

Federico Cesi (1585–1630) and the correspondence network of his *Accademia dei Lincei*

ANDREA UBRIZSY SAVOIA

Dipartimento di Biologia Ambientale, Università di Roma ‘La Sapienza’, Piazzale Aldo Moro 5, 00185 Roma (Italy)
e-mail: andrea.ubrizsy-savoia@uniroma1.it

ABSTRACT

The difficulties in the circulation of ideas due to geographical distance are very noticeable in the work of the founder of the Academy of the Lincei, prince Federico Cesi. He was convinced that only collaboration between several scientists would widen the scientific horizons. The activities of the Academy were regulated by a statute written in Latin, the Lynceographum. In this document Cesi pointed out the necessity of ‘diminishing’ geographical distances through ‘peregrination’ and the foundation of similar institutions, so-called Licei, in Italy and abroad. This paper focuses on the long publication process of the Mexican Treasury (1611–1651), in which the extent of Lyncean network can be observed, and draws attention to the many practical difficulties that needed to be overcome in the collaboration between geographically separated scholars.

Keywords: Accademia Dei Lincei; correspondence networks; Italy

In 1603, the young Roman Prince Federico Cesi (1585–1630) formulated an ambitious programme for the development of science.¹ In order to implement this programme he established a scientific society aimed at the understanding of all natural sciences.² The other founding members were Francesco Stelluti, Anastasio de Filiis and the Dutchman Joannes

1 Giuseppe Olmi, ‘In esercizio universale di contemplatione et prattica’: Federico Cesi e i Lincei’, in: L. Boehm & E. Raimondi (eds.), *Università, Accademie e Società scientifiche in Italia e Germania dal Cinquecento al Seicento* (Bologna 1981) 169–235; Giuseppe Gabrieli, *Contributi alla storia dell’Accademia dei Lincei*. 2 vols. (Roma 1989); Irene Baldriga, *L’occhio della lince. I primi lincei tra arte, scienza e collezionismo (1603–1630)* (Roma 2002); David Freedberg, *The Eye of the Lynx. Galileo, his Friends, and the Beginnings of Modern natural History* (Chicago/London 2002); Giuseppe Montalenti, *Federico Cesi e l’Accademia dei Lincei* (Napoli 2006).

2 Silvia De Renzi, ‘Writings and talking of exotic animals’, in M. Frasca-Spada & N. Jardine (eds.), *Books and the Sciences in History* (Cambridge 2000) 151–167.

van Heeck, Latinized Heckius.³ Heckius was born in the town of Deventer in the Northern Netherlands on 2 February 1579 and came from a well-to-do Catholic family. It was his idea to name the society the *Accademia dei Lincei*: its name refers to the penetrating eyes of the lynx. Cesi adopted the lynx as a symbol of his academy's desire to penetrate the mysteries of nature.

Cesi lived in an age of great transformations in science, at the turning point of a period characterized by an amazing growth of the knowledge of natural history, in particular as a result of the great voyages of discovery and the use of new instruments of observation. His initiative was not well received by his family. His father would have preferred his son to manage the family property instead of him spending large sums on 'frivolous' activities and receiving persons in their home whom the father regarded as 'hardly commendable'. Alarmed by the activities of the four friends believed of having set up an esoteric sect, and by the influence of the unconventional Heckius on his son, Cesi senior denounced this foreign guest to the Inquisition. Such pressures and intimidations caused the group to break up. Heckius, who had graduated from Perugia, and was the only one of the four founding members with a university education, began to travel all over Italy. Subsequently, he crossed the Alps and began a long period of travels all over Europe, from England to Norway, and from France to Poland, passing through Germany and Bohemia. Cesi had asked him to establish contact with the most illustrious scholars in the various countries and to acquire books, at the prince's expense, for the library of the Academy. Cesi kept up correspondence with Heckius. The latter never forgot to note down his observations during these journeys and to send them to his friends in Italy. The University Library of Montpellier owns the results of these efforts: its collection comprises a few travel notebooks by Heckius entitled *Fructus itineris ad Septentrionales*.⁴ In 1605 the Dutch naturalist returned to Italy, but in 1616 his 'mental unbalance' led to his expulsion from the Academy.

Once the young Cesi had come of age, he moved to Naples in order to loosen the ties with his family and to gather new adherents, amongst them two of the most prominent investigators of the natural world: Giambattista della Porta (1535–1615), who joined the academy in 1610, and the Tuscan mathematician and astronomer Galileo Galilei, who joined in 1611. Della Porta, a Neapolitan nobleman and natural philosopher, had founded the first scientific society in 1560, the *Accademia dei Segreti* or *Accademia Secretorum Naturae*. He had been inspired by the literary academies of Naples. During the first half of the sixteenth century it was not unusual in Italy to create an academy, but these were usually very temporary phenomena, far removed from the humanist model; they generally had a literary character and only a few of them had a scientific programme. The Linceans can be regarded as a precursor of scientific institutions, not only in Italy but also in a much wider European context.

In Naples, Cesi summarized his ideas and projects that had been around for years in the *Accademia dei Lincei* in a lecture *Del natural desiderio di sapere et institutione de' Lincei per adempimento di esso*. Organized scientific research meant working together, sharing results –

3 On Heckius see Ada Alessandrini, Renzo Armezzani, Balilla Beltrame, Tiziana Gazzini, Elena Mezzanotte, Anna Nicolò, Ivo Quagliarini, *Francesco Stelluti, Linceo da Fabriano* (Fabriano, 1986); Gabrieli, *Contributi* (n. 1); Saverio Ricci, 'Il caso Heckius', in *I primi Lincei e il Sant'Uffizio: questioni di scienza e fede*, Atti del convegno, Accademia Nazionale dei Lincei (Roma 2005) 207–234.

