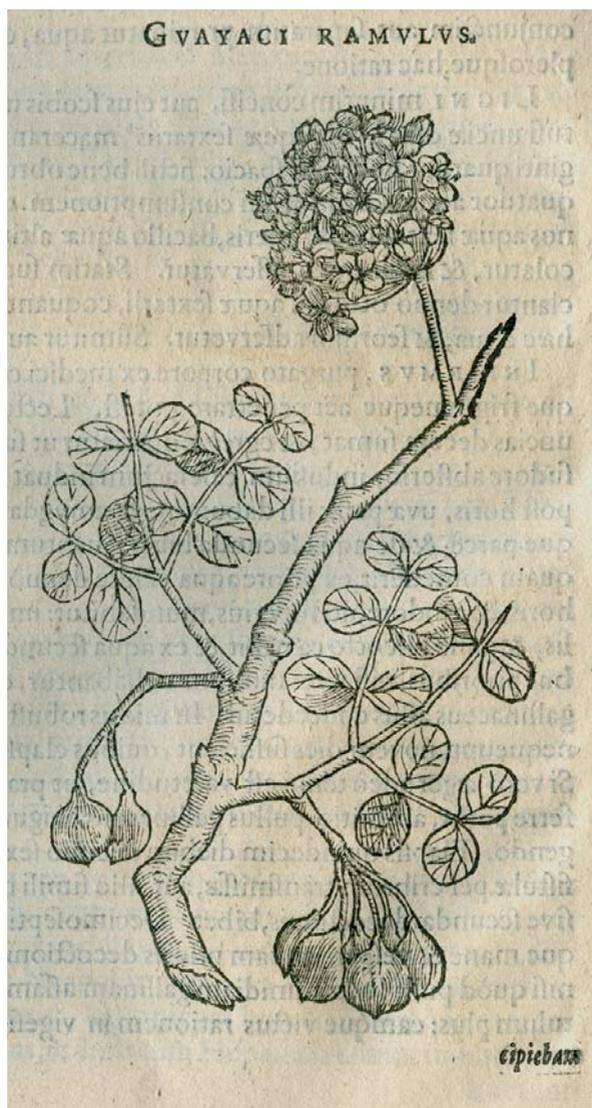
Pardo-Tomás (1993); Egmond, Hoftijzer & Visser (2007), p. 173-193.

[33] Mechoacán, in: N. Monardes, *I y II y III partes de la historia medicinal: de las cosas que se traen de nuestras Indias Occidentales que siruen en medicina* [...]. Sevilla, 1580.

[UBL 526 F 24]

The Mechoacán root (so called because it came from the region of Michoacán in southwestern Mexico) has been used for centuries as an excellent, mild purgative. This use of the root was adopted by the Spanish colonisers from the Amerindians. Commercialisation of the root in Europe, mainly via the port of Seville, began around the 1530s.

The treatise that the Sevillian physician Nicolás Monardes wrote on the Mechoacán root was first published in 1565, although it also circulated widely in manuscript form. This text was an excellent advertisement for the virtues of the powder of this root, comparable or even superior to those of rhubarb, which until then had been the mild purgative most appreciated by European pharmacists since the classical era. For that reason, the trade in this remedy yielded substantial economic rewards, not only for the merchants, but also for apothecaries and physicians who, like Monardes



[32] Description and illustration of Guaiacum in:
Carolus Clusius, *Exoticorum* (1605).

FLOR DEL MECHOACAN.



RAXERON muchos de los Mechoacan de tierra Firme, muy buē Mechoacā, mucho mejor que lo de nueva España, cogido en la costa de Nicaragua, y en Quito, que despues que se descubrio, y hallolo de nueva España, han hallado la misma yerua y rayz en estas

partes que digo: y vñan della para purgar y haze maravillosa obra: y lo vñan ya en aquellas partes, y en toda tierra Firme, como vsauan lo traydo de nueva España, con maravillosos sucesos.

Del cabo de santa Elena, en la misma costa, traen otro Mechoacan, pero es muy brauo y tomado haze muy grã des accidentes, de vomitos, y congoxas, con muchas camaras: y por esto lo llamã Escamonca, y no lo vsa nadie, por hazerlos accidentes dichos: lleva la hoja como el mismo Mechoacan, aunque mas pequeña, que se rebuelue y trepa do quiera que se llega, y lleva la rayz menor, y con alguna acrimonia. De do se vee manifestamente, quanto haze al caso la dispuscion del lugar, para que haga esta rayz mas o menos obra.

Mechoacan furioso.

K 4 Y así

[33] Mechoacán described and depicted by N. Monardes, I y II y III partes de la historia medicinal (1580).

himself, took an active part in the trade in exotic samples. Clusius' translation of Monardes' text into Latin was first published in 1574. The problem facing Europeans with an interest in botany was that of obtaining direct information about the plant from which the pieces of root that reached the pharmacies were derived. Clusius therefore attempted to obtain seeds in order to grow, observe and describe the plant directly. He was successful in this after the dispatch of a package of seeds from Spain that reached him in 1569. (JPT)

Egmond, Hoftijzer & Visser (2007), p. 173-193.

