



Flora's Apostles in the East Indies

Natural History, Carl Linnaeus and Swedish Travel to Asia in the 18th Century

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In late autumn of 1745 the Swedish clergyman and naturalist Christopher Tärnström was preparing for a long journey. He had been appointed Chaplain of the Swedish East India Company's ship *Calmar*, bound for China. For several years Tärnström had been a student of Carl Linnaeus, professor of medicine at the University of Uppsala. Linnaeus