4 Ada Alessandrini, *Cimeli lincei a Montpellier* (Roma 1978); Gabrieli, *Contributi* (n. 1).

without envy or rivalry – and mutual assistance. Cesi was convinced that only collaboration between several scientists, or even better, groups of scientists who coordinated their research and circulated their findings, would widen the scientific horizons. He proposed a kind of rationalization of scientific investigation that preferred collective to individual research and attached importance to even the smallest contribution. This kind of scientific investigation also had to satisfy practical demands, that is, it had to be useful.

Del natural desiderio is the most coherent statement of Cesi's approach to knowledge. He presented it at a meeting of the academy in Naples in 1616, but it was not published during his lifetime.⁵ Cesi repeatedly pointed to the necessity of bringing together the knowledge gathered in different towns, cities and countries. Cesi offered a solution in the form of a dense correspondence network. For Cesi and his companions the letter formed the unifying element, the cement of his Academy. As an institution it was founded on exchanges by means of letters; through such exchanges debate could develop and investigation could really become joint research.⁶

[The members of the Academy] will bring great and certain benefit to the greater propagation of letters and scholars and their service, in fact they will be able to have them available in any place whatsoever. [...] Hence the *Accademia dei Lincei* will be a congregation, a seminar, a redoubt or genuine retreat for teachers, writers and researchers in philosophy and mathematics in particular, but not without the adornment of philology; while, unified and based on the mutual affection of colleagues and of each and every one towards science, totally dedicated to and focused on that with sincerity of mind and an orderly exchange of assistance and correspondence.⁷

This type of contact and reciprocal exchange became, in fact, obligatory in the circles of the Linceans, also in order to give the Academy an international character. Because actual meetings between researchers were, by necessity, rare, exchanges by letter could help overcome some difficulties. Cesi's project did, in effect, help to overcome local and even national boundaries. It anticipated a tendency which would become manifest all over Europe a few decades later: the Academy aimed to bring together researchers from all parts of the world.

The establishment of correspondence networks

The activities of the Academy were regulated by a statute written in Latin, the *Lynceographum*, drafted in the years 1605–1612. A first draft dates from 1604, but was never published. The statute laid down the organizational structure of the Academy and the basic outlines of its programme, as well as providing guidelines for the lives of its members. It was conceived

5 The manuscript is preserved in the Biblioteca Nazionale of Naples. Reprinted in: Carlo Vinti & Antonio Allegra (eds.), *Federico Cesi, Opere scelte* (Perugia 2003); see also Montalenti, *Federico Cesi* (n. 1).

6 Irene Baldriga, 'The role of correspondence in the transmission of collecting patterns in seventeenth-century Europe: models, media and main characters'. In: Francisco Bethencourt, Florike Egmond (eds.) *Correspondence and cultural exchange in Europe, 1400–1700*, vol. 3 (Cambridge 2007), 187–216.

7 '... riporteranno copioso e sicuro frutto a maggior propagatione delle lettere e delli studiosi e loro servitio, anzi potranno haverli pronti in qualsivoglia luogho. [...] Onde sarà l'Accademia de' Lincei una congregatione, un seminario, un ridotto o vero ritirata di professori, scrittori e sperimentatori in filosofia e mathematica particolarmente, né però senza l'ornamento di filologia; mentre, ben unita e fondata nell'amore de' collegi tra di loro e di tutti e di ciascuno verso la sapienza, a quella totalmente dedicata et indirizzata con sincerità di mente e buon ordine di scambievoli aiuti e corrispondenza'. See: Cesi, *Opere* (n. 5) 50 and Montalenti, *Federico Cesi* (n. 1) 98.

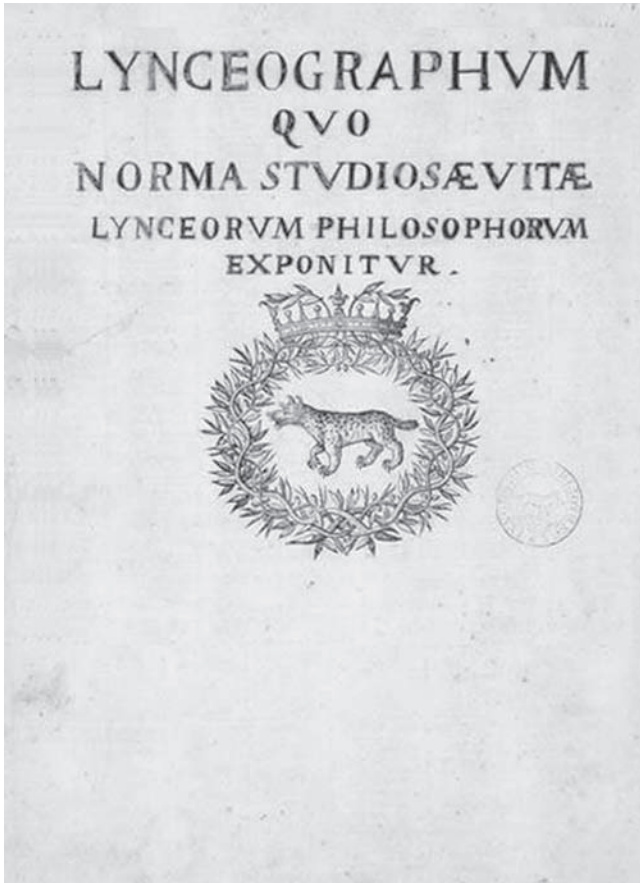


Fig. 1: The *Lynceographum* drafted in 1605–1612, but never published (only a critical edition in 2001). [Ms Arch. Linceo 4, Biblioteca dell'Accademia Nazionale dei Lincei e Corsiniana, Roma].

by Cesi and successively adapted by some of the founding members. Four manuscript versions of it are still extant, which are now in Rome and Florence. A revised version of the *Lynceographum* was published in 1623–1624 by Johannes Faber under the title *Praescriptio-nes Lynceae Academiae*.