[34] Tobacco, in: Garcia de Orta, *Simplicium medicamentorum ex Novo Orbe delatorum historia* [...]. Antverpiae : ex Officina Plantiniana, apud Viduam, & Ioannem Moretum, 1593.
[UBL 630 G 29; 579 E 30: 2]

First published in 1574, the Latin translation that Clusius made of the work of the Sevillian physician Nicolás Monardes included a long chapter on tobacco. This text made the information regarding the plant and its medicinal uses that the colonisers had acquired from the Amerindians available to Europeans. At the time tobacco was primarily used as an analgesic and to heal wounds. The practice of smoking tobacco was attributed solely to the native population and to the Africans who had been brought to America as slaves. The knowledge about the plant was fragmentary and confusing to the Europeans because they had little direct experience of it. Clusius' comments in 1574 are a good example of these problems, since his contact with the plant was confined to exemplars seen in Lusitania in 1563-64. On the one hand, Clusius accepted the erroneous identification with henbane (*Hyosciamum nigrum*) which was widespread among the authors of the earliest treatises. On the other hand, Clusius recorded the Amerindian names for the plant (*petum*, of Brazilian origin, and *picietl*, of Mexican origin), but failed to adequately explain the word *tabaco* (of Taíno origin), which, according to Spanish sources, identified it with the name of a Caribbean island. Years later, Clusius managed to grow some exemplars *in nostris hortis* and thereby acquired direct knowledge of the plant. This enabled him to amplify his comments in successive editions and to include these engravings of two different types



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[34] A Tobacco plant, in: Garcia de Orta, *Simplicium medicamentorum ex Novo Orbe delatorum historia* (1593).



[34a] A Tobacco plant, in: *Libri Picturati* [Jagiellonian Library, Kraków].

Cacao fructus.

CAPIT. XXVIII.

C E L E B R E M etiam per universam Americam, multiq̄ue usus fructum *Cacao* appellatum, Peruanæ provincie litora legentes, secum fumebant, & aliquot adferebant; atque ab ipsis paucos fructus accipiebam: cujus fructus quum luculenta descriptio extet apud Benzoniem, qui miles aliquot annis novi orbis provincias peragravit, ipsius verba, ut ab Urbano Calvetone Latina facta sunt, hic subicere libuit, cum tabella, in qua *Cacao* fructus me curante expressus,



IN Nicaragua novi orbis provincia pomi quoddam genus peculiare est, neq. Hispaniolæ, neq. ulli alteri Indiarum parti concessum. Pyri nostri ferme est specie, ligno interiore rotundo nucis crassitudine, & dimidio amplius, optimi & jucundissimi saporis: arbor procerâ exiguis foliis vestitur.

Pomp. Nica. raga.

Hispani quum primum eam provinciam subegerunt, propter uberrimam omnium rerum ibi repertam copiam, illam Paradisum Mahumetis nuncuparunt. Duo inter cetera fert hæc tellus, nulli præterea Indiarum concessa, excepta Guatimala Honduræ provincie, & Mexici finibus, totoq̄ue novæ Hispaniæ tractu. Unum pavonium quoddam genus est, qui in Europam translatus, vulgò Gallinæ Indicæ vocantur. Alterum, id quod *Cacavite* appellant, quod monetæ usum illis præbet.

Paradisum Mahumetis

E 4 I D fert

[35] Description and illustration of Cacao beans, in: Carolus Clusius, *Exoticorum* (1605).

of tobacco: *Petum latifolium* and *Petum angustifolium* (probably to be identified with *Nicotiana tabacum* and *N. rustica* respectively). (JPT)

Egmond, Hoftijzer & Visser (2007), p. 173-193.

[35] Cacao beans, in: Carolus Clusius, *Exoticorum libri decem: quibus animalium, plantarum, aromatum, aliorumque peregrinorum fructuum historiae describuntur. Item Petri Bellonii observationibus [...]*. [Lugd. Bat.]: ex Officina Plantiniana Raphelengii, 1605.

[THYSIA 2202; UBL 775 A 3:2]

Cacao beans were one of the most popular plant products from America. Soon after the discovery of the New World they were described by European travellers, physicians and naturalists, and integrated in European culture. Many Europeans appreciated the drink prepared from cacao beans, called chocolate, whereas chocolate bars were used as medicine for a variety of diseases, such as cough, stomach problems and consumption. Clusius received Peruvian cacao beans from travellers who had accompanied Francis Drake on his journey around the world.