In this document Cesi comes back to the necessity of 'diminishing' geographical distances through 'peregrination'. The grand project comprised the foundation of similar institutions, so-called *Licei*, elsewhere in Italy and abroad. The cities mentioned as potential seats had been chosen strategically: Naples in the 'heart of central Italy'; Padua as a 'city famous for its university'; Vienna 'where Germans, Bohemians and Hungarians meet'; and Paris with its 'outstanding university'. Other locations were Augsburg (residence of the Academy member Marcus Welser), Cologne, Spain and Lisbon ('connected by trade with the Indies'), Louvain, and further eastwards Poland, which was free from Turkish occupation. There were even plans to extend activities to Asia, Africa, and the Indies. Members of the Academy can and should visit these *Licei* dispersed over many places. Thus, Cesi envisaged

the creation of a community, based on fraternity and friendship between its learned members, whose *patria* was the world.

The expediently distributed *Licei* and the involvement of scholars from various parts of Europe did not yet seem sufficient to ensure the wide circulation of knowledge to which the Linceans aspired. Forming part of the network of intellectuals which had come into being during the second half of the sixteenth century was necessary to ensure the Academy access to this flow of information. It was the Dutchman Heckius who was charged with contacting the main figures of natural history research and the 'République des Lettres' in Northern Europe, in order to profit from the circulation of information and obtain wide recognition of the Linceans among the circles of the European scientific community.

In an appendix to a letter from Cesi to Galileo of 2 June 1612, Cesi further developed his views on the use of correspondence networks.⁸ Cesi no longer considered the term 'epistole' to refer simply to letters containing the conventional greetings and news updates about political events or persons of common interest. For him they ought to be genuine periodical accounts of the progress of the studies conducted by the members of the Academy:

[The members of the Academy] should often greet the Prince with letters and put him in the picture regarding their own affairs and studies, and also all the Lincean brothers at least once a year, around the 17th of August.⁹

But this network was not sufficient for the dissemination of knowledge to which the Linceans aspired. Therefore Cesi not only wanted to provide the scattered members of the *Licei* with specific structures to promote their research activities, but also planned to encourage and sponsor publications by the members:

[The members of the Academy] should ask the Prince's advice on the merit of the publication of a volume [...] and should donate one copy to each Lincean and three to the Lincean library. If they are unable to print the volume at their personal expense, they should know that, if they wish or request, after receiving the approval of the librarian, such works can be printed at the expense of the Prince or of the Academy.¹⁰

Publishing research findings – like joint investigation – was an obligation laid down in the regulations of Cesi's institute, and it forms yet another respect in which the Academy differed in a fundamental way from the other Italian academies. Books are the best means to transmit and spread the results of research, as has happened so often in the past. Books, which were the best means to communicate research findings to a larger public and to prevent important scientific discoveries from vanishing in the course of time, also functioned for the Lincean Academy as a visiting card, as an efficient means of propaganda.

8 *Ristretto delle costituzioni lincee* (the appendix to a letter from Cesi to Galileo of 2 June 1612). Giuseppe Gabrieli (ed.), *Il Carteggio Linceo della Vecchia Accademia di Federico Cesi (1603–1630)*, 2 vols. (Roma 1938–1942, reprint 1996), letter no. 321.

9 The *Collegio o Ordine Linceo*, or Lincean Academy, was founded on 17 August. Gabrieli, *Carteggio* (n. 8) 229–231.

10 *Ibidem*.



Fig. 2: Text and image of maize with autographed notes by Cesi in a copy of the 1649 edition of the *Rerum Medicarum Novae Hispaniae Thesaurus*. [Biblioteca dell'Accademia Nazionale dei Lincei e Corsiniana, Roma].

An Ambitious project: the 'Mexican Treasury'

Given the great number of their projects, the Linceans published an astonishing small number of works, but all of them expressed their desire to acquire knowledge, in particular about distant places. This is testified by the magnificent edition of the *Rerum Medicarum Novae Hispaniae Thesaurus seu plantarum animalium mineralium Mexicanorum historia ex Francisci Hernandez Novi Orbis medici primarii relationibus in ipsa Mexicana Urbe conscriptis a Nardo Antonio Recchio [...] collecta ac in ordinem digesta a Ioanne Terrentio Lynceo [...] notis illustrata [...]* (Rome 1651), or 'Mexican Treasury' as it was commonly known, the result of the joint efforts of the Linceans.

The *Mexican Treasury* is an encyclopaedia of the New World, based on an extensive manuscript report entitled *De Historia Plantarum Novae Hispaniae* preserved in 16 big volumes containing text (6 volumes) and (some 4000) images (and 4 volumes added later). It had been compiled by the court physician of Philip II of Spain, Francisco Hernández (1515–1587) partly on the basis of his direct observations. Hernández had been sent to Mexico by Philip in 1570/1571–1577 in order to collect information about plants, animals, and minerals. This was the first scientific expedition ever to explore the resources of Latin America. During a temporary halt in Mexico City, Hernández, who was assisted by capable indigenous artists, had coloured drawings made of many hundreds of plants and animals, bringing together an extraordinary and unique documentation of the fauna and flora of the New World. Back in Spain, his work was received rather coldly by Philip, who desired only a list of plants from the New World which could be imported into Europe and used

as the basis for medicinal drugs. Consequently Philip decided that the material collected by Hernández would be stored in the library of the Escorial, and that another physician, though one with little naturalistic orientation, the Italian (Leo)Nardo Antonio Recchi,¹¹ would be commissioned to make a summary of Hernández' material, illustrating exclusively those plants with medicinal properties which could be used for the original goals of the expedition. Recchi completed this summary under the title *De Materia Medica Nouae Hispaniae* in 1582 and selected some 800 out of Hernández' illustrations in ten volumes. The king's decision was an economic one – publication of the complete material would have been extremely expensive – but we might agree in this respect with Henry Reeves,¹² who suggested that Spain, unlike the major colonizing nations England, Portugal and France, deliberately withheld knowledge of New Spain's vast resources in order to deter foreign competition.

A Castilian summary¹³ made by Fra' Francesco Ximenes on the basis of the Recchi material was published in Mexico City in 1615 under the title *Qvatro libros de la Naturaleza y Virtudes de las Plantas y Animales*¹⁴ but this publication remained unknown to the Linceans.¹⁵ It shows how far Recchi had gone in reducing and selecting material (a selection and reduction with which, it seems, Hernández did not agree).¹⁶ Recchi also replaced the rudimentary images made by Aztec hands¹⁷ with more sophisticated ones. The original of Hernández' work was destroyed by a fire in the Escorial in 1671.

Contemporary scholars were highly interested in Hernández' work and various manuscript copies of parts of it circulated at the time. The summary made by Recchi was quoted by J. Acosta in the Italian translation (1596) of his *Historia natural*. Juan Eusebio Nieremberg included in his own work on natural history (*Historia naturae maxime peregrinae*,

11 Nardo Antonio Recchi from Monte Corvino (ca. 1540–1595) was Hernández' successor as court physician and also chief physician of the Kingdom of Naples. Dora B. Weiner, 'L'opera del dottor Francisco Hernández e l'accoglienza europea del 'Tesoro Messicano' linceo', in: Antonio Graniti (ed.), *Federico Cesi: un principe naturalista (Acquasparta 29 e 30 settembre 2003)*, Accademia Nazionale dei Lincei (Roma 2006) 205–237.

12 Henry M. Reeves, 'Sahagún's *Florentine Codex*, a little known Aztec natural history of the Valley of Mexico', *Archives of natural history* 33 (2006), 2, 302–321.

13 He obtained this summary 'in a mysterious way'. See Weiner, 'L'opera' (n. 11) 227, but without illustrations.

14 Gustavo Casas Andreu, 'Nuevas interpretaciones y adiciones a los anfibios y reptiles en la obra del naturalista Francisco Hernández (1517–1584)', *Ciencia Ergo Sum*, 11 (2004) 308–312. The *Qvatro libros* may be the earliest natural history book to be published in the New World. J.M. López Pineros and J. Pardo Tomás discovered a copy of this work with an index in the faculty of medicine of the University of Montpellier. José Maria López Pinero and José Pardo Tomás, 'La edición romana de la selección de Recchi: vicisitudes del llamado Tesoro Messicano (1603–1651)', in *Francisco de Hernández. Nuevos materiales y noticias sobre la Historia de las Plantas de Nueva España* (Valencia 1994). Another copy has been discovered at the Universidad Complutense in Madrid. Miguel Figueroa-Saavedra, 'La materia medicinal de la Nueva España: indagaciones sobre su origen e historia', *Revista Española de Antropología Americana* 33 (2003b) 133–155. The original manuscript by Recchi was rediscovered in the John Carter Brown Library and published in 1998 by R. Álvarez Peláez.

15 De Renzi, 'Writings' (n. 2); Francisco Hernández, *The Mexican Treasury: the writings of Dr. Francisco Hernandez*, edited by Simon Varey (Stanford 2000).

16 De Renzi, 'Writings' (n. 2).

17 Some of the original images are included into the *Pomar Codex* (ca. 1590) which contains seven pictures of animals and twenty-five pictures of plants brought by Hernández. Cf. Miguel Figueroa-Saavedra, 'Hallazgo de un manuscrito inédito del doctor Francisco Hernández: Materia medicinal de la Nueva España', *Relaciones – Revista de El Colegio de Michoacán* 21, no. 81 (2003) 127–160.

Antwerp, 1635) 170 passages taken from Hernández' work deposited in the Escorial. Johannes de Laet in 1633 described 69 plants using Hernández' text.¹⁸ In 1586 Aldrovandi¹⁹ received information about it via the bishop of Piacenza, Filippo Sega. Aldrovandi also knew about the summary prepared by Recchi and taken by the latter to Naples. From Naples, della Porta informed Aldrovandi that 'the King has shown the book to his Council in Madrid, and he was told that the costs were high [...] and of little use; since they were of Indian plants that could not be used in Spain; and besides, the book had no order to it'.²⁰

In spite of the doubts expressed by the Lincean della Porta, and the many rearrangements of the material, which had left little of the original notes by Hernández, Cesi went in 1609–10 to see the Recchi manuscript. It had been left by Recchi to his nephew and was obtained by Cesi from the nephew (but without the illustrations) in order to publish it. The pictures remained in the possession of Recchi's heirs, but were briefly consulted by the Linceans. In the spring of 1611 Galileo admired Recchi's work and its colour illustrations in the house of Cesi in Roma. He also expressed his doubts, however, in a letter to Piero Dini, archbishop of Fermo: 'When I saw the paintings of 500 Indian plants recently in the house of the illustrious and excellent Marchese Cesi, my Lord, I had to declare that, either they were a fiction, denying that such plants are to be found in the world, or, if they did exist, it was vain and superfluous, since neither I nor any of those present knew their qualities, properties and effects'.²¹