The information about the cacao tree and its products in Clusius' *Exoticorum libri decem* comes from the famous travelogue *Nova novi orbis historia* (1578) by the Italian Girolamo Benzoni about his journey to Nicaragua, Guatemala, Peru and Cuba. He wrote that cacao trees could only grow in the shade of other trees since they could not bear the sun. These trees produced fruits similar to a pumpkin, inside which the cacao beans (which resemble almonds) could be found. In the New World cacao beans were used to prepare a potion seasoned with chilli (*axi*, Caspicum spec.). This drink disgusted Benzoni, who wrote that he thought it suitable for pigs rather than human beings. He also mentioned that cacao beans served as money in the New World. Clusius described the cacao beans and confirmed that they had an unpleasant taste. In America, however, the chocolate potion was offered to aristocrats. Clusius obviously did not know that this famous potion was called *chocolate* in America and that the name came from the Aztec word *chocoatl*. (SA)

Anagnostou (2000), pp. 134-138; Wolters (1996), pp. 96-110; Coe & Coe (2007).

[36] Bixa, in: Carolus Clusius, *Exoticorum libri decem: quibus animalium, plantarum, aromatum, aliorumque peregrinorum fructuum historiae describuntur. Item Petri Bellonii observationibus [...]*. [Lugd. Bat.]: ex Officina Plantiniana Raphelengii, 1605.

[THYSIA 2202; UBL 775 A 3:2]

Since pre-Columbian times the indigenous population of Central and South America has used the seeds of bixa orellana (called *Urucú* or *Achiote*) to prepare various ointments. These were used to protect their skin from the sun and insects, for ritual body painting, and to dye food. In colonial times the seeds also served as a remedy against heart disease, diarrhoea, eye complaints and skin afflictions. The seeds were also said to protect against infections. In fact, in Paraguayan folkloric medicine, burns are still treated with preparations from these seeds, while bixa orellana is recommended in Peru for a variety of diseases and even appreciated as an aphrodisiac. In Europe the seeds used to prepare the dye became known under the names *Terra Orleana* and *Terra Indica*: they were used to dye medical preparations, textiles and food. Clusius received some seeds from the Spanish naturalist Juan de Castañeda in Seville. They were wrapped in a piece of paper with a Spanish comment that they were used by the Indians as an ointment: 'con que se untan los Indios'. The apothecary Pieter Garet in Amsterdam sent Clusius a piece of a branch with the fruits containing the seeds and told him that the Brazilians prepared a red body paint from them. Clusius described both samples in detail in his *Exoticorum libri decem*. He thought that the fruits were very similar to those mentioned by the traveller Gonzalo Fernández de Oviedo in his report about the New World *De la Natural Hystoria de las Indias* (1526). For that reason he called the fruit *Oviedos Bixa* (*Oviedi Bixa*). (SA)

Fernández de Oviedo (1969), p. 26f.; Anagnostou (2000), pp. 202-204, 308-311; Valdizán & Maldonado (1985), vol. 2, pp. 255-257.

[37] Ioannes van Ufele and the Pawpaw from Brazil, in: Carolus Clusius, *Curae posteriores, seu plurimarum non antè cognitarum, aut descriptarum stirpium, peregrinorumque aliquot animalium novae descrip-*

Oriedi Bixa.

CAP. XX.

MRAM porò suspicionem, quam de folliculo præcedente descripto habebam, non profus vanam fuisse, anno redemptionis humanæ sexcentesimo secundo supra millefimum, demùm intelligebam. Nam Septembri mense ejusdem anni, inter quædam femina que mittebat doctissimus vir Ioannes Castañeda, erat similis folliculus, brevior tamen, ut qui fescunciam longus dumtaxat esset, unciam latus, in binas partes deficiens, & cujus spinulæ attrita: externa pars fuscæ coloris, quemadmodum etiam interna, sed hæc levis & paullulum splendens; in cuius medio aliquantulum cavo, utraque pars quindecim aut sedecim grana saturè rubra, exigui etiam pyrî formam referentia, brevissimo tenuissimoque petiolo singula suspensa, habebat, eaque nullis aureis micis aspersa, nisi extimâ parte, quæ splendens & veluti aurea, minimâ nigra maculâ tamquam puncto erat insignita: nullam verò observabam in eo folliculo sive capite loculamentorum distinctionem, nam, ut dixi, dimidia utraque folliculi sive capitis pars, grana serie quadam disposita in media concava parte continebat, majora & magis matura, quàm quæ ex Angliâ mittebantur, & salivâ dumtaxat paullulum aspersa, elegantî mini colore insciebant: chartæ autem, quâ folliculus involutus, inscriptum erat, *con que se vntan las Indios*, hoc est, quo se inungunt vel insciant Indi.

Verùm Octobri insequente elegantem ramum multa hirsuta capita sive folliculos sustinentem accipiebam, quem propter elegantiam in tabella exprimentum curabam, quæ hic adponeretur.

Bixa Ameri-
cævenna.

Bixa ramus
cum suis capi-
tibus.



ERAT autem ille ramus pedalis longitudinis, durus & lignosus, fusco cortice tectus, calamo scriptorio tenuior, summo fastigio in aliquot ramulos divisus, sustinentes undecim integra capita (plura fuisse, vestigia unde ea abrupta fuerant, fidem faciebant) quorum nonnulla longiora & angustiora quàm præcedens, (varie enim erant magnitudinis) aliqua duarum unciarum longitudinem cum semisse habebant, fescuncie fere latitudinem, aliorum longitudo binas uncias non excedebat, nec latitudo unciam; singula verò frequentissimis tenuibus spinulis, in quæ integris & oblongiusculis, nec attritis obfita, & extimâ parte mucronata, quæ per maturitatem in binas partes findi, commissuræ utrumque latus occupantes satis manifestè declarabant; perfectam autem maturitatem nondum adquisivisse, grana minora minisque rubra & rugosa, indicabant.