The network in action

On 17 September 1611 Cesi wrote to Galileo 'I have ordered the start of the printing of the book on the Indian plants'.²² For clarity's sake, Cesi decided that Hernández' work, or rather the summary of it by Recchi, would have to be first revised by the Linceans. It would be published only after the corrections and additions required by new insights and information had been made. The magnitude of the undertaking, the slowness of the revision, and economic difficulties caused delays beyond anyone's imagination. Thus, it was only in 1628 that 1500 copies appeared, printed by Mascardi in Rome, and these contained only the zoological part in a critical edition by Johannes Faber: *Animalia Mexicana descriptionibus, scholiisque exposita. Thesauri rerum medicarum Nouae Hispaniae*. From this edition derives a whole series of later versions with various frontispieces and dates. The second frontispiece dates from 1630, the year in which Cesi died. His death was a great setback. The third frontispiece is dated 1648, and the various copies with this frontispiece show remarkable variations, at times even from one single copy to another.

The complete revised version including the plants was finally printed in 1649–1651. Comments, plates, many hundreds of plants and animals, indices and the so-called *Liber unicus*

18 Figueroa-Saavedra, 'La materia medicinal' (n. 14) and idem, 'Hallazgo' (n. 17).

19 Ulisse Aldrovandi (1522–1605), professor at Bologna University, asked the Grand Duke of Tuscany, Francesco I, to have copies made of some images by his ambassador in Spain. See Oreste Mattirollo, 'Le lettere di Ulisse Aldrovandi a Francesco I e Ferdinando I Granduchi di Toscana e a Francesco Maria II Duca di Urbino tratte dall'Archivio di Stato di Firenze', *Memorie della Reale Accademia delle Scienze di Torino*, series II, LIV (1903–1904), 354–401; Mario Cermenati, 'Ulisse Aldrovandi e l'America', *Annali di Botanica (Roma)* 4 (1906), 313–366; Alessandro Tosi, *Ulisse Aldrovandi e la Toscana: carteggio e testimonianze documentarie* (Firenze, 1989); Andrea Ubrizsy Savoia, 'Le piante americane nell'erbario di Ulisse Aldrovandi', *Webbia* 48 (1993) 579–598.

20 Biblioteca Universitaria Bologna, Ms Aldr. 136, tomo XIII c. 294.

21 Letter from Galileo to Piero Dini, 21 May 1611. Gabrieli, *Carteggio* (n. 8) 162, letter no. 64.

22 Gabrieli, *Carteggio* (n. 8) letter no. 250.

were added to the original core. The *Liber unicus* was part of the original text by Hernández that had been deposited in the Escorial. A copy was made in Spain on the orders of the Lincean Cassiano dal Pozzo in 1626 and brought to Rome. The long struggle to have the *Mexican Treasure* published ended successfully in 1651, but the whole process was so complex that no two copies are the same.

For the descriptions of American plants and animals the Linceans first of all made exhaustive use of all of the resources of traditional encyclopaedic botany and zoology, searching for similarities between the American species and known European ones. But a research method which looked for a symbolic meaning, the presence of New World naturalia in old proverbs, their moral significance, the use of their images on coins, etc., was no longer suited to modern reality. The Linceans tried to eliminate mistakes from the ancient tradition of natural history and establish their own credibility. We may well ask ourselves why Cesi and his companions, who were promoters of direct observation of nature as the basis for all types of scientific enquiry, chose such intractable material and undertook a major effort to deal with things they had never directly observed, originals which they had never even touched or seen through their lynx-like eyes, without their ever having had the opportunity to examine or experiment with any of the objects described, without being able to check the truth of what had been written by Hernández, or in fact, by someone else for him! What had happened to their critical sense? This whole undertaking seems in contradiction with Cesi's scientific procedures, which consisted of a combination of a systematic, and to some extent scholastic, mind-set with the meticulous observation of reality.

Cesi's choice may have been influenced by practical considerations, especially since one of the goals of the research of the Linceans (as expressed in *Del natural desiderio*) was to lead to practical results. Cesi indeed not only changed the title of the material acquired at Naples, but also wanted to give it a more systematic structure, based on criteria of utility and value. Before a work like that of Hernández could become significant and valuable to Old World medicine and natural philosophy, European naturalists needed to undertake a systematic exploration of all the naturalia in that work, identifying them, verifying information, and indicating their medicinal properties. Hernández' work did not lack order.²³ The method used by the Spanish physician consisted of grouping the plants in terms of the philology of their names in Nahuatl, which expressed their morphological, structural and environmental affinity and properties. In the translation much of this information had been lost. Furthermore, Hernández did not fully manage to coordinate concepts with Latin and Nahuatl names and therefore needed a better logical classification. When the whole enterprise is seen in this context, the real motives which induced Cesi to dedicate himself to such a difficult and expensive undertaking become understandable, as does his conviction that unknown species and animals which lived in the New World should be of interest to Europeans.

In the course of the preparation of the *Mexican Treasure* the Linceans felt the lack of direct observation, and tried to compensate for it by providing high-quality illustrations that could replace the original images in a satisfactory way. The engravings included in the printed volumes were intended to reveal in a more or less precise way – depending upon the artistic

23 J.M. López Piñero and J. Pardo Tomás, 'The contribution of Hernández to European botany and materia medica', in S. Varey, R. Chabrán & D. Weiner (eds.) *Searching for the secrets of nature. The life and works of dr. Francisco Hernández* (Stanford 2000) 122–137.

quality of the draughtsman – the newly acquired knowledge, and to present themselves as immediate illustrations and indispensable instruments of verification of what was described in the text. The importance of images for research had already been mentioned several times in the letters sent by Heckius to the Linceans during his wanderings in exile. In the following years, when both Terrentius and dal Pozzo could travel to Madrid in order to study the original images of Hernández, the Linceans made a great effort to finish the undertaking.

For the Linceans, illustrations became an essential part of their publications on natural history. The Neapolitan naturalist Fabio Colonna stressed the need to have illustrations of good quality.²⁴ In books on faraway places the inclusion of a wealth of illustrations became imperative, given the fact that the written word was inadequate to convey the reality of a nature which was so radically different. But the images made by mere observers were insufficient – skilled artists were needed, like those ‘famous painters whom I knew in Italy’, as Gonzalo Hernández de Oviedo had already written in the *Sumario de la natural y general historia de las Indias* (1526).

The *Mexican Treasure* is noteworthy because it is the result of the collaboration of several authors; Cesi and other Linceans, such as Francesco Stelluti, Johannes Schreck (*Terrentius*) from Konstanz, Fabio Colonna, Johann Schmidt (Faber) from Bamberg and Josse van Rycke (also Justus Rycquius, Rijcke, Ryckius, Ricchius). The latter, whose name was Italianized as Giusto Ricchio (Ghent, 1587 – Bologna, 1627) was a Flemish philologist, poet and archaeologist who travelled to Italy in 1606 for a ‘peregrinatio erudita’ in order to complete his humanist education. He remained for many years in Milan (as a guest of Cardinal Borromeo) and in Rome.²⁵ There he became secretary to Count Ludovico da Sarego, who put him in charge of his library. Around 1614 he returned home and settled in Louvain. At the end of his life we find him in Italy again, where he was appointed as professor of *Eloquentia* at Bologna in 1624. Cesi expected him to serve the Academy with his excellent knowledge of Latin. He was expected to assume responsibility for the correspondence of the Academy, supervise the correct stylistic and rhetorical use of Latin in the Lincean publications, and compose commemorative poems as well as epitaphs when any of the Linceans died.

Already in 1614 he was expected by Cesi to collaborate on the edition of the *Mexican Treasury*.²⁶ Although he only joined the Academy in 1625, Ryckius was certainly a crucial person

24 About Colonna, his ability of drawing and his relation to the *Mexican Treasure* illustration see Federico Tognoni, ‘Segnavia per Fabio Colonna illustratore’, in Andrea Battistini, Gilberto De Angelis & Giuseppe Olmi (eds.), *All’origine della scienza moderna: Federico Cesi e l’Accademia dei Lincei* (Bologna 2007) 395–466.

25 For Ryckius see also the writings by J. Roulez, ‘De Rycke (Josse)’, *Biographie Nationale de Belgique*, vol. 5 (1876) col. 689–691; R. van den Bergh, ‘Notice sur la vie et les œuvres de J. Rycquius’, *Messenger des sciences historiques* (Ghent 1880) 12–32, 189–208; *idem* (1881) 160–185, 457–477; Alphonse Roersch, ‘De Gand à Rome en 1624’, in: *Mélanges Godefroid Kurth: Recueil de mémoires relatifs à l’histoire, à la philologie et à l’archéologie*, 2 vols (Liège-Paris 1908) II, 239–250; Giuseppe Gabrieli, ‘Giusto Ricchio Belga: i suoi scritti editi e inediti’ (1933, reprinted in Giuseppe Gabrieli, *Contributi alla storia dell’Accademia dei Lincei* (Roma 1989) 1133–1164; *Idem*, ‘Ancora di Josse Rycke (Giusto Ricchio) panegirista o encomiatore ufficiale dei Lincei defunti nella prima Accademia (1941, reprinted in Giuseppe Gabrieli, *Contributi alla storia dell’Accademia dei Lincei* (Roma 1989) 1165–1175; and recently, concerning his relationship with Federico Borromeo: Roberta Ferro, ‘Accademia dei Lincei e Res publica litteraria: Justus Ryckius, Erycius Puteanus e Federico Borromeo’, in: Andrea Battistini, Gilberto De Angelis, Giuseppe Olmi (eds.), *All’origine della scienza moderna: Federico Cesi e l’Accademia dei Lincei* (Bologna 2007) 203–270.

26 Gabrieli, *Carteggio* (n. 8) 467, letter no. 367; 505, letter no. 405; 506, letter no. 406.

in the Lincean assembly as an important link between the Linceans and Flanders.²⁷ He was in continuous contact with the Academy and several of its followers: he corresponded with Faber as well as with Cesi, for whom he worked for some years, Antonio Persio, Marcus Welsler, Giovan Battista Lauro and Giuseppe Neri. He was also in contact with Francesco Barberini, Cardinal Federico Borromeo, as well as other prominent figures such as Erycius Puteanus, Daniel Heinsius, Philip Rubens, and the Flemish painter Theodoor van Loon.

Rycquius and other Linceans combined and critically compared the Hernández-Recchi material with information received via correspondence with travellers to the New World. All of the Linceans shared the point of view that voyages were of enormous importance, because they were well aware of the limits imposed on knowledge by distance. News about journeys which was transmitted by means of letters allowed scholars to share exceptional experiences and to continue conversations at a distance. Difficulties arose when letters were written not by scholars but by sailors and soldiers, who were often unable to provide precise details about the naturalia they had seen. The desire for information impelled naturalists to buy and carefully consult literally every available report by travellers, explorers and missionaries. With the help of such reports, European naturalists tried to imagine nature in the New World, even if the authors could not render justice in words to a nature that was new, magnificent, beautiful, as well as extraordinarily luxuriant (in terms of density and gigantic size), radically different and exuberant, and without reassuring similarities with that of the Old World.