Hunc ramum ad me mittebat eo quo dixi anno & mense, honestissimus vir Petrus Garetus, significans Brasilianos uti ad corpus rubro colore insciendum: addebat Viciæ Africanæ ramulum è quo plures filiquæ dependebant, nonnullæ sua grana rubra adhuc retinentes, & ramum lunipapeywa, sustinentem fructum suum, verùm longè minorem eo, quem cap. x. lib. i. hujus

Exoticorum Historiæ exhibebam.

Bixa.

CERTUM non dubium est quin hic fructus illi similis sit, quem Oviædus *Bixa* appellat, cujus fructum in humanam altitudinem, interdum etiam ampliorem assurgere scribit, & folia sylvi foliis similia proferre. De quo, & aliis quam pluriimis, pecuniati libro aliquando agemus, Deo vitam producente.

CAROLI

nari instituisse, pictoræ arti operam prius dedit, quò posset, quæ singularia in iis obseruaret, coloribus exprimere, in rei memoriam, & suam, vbi domum rediisset, delectationem. Inter eas verò, quas in illo libro expressas habebat, binas singulares admodum & admirandæ naturæ conspiciebam, quarum exemplar ab ipso nullâ difficultate impetraui: nam ipse-met post aliquot dies viuus coloribus expressas attulit, & dono mihi dedit, cum Ciuetæ animalis, & Aranei siue phalangii cuiusdam monstrofi iconibus ad viuum expressis, quia illorum exemplar etiam desideraueram, vt in Auctario quod meis lucubrationibus iam in lucem prolatis adiungere habeo in animo, locum etiam habent. Arborum autem illarum icones cum à nemine adhuc sint exhibitæ, nec ipsæ arbores descriptæ, eas cum qualicumque historia, qualem videlicet ab Ioanne van Ufele habere potui, lectoris oculis proponere volui.

Mamoera semina.



MAMOERA

[37] Ioannes van Ufele and the Pawpaw from Brazil, in: Carolus Clusius, *Curæ posteriores* (1611).

tiones: quibus & omnia ipsius opera, aliáque ab eo versa augentur, aut illustrantur: accessit seorsim Everardi Vorstii [...] de eiusdem Caroli Clusii Vita & obitu oratio, aliorumque Epicedia (Leiden [& Antwerp]: Officina Plantiniana, 1611).

[UBL 532 E 18]

Clusius built up a great reputation during his long career as a botanist. Many people contacted him with questions and requests, and many also sent or showed him various kinds of interesting and often exotic naturalia. One of these was a shipping agent and traveller from Rotterdam, Ioannes van Ufele (or Hans van Uffelen), who went to Brazil between 1598 and 1601. He returned to Holland with a book full of coloured pictures of exotic plants and animals, which he showed to Clusius in 1607. This is how Clusius came to know about the pawpaw. *Mamoera Lusitanorum*, as it was called by the Portuguese of the *Baya de todos los Sanctos* (Brazil), whose latitude is correctly given as 13° S, is nowadays called papaya or pawpaw (*Carica papaya*). It is native to South America, but today it is grown in the tropics all over the world for its edible fruits. Clusius depicts not one, but two specimens: the fruit-bearing female (*Mamoera foemina*) and the male plant (*Mamoera mas*), which only bears pollen-producing flowers. He correctly interpreted the situation, which is not uncommon among plants: male and female flowers are produced by different plants, and the female plant needs a male in the vicinity if it is to bear fruit. Ioannes van Ufele also showed Clusius a picture of a tarantula (*Phalangium Americanum*) that he had observed in the same region of Bahia, Brazil. (GvU)

Hunger (1927); Mabberley (2008); Otten (1918), p.XXIV, XXV and 13.

[38] The first description of the potato plant, in: Carolus Clusius, *Rariorum aliquot stirpium per Hispanias observatarum historia, libris dvobvs expressa [...]*. Antverpiæ: ex Officina Christophori Plantini [...], 1576.

[UBL 661 A 3; 755 A 3:1; THYSIA 2208]

Clusius was the first botanist to describe the potato (*Solanum tuberosum*), which comes originally from South America. In 1588 Clusius managed to grow potato plants from the tubers which he



Hic Solano plures ex eadem radice prodeunt caules, cubitales aut ampliores, factis crassi, rotundi, in aliquot ramos candidantes & lanuginosos divisi: quibus inhaerent numerosa folia, bina semper ex adverso sita, mali coronei folijs similia, densa, mollia, lanuginosa, & gustu aliquantulum calida: flores terni aut quaterni inter folia, pallidi, longiusculi, quadrifariam divisi, caules & ramos ambiunt, quibus succedit acini, in molli lanugine pubescentibus folliculis, maturitate vel rubri coloris, vel ex rubro crocei: radix subest longa, crassa, dura, fusci coloris cortice donata.

Solanum somniferum.

Nascentem videbam hanc plantam in inferiore arce urbis Malacæ, vulgo *Malaga* dictæ, ad mare Mediterraneum in Hispaniâ sita, loco petroso, & interrudera: florentem & semine maturo præditam Februario. Illic vivacem, & plures annos perdurare certum est: nam superiorum annorum caules adhuc retinentem conspiciebam: apud Belgas, atque etiam in Germaniâ singulis annis serenda est: neque enim ad frugem pervenire, neque hiemem ferre posse didici, aliquoties factò ejus rei periculo.

Diosc. *σπύγγιον ὑπνωτικόν & ἀλκαδικακόν* *Namina*, appellat: Theophrastus *σπύγγιον ὑπνωτικόν*: Latini Solanum somniferum. Plinius etiam Halicacabum vocat & Morion. Malacenses *Orv* alè dicebant.

RADICIS cortex, teste Dioscoride, in vino, drachmæ pondere potus, somnificam vim habet, Papaveris succo mitiorem, & ejus fructus vehementer urinam cit. Verùm, ut rectè Plinius, auxilia ejus non sunt tanti, ut ijs commemorandis diutius inhaerendum sit, præsertim tantâ copiâ innoxiorum.

SOLANI porrò genus illud quod lethale vocant, & Theophrasti Mandragoras esse, à quibusdam non ineptè fortè censetur, apud vulgus Italorum *Bella donna* nomen obtinuit.

Solan. leth. Mandragora Theoph.

HH apud

[38] The first description of the potato plant, in: Carolus Clusius, *Rariorum aliquot stirpium per Hispanias* (1576).

had received from one of his contacts in the Southern Netherlands together with a beautiful watercolour of the plant and its tubers (now in the Plantin Museum, Antwerp). Clusius first described the plant in 1588, and during the following years corresponded with various plant lovers in order to make his description as accurate and detailed as possible. It took until 1601, however, before Clusius' description of the potato was published (in his *Rariorum plantarum historia*). By then, descriptions by other botanists, such as Gaspard Bauhin and John Gerard, had already appeared in print. It was nevertheless Clusius who made the potato widely known among botanists and plant lovers all over Europe via his extensive network. In his description of 1601 Clusius could even state that potato plants were to be found everywhere in gardens in Germany.

As Clusius remarked, it had taken plant lovers and botanists rather a long time to discover this plant, which in centuries to come was to become an important staple in Europe. It reached the Canary Islands around 1562 and Spain and Italy some five years later, but seems to have escaped the attention of botanists for almost twenty years.

As to the flavour of the tubers, Clusius informed his readers that it was rather pleasant: he used to eat them quite frequently boiled in a broth of mutton with turnips and rapes. (SvZ)

Clusius (1601); Salaman (1985).

Clusius and the Exotica

Animals and other fantastic creatures

[39] The Civet cat, in: Carolus Clusius, *Curae posteriores, seu plurimarum non antè cognitarum, aut descriptarum stirpium, peregrinorumque aliquot animalium novae descriptiones: quibus & omnia ipsius opera, aliáque ab eo versa augentur, aut illustrantur: accessit seorsim Everardi Vorstii [...]* de eiusdem Caroli Clusii Vita & obitu oratio, aliorumque Epicedia (Leiden [& Antwerp]: Officina Plantiniana, 1611).

[UBL 532 E 18]

The information about the civet cat in Clusius' *Curae Posteriores* (p. 109) was mainly meant to correct that contained in Pierre Belon's *Les observations de plusieurs singularitez et choses memorables, trouvées en Grèce, Asie, Judée, Egypte, Arabie et autres pays estranges* (1553); the first Latin translation – by Clusius – of that work had appeared in 1589. Belon had erroneously identified the civet cat with the hyena, and Clusius' illustration, as he explained, gave a better idea than Belon's picture of the general shape of the animal; it showed the gland which secreted civet, the 'priceless liquid'; and it was based on a coloured picture made by the Dutch shipowner Hans van Uffelen, who had drawn it from life.

Civet cats and civet or musk (which is still used in the perfume industry) were known in Europe since the fifteenth century. The animals soon became a prized possession, especially in the circles of royalty. As queen of a maritime empire, Catherine of Portugal, a sister of Emperor Charles V, was one of the best placed persons in early sixteenth-century Europe in terms of access to exotica from Asia and Africa. As early as 1530 she had her own agents in Asia to buy exotic goods and animals, and around the middle of the century she started her own civet cat breeding programme. Her cats were housed in special quarters in Lisbon, where she employed a Spanish specialist to take care of them. Their offspring and their musk made perfect diplomatic gifts, while she sold the animals themselves at an enormous profit. (FE)

Clusius 1611; Belon 1553; Pérez de Tudela & Gschwendt 2001, p. 1-127; Pérez de Tudela and Gschwendt 2007, p. 419-447; Dannenfeldt 1985, p. 403-431.