International networks and patronage

In their discussion of distant and unknown nature the Linceans referred to sources which had already been published, but also to communication networks as indispensable resources for the scientific discourse. Here again, as in the *Lynceographum*, the importance of the international communication network of scholars, *litterati* and simple amateurs to the aims of the Academy becomes clear. These international networks served as vehicles for the knowledge which were extensively used in the production of the *Mexican Treasure*. The role of the Lincean chancellor Johannes Faber in this process of knowledge circulation was certainly crucial from 1611 onwards, and heavily indebted to the well-developed system of connections between Rome and the world north of the Alps which was created in the context of the Counter Reformation. Via the often geographically extensive chains of exchange, the Linceans (and Faber in particular) received publications about America, such as the works of Jean de Léry and José de Acosta. The compilation of the *Mexican Treasure* also profited from the practice of lending, which considerably increased the opportunities to consult books that were beyond the range of the Lincean libraries. Faber's comments on Mexican animals which he compiled during the second half of the 1620s, show the extent of the Lincean scientific communication network and provide significant examples of how this worked on a European scale.

By making use of the networks of the missionary orders which came together in the capital of the Catholic world, the Linceans attempted to overcome the lack of direct observation of American. For his redaction of the first part of the *Mexican Treasure* (1628) Faber used the testimony of father Gregorio de Bolivar on animals. Bolivar was a Spanish Franciscan missionary in America, where he had learnt some local languages. Bolivar, who arrived

27 Baldriga, L'Occhio (n. 1); Ferro, 'Accademia dei Lincei' (n. 25).

in Rome in 1625, destroyed his notes, maps and figures on Mexico (including plant and animals such as bees) before leaving Rome again because of the heavy attacks by the Congregation De Propaganda Fide.²⁸

Missionary Catholicism was undergoing a wave of renewal at the time in Spain and Italy. Besides serving powerful persons in the church,²⁹ these networks also provided a direct channel of communication with America, a privileged link between the scientific circles and the Spanish circles of the colonial market. In a letter of 25 November 1623 to Cardinal Francesco Barberini, Cesi mentioned that he looked through the *Mexican Treasure* and made a list of plants to be brought from Mexico by means of Jesuits or Dominicans thanks to the authority of the Cardinal; otherwise these specimens also should be obtained from Seville through the emissaries of the Cardinal in Spain.³⁰ These words illustrate how much Cesi would have liked to receive natural specimens directly from the New World via the network of the church.

Although well aware of the difficulties posed by distance, the Linceans viewed the city of the Pope as an exceptional opportunity. They could make use of its imposing resources in terms of connections and of the great potential offered by ecclesiastic patronage. But in a strongly aristocratic society like fifteenth and sixteenth century Italy, those who wanted to study nature and attain wide-ranging knowledge could not but try to obtain the support of princes, popes or cardinals. Patronage opened new channels of information and provided financial means. At one time, the patron of the Linceans was none less than Philip IV, king of Spain, as can be seen on the title page of editions of the *Mexican Treasure* published in 1648–1651 (whereas the former editions were dedicated to Cardinal Francesco Barberini). Apart from financial support, the patron opened an important door to the world, and only the protection of a great lord allowed access to an absolutely indispensable quantity of information about nature. Princes who maintained contacts with other courts had ambassadors working for them in various countries, such as Spain, which were involved in the great voyages of exploration. Only by obtaining the patronage of a prince³¹ could a naturalist hope to see the curiosities and rarities in his gardens and collections. Access to exotic naturalia depended on the benevolence of important foreigners and of colleagues abroad, while diplomatic channels and court circles were used in a strategy of exchanges. In order to see exotic naturalia, in Italy one could ask for the help of a network of friends, but it was above all important to be invited to court, where it was possible to witness and stimulate the transfer of exotic material.

Members of the Academy were aware of the importance of useful contacts with the church for the success of their publication projects, and the fact that some Linceans were prelates (e.g. Giovanni Ciampoli) certainly helped. The Lincean Cassiano dal Pozzo, secretary to Cardinal Francesco Barberini, contributed to the distribution in Europe of the results of Lincean research by using the special channels of the *République des Letters* in which there was a close relationship between science and political mediation. Dal Pozzo was among the retinue of Barberini during diplomatic missions to France (1625) and Spain (1626), and he also tried to interest Pope Urban VIII in the research of the Linceans on natural history. Many of the Linceans were involved in the distribution of the work on the natural

28 See the letter by Faber to Cesi of 7th October 1625. Gabrieli, *Carteggio* (n. 8) 1068, letter no. 868.

29 Cardinal Federico Borromeo made use of missionaries *en route* in order to enrich his museum.

30 Gabrieli, *Carteggio* (n. 8) 826, letter no. 694.

31 Federico Cesi had the title 'Prince', but he was not from a very important and rich family of Roman princes such as the Barberini, Orsini, Farnese, Chigi and so on.



Fig. 3: Actual size (at the bottom) and microscopic image ('Microscopio Observatus', magnified about fifteen times) of a fruit-body where spores are produced of the fungus *Cordyceps militaris* in Cesi's mycological codex *Fungorum genera et species* [Ms 968 c. 92, Institut de France, Paris]. In 1979 the *Codex* by Cesi lying at the library of the Institut since 1868, has been discovered and identified (Ubrizsy, 1980): five volumes of *Plantae et flores* which are still unpublished, and three volumes of *Fungorum genera et species* containing the first images of these organisms as seen with the help of the microscope.

history of Mexico, which had required a considerable effort in terms of intellect, finances and typography. They realized that the particular character of the subject would hardly make it attractive for the Roman public, and therefore they started publicity campaigns at an international level, trying to raise the awareness of its relevance, and announcing it in catalogues at the Frankfurt fair.

Faber put his own extensive network of connections at the disposal of the Academy, intending to intertwine written culture and direct experience in a cognitive process which was nourished precisely through forms of communication adapted to the national and international level. This chancellor of the Accademia, who was well informed and well connected in the circles of booksellers and publishers, drew on a complex system of sources, including handwritten, printed and oral ones and made use of a widely ramified system of erudite connections on the crossroads of commercial channels and cultural networks. In spite of these efforts inspired by commitment to the joint enterprise, which also involved contacts with the offices in charge of pre-emptive censorship, the project resulted in a substantial failure. The publication was not a success, and the Academy fared no better as the promoter of its new cultural project dedicated to the natural sciences, which would have been capable of bringing fame to the Linceans and to its powerful political sponsors.

We may conclude that the *Thesaurus Mexicanus* still evinces the predilection for the rare, exotic, and the absolutely exceptional, which was so widespread among scholars and collectors of the sixteenth century. However, if we examine other publications (*Apiarium*, 1625 and *Melissographia*, 1625) and the manuscripts and letters by Cesi and the Linceans, we discover that in the eyes of the Linceans normality had a profound dignity. The encyclopaedic methods, used in collecting information concerning nature in exotic places, were profoundly transformed by the earliest use of the microscope, which opened up a world that had until then been invisible. In 1624 Faber wrote about this to Cesi: ‘Yesterday evening I have been to our Mr. Galilei, who gave me beautiful little glasses, to deliver them, through cardinal Zollern, to the duke of Bayern. Galilei made me observe a fly [with these glasses]. I was astonished how this [instrument] revealed to me things that so far no one knew they were created’.³² In the *Thesaurus Mexicanus* (757) Faber added, that: ‘by using this instrument for the eyes (*oculorum praesidio*) our prince Cesi had distinguished the seeds of many plants, earlier believed seedless by botanists and he ordered his painter to prepare drawings of them’ (Fig. 3).³³ The ‘microscope’ – Faber used this very expression in the *Thesaurus Mexicanus* (page 757) – opened the doors to an ‘other New World’, those of micro organisms.

Conclusions

The Lincean effort to diffuse the knowledge and information from the New World in Europe by means of descriptions and images coming from the explorations was still closely

32 See the letter of Faber to Cesi, first half of May 1624: ‘Sono stato hier sera col Signor Galilei nostro [...] ha dato un bellissimo occhialino al Signor cardinale Zollern per il duca di Baviera. Io ho visto una mosca che il Signor Galilei mi ha fatto vedere. Sono restato attonito, et ho detto al Signor Galilei che esso è un altro Creatore, atteso che fa apparire cose finora non si sapeva fosse state create’. Cf. Gabrieli, *Carteggio* (n. 8) 875.

33 Andrea Ubrizsy, ‘Il codice micologico di Federico Cesi’, *Rendiconti delle classe di scienze fisiche, matematiche e naturali, Accademia Nazionale dei Lincei*, ser. 8, 68 (1980) 129–138.

bound to the age of the great Renaissance of nature studies. The *Mexican Treasure* project, which was carried out by scholars who had never crossed the ocean, showed the backwardness that characterized Italian scientific culture by that time: the culture of a nation which had no colonies and no longer formed a point of departure for navigators and explorers. In the seventeenth century the New World was much further removed from Italy than a century earlier.

In spite of the initial involvement of great Italians, such as Columbus and Vespucci, Italy appeared to be cut off from the great explorations and overseas conquests, and was dependent on the information that came from Spain and Portugal. Other nations organized scientific expeditions in which physicians, scientists, painters and clerks took part. In an isolated Italy, which was in decline as a maritime power and excluded from colonial expansion, the Linceans had been able to do no more than publish the summary of a work which by then was already decades old. Producing the book took so long that most of the authors had died by the time it was finally completed. The illustrious *Accademia dei Lincei* to which they belonged had long since ceased its activities.

Yet, the history of the *Accademia dei Lincei*, one of the earliest scientific societies, forms one of the most fascinating examples of knowledge transmission in the early modern history of science. The enormous difficulties of travel generally excluded field research, at least for most scholars. If we leave out the Iberian Peninsula, the number of Europeans who could actually go to the New World was very limited. For information scholars could only rely on mutual assistance; they had to be willing to supply their own information and material to others in order to get that of others in return. The great spirit of collaboration which characterized the community of naturalists ensured that each of its members could receive and examine large numbers of natural specimens, which embellished their museums, collections or botanical gardens. There is no trace of evidence indicating that the Linceans themselves wished to cross the Atlantic Ocean (apart from a belated project of the Lincean Theophil Müller to travel to New Spain). They preferred to profit from the process of the accumulation of knowledge which also made use of distinctive modes of contact, such as the dense network of literary, erudite, and scientific correspondence, and the networks of the religious orders.

Correspondence networks played an important role in the integrated system of knowledge exchange in which printed books and oral communication interacted. Letters took the form of a conversation at a distance and effectively re-enacted a shared experience. They were capable of conveying to the reader the rhetorical efficacy of oral communication. Every scholar tried to ensure personal support by establishing reliable contacts with as many persons as possible, in order to form part of this dense network of knowledge exchange. The reliability of these sources of information was supported and strengthened by the social status of the person concerned: from famous royal and court physicians to physicians who were less well-known but had a vast experience and a high professional reputation. It was a circle in which men of science figured as preferred mediators in an informal politico-religious dialogue. In terms of the practice of communication, in which personal interests, political information and science seemed so closely connected, correspondence formed a primary source compared to the mediated culture of books.