PETRI BELLONII
LIBRO SECVNDO.

Pag. 95 ad capitulum de Civetta calcem adde sequentia verba.

CIVETTA.



Cum Bellonius cap. xx. Lib. 1 1. Observationum; Civettam;
quam veterum Hycnam magno errore esse arbitratur, satis scite de-
scripserit.

○ 3

[39] The Civet cat as depicted in: Carolus Clusius, *Curae posteriores* (1611).

[40] The armadillo, in: Nicolás Monardes, *Primera y segunda y tercera partes de la Historia medicinal, de las cosas que se traen de nuestras Indias Occidentales* [...] (Seville 1580).

[UBL 526 F 24]

The armadillo, a distant relative of the sloth, is endemic to North and South America. It was frequently found in sixteenth-century European collections of curiosities and appears in European representations from the 1520s on, especially in allegories of America. In a letter to Clusius of November 1602, Jacques Plateau distinguished three types of armadillo. The first was the type that had already been described and illustrated by Clusius in his annotations to Nicolás Monardes, *Primera y segunda y tercera partes de la Historia medicinal, de las cosas que se traen de nuestras Indias Occidentales* [...] (Seville, 1574), published as Volume X of the *Exoticorum*. While Monardes had included a very rudimentary woodcut and noted the medicinal use of the armadillo's tail, Clusius' annotations provided a fuller description of the animal. This type was immortalised in the group of American attributes (including an opuntia cactus) of the Río della Plata in Gian Lorenzo Bernini's *Fontana dei Quattro Fiumi* in the Piazza Navona, Rome, completed in 1651. Plateau's second type of armadillo was a smaller version of the first type. The third type, however, was very different, and Clusius claimed to be the first to describe and illustrate this hairy specimen. Jacques Plateau sent Clusius a coloured image of this type of armadillo, which is the model for the woodcut, but failed to include any dimensions. When Clusius insisted on the need for the creature's vital statistics, Plateau obligingly sent them on later. (PM)

Egmond and Mason 1994, p. 3-52.

[41] The Sloth, in: Carolus Clusius, *Exoticorum libri decem: quibus animalium, plantarum, aromatum, aliorumque peregrinorum fructuum historiae describuntur. Item Petri Bellonis observationibus* [...]. [Lugd. Bat.]: ex Officina Plantiniana Raphelengii, 1605.

[THYSIA 2202; UBL 775 A 3:2]

de nuestras Indias: que sirven al uso de Medicina. 66

EL ARMADILLO.



ESTE Animal saque de otro natural, que esta en el Museo de Gonçalo de Molina: vn cauallero desta ciudad, enel qual ay mucha cãridad de libros de varia lectiõ, y muchos generos de animales y aues, y otras cosas curiosas, traydas afsi dela India Oriental, como Occidetal, y de otras partes del mundo, y gran copia de monedas y piedras antiguas, y diferencias de armas, que con gran curiosidad y con generoso animo ha allegado.

K z Traen

[40] The armadillo in his natural habitat, in: Nicolás Monardes, *Primera y segunda y tercera partes de la Historia medicinal* (1580).

Legendary for its slow pace, and jokingly called a ‘nimble puppy’ by the Portuguese, the sloth is native to Central and South America. Clusius obtained his first image of a sloth via one of his correspondents, Dietrich Clemensz Coornhert, who arranged for a drawing to be made of the preserved sloth that was in the collection of Rutger Jansz in Amsterdam. Clusius soon realised that the illustration based on a stuffed specimen was not very accurate. The second image of a sloth came into Clusius’ hands after the first six books of the *Exoticorum libri decem*, containing the woodcut of the stuffed sloth, had already been printed. This time it came from the famous floriculturist and merchant in rare and curious specimens Emanuel Sweerts. He told Clusius that he had acquired a sloth in Amsterdam which had died on the voyage from America only a few days before. Sweerts obligingly dispatched the sloth to Clusius, who included a woodcut of this creature and a description of it in the 21-page appendix to the *Exoticorum libri decem*. Clusius did not know that the sloth is unable to support the weight of its body in an upright position. This second image reappears in many later publications, such as the works of Juan Nieremberg, John Johnston, and the *Historia naturalis Brasiliae* by Willem Pies and Georg Markgraf (1648). (PM)

Ashworth Jr 1985, p. 46-66; Mason 2000, p. 20-31; Mason 2009.

[42] Magellanic penguin, in: Carolus Clusius, *Exoticorum libri decem: quibus animalium, plantarum, aromatum, aliorumque peregrinorum fructuum historiae describuntur. Item Petri Bellonis observationibus [...]*. [Lugd. Bat.]: ex Officina Plantiniana Raphelengii, 1605.

[THYSIA 2202; UBL 775 A 3:2; JL *Libri Picturati* A17.026]

Clusius was the first to describe the Magellanic penguin (*Anser magellanicus*) for the scientific community. He drew his information from the log of the 1598 expedition of Jacques Mahu and Simon de Cordes to the Strait of Magellan. The Dutch sailors called the birds penguins because of their fat (*pinguis*) – they were used as fuel in ships’ boilers in the 19th century – but Clusius preferred to classify them as geese. An account of the voyage provided Clusius with the illustration of a Magellanic penguin in the *Exoticorum Libri Decem*. Its source is an engraving of Dutch sailors



[41] Description and illustration of the Sloth in: Carolus Clusius, *Exoticorum* (1605).



[42] The Magellanic penguin as depicted in the *Libri Picturati*
[Jagiellonian Library, Kraków].

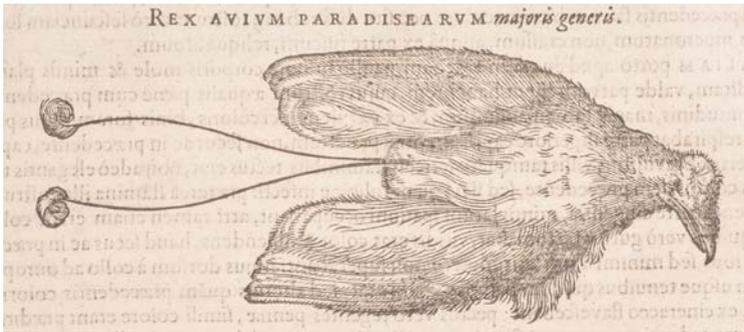
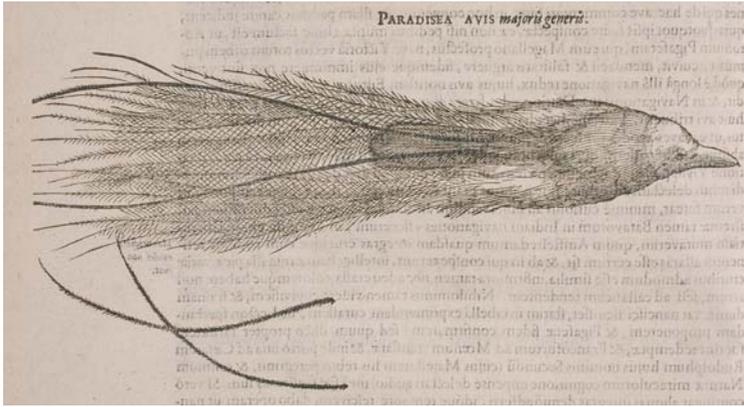
killing penguins for food on the Island of Penguins (Elizabeth Island) in B.J. Potgieter's *Wijdtloopigh verhael van tgene de vijf schepen (die int jaer 1598 tot Rotterdam toegherust werden / om door de Straet Magellana haren handel te drijven) wedervaren is [...]*, published by Zacharias Heyns in Amsterdam in 1600. In the following year Heyns issued a collection of national dress, *Dracht-Thoneel*, as a guide for stage productions. Curiously, this volume included a woodcut of the Magellanic penguin with webbed feet like those of a duck. Another version of the penguin, but with more claw-like feet, appeared in Part 2 of the ninth volume of the encyclopaedic work *America*, published in a German-language version by the De Bry brothers in Frankfurt in the same year of 1601. It was not long before the Magellanic penguin appeared in European collections: Rudolf II had one in his bestiary and *Kunstkammer*. (PM)

Clusius 1605, p. 101; Potgieter 1600.

[43] Birds of Paradise, in: Carolus Clusius, *Exoticorum libri decem: quibus animalium, plantarum, aromatum, aliorumque peregrinorum fructuum historiae describuntur. Item Petri Bellonis observationibus [...]*. [Lugd. Bat.]: ex Officina Plantiniana Raphelengii, 1605.

[THYSIA 2202; UBL 775 A 3:2]

After his death on the 21st of January 1609 Josephus Justus Scaliger (1540-1609) bequeathed by testament two Birds of Paradise to his good friend Clusius. Scaliger owned a modest collection of naturalia and exotica during his life. After a visit to the well known collection of Bernardus Paludanus (ca. 1550-1633) in Enkhuizen, Scaliger is supposed to have offered the greater part of this collection to Paludanus. However, at the end of his life he still owned two Birds of Paradise. The Bird of Paradise is one of the most famous and almost emblematic naturalia and exotica in the 16th and 17th century. The story of these creatures, which one believed to be spending their entire lives in the air, needed no legs to touch the ground on any occasion. In emblem books the bird is often depicted utterly unconcerned with earthly matters. The first birds came from Ambon or Banda (The East Indies) and were transported to Lisbon, whence they reached the cabinets of curiosity of the rest of Europe. These birds were already disposed of the legs before they reached



[43] Two of the 'legless' Birds of Paradise as depicted in:
Carolus Clusius, *Exoticorum* (1605).



[44] The Flying Dragon according to Pierre Belon in his *Plvrimarvm singlarium & memorabilium rerum in Græcia, Asia, Ægypto, Indæa, Arabia* (1589).

Europe because the native hunters cut off the feet to enhance the preservation of the skin of the bird. Nearly all 16th century naturalists did believe in the absence of legs of this bird. Clusius had no desire to get involved in disputes over the bird, but eventually took up the matter in an appendix to the *Exoticorum*. Clusius admitted he himself had believed in the absence of legs for he had seen many legless specimens in Spain and the Netherlands. But new evidence (from the sailors who brought the bird in the Indies and older sources like Antonio Pigafetta (b 1491)) convinced Clusius the birds did have legs, like all other birds (just like Aristotle had written). Clusius did get a chance to see the evidence himself when a number of birds were brought by Dutch sailors to Amsterdam in 1605. Clusius tried to lay his hands on them, but did not succeed in this because the birds were swiftly sold to the Holy Roman Emperor Rudolf II (1552-1612) and sent to his *Kunstkammer* in Hradschin castle in Prague. In a letter to Clusius, dated 13 June 1605, Jan van Weely wrote about the legs of these Birds of Paradise: they have legs indeed, like the sparrow hawk, which are kept pressed against the belly so one could not see the claws. The legs are extremely ugly and Van Weely completely understood the indians that they cut off the legs as soon as they could. (KvO)

Ogilvie 2006, p. 248-252; Kenseth 1991; Du Rieu 1881, p. 47; Letter from Jan van Weely to Carolus Clusius, Amsterdam 13 June 1605. See: <https://socrates.leidenuniv.nl> .

[44] The Flying Dragon, in: Pierre Belon, *Plvrimarvm singvlarium & memorabilium rerum in Græcia, Asia, Ægypto, Indæa, Arabia, aliisq̄. exteris prouinciis ab ipso conspectarum observationes, tribus libris expressæ / Carolvs Clvsivs Atrebas è gallicis latinis faciebat*. Antverpiæ: ex officina C. Plantini, 1589.

[UBL 180 E 3:2]

Pierre Belon (1517-1564), a doctor and naturalist also known by the Latinized name of Petrus Bellonius Cenomanus, was born in Le Mans. Between 1546 and 1549 he travelled through Greece, Asia Minor, Egypt, Palestine, and Arabia, about which he published his *Observations* in 1553. Clusius translated this work into Latin and published it in 1589; he also included it as an appendix to his

Exoticorum Libri Decem of 1605. In 'Portus Sues' (Egypt) Belon observed a small dragon-like animal. It was probably a specimen of a 'Flying Dragon', a genus of gliding lizards from South-East Asia. Linnaeus named this genus *Draco*, referring, like Belon, to the mythical dragon. The animal features movable ribs to which folds of skin are attached; these can be unfolded to form 'wings'. In this way a gliding lizard can glide from tree to tree over distances of several metres. The *Draco* depicted here lacks hind legs; it is a mutilated specimen. All lizards have four legs, and their 'wings' are not attached to limbs, whereas the wings of bats are attached to their front limbs and are employed in active flying. In his comments appended to Belon's *Observationes*, Clusius states that this 'winged serpent' caused so much comment that it was probably a fake. Monsters deliberately fabricated from skates and rays – so-called Jenny Hanivers – were well known at the time. Belon's 'dragon' appears to be a genuine species, however, even though it has lost its hind legs. (GvU)

Ley 1941.

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Gerda van Uffelen is a botanist who obtained her PhD at Leiden University with a study on the development of spores in the fern family *Polypodiaceae*. She got involved with Carolus Clusius during the preparations for the fourth centenary of the *Hortus botanicus Leiden* in 1990, where she is now collection manager. She was one of the editors of *Drawn after Nature* (2008) and is responsible for the planting of the Clusius garden, a reconstruction of the first layout of the *Hortus*. (GvU)

Sylvia van Zanen (1970) studied French literature in Leiden. She specialized in book history, continuing the research of the late dr. Van Selm concerning the sixteenth- and seventeenth-century editions of the *Amadis de Gaule*-romances of chivalry. After her graduation she worked for several years for the Koninklijke Bibliotheek, the Dutch national library. Since 2005, she works as a PhD-student for the Clusius project. Her research concerns the contributions of the community of European plant lovers to Clusius' research, with an emphasis on non-university trained persons. (SvZ)

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Abbreviations

JL	Jagiellonian Library, Kraków
Herbar	National Herbarium of the Netherlands
THYSIA	Bibliotheca Thysiana, Leiden
UBL	Leiden University Library

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The Netherlandish humanist Carolus Clusius (Arras 1526- Leiden 1609) is one of the most important European botanists of the sixteenth century. He is the author of innovative, internationally famous botanical publications, he introduced exotic plants such as the tulip and potato in the Low Countries, and he was advisor of princes and aristocrats in various European countries, professor and director of the Hortus botanicus in Leiden, and central figure in a vast European network of exchanges.

On 4 April 2009 Leiden University, Leiden University Library, The Hortus botanicus and the Scaliger Institute commemorate the quatercentenary of Clusius' death with an exhibition The Exotic World of Carolus Clusius 1526-1609 and a reconstruction of the Clusius Garden.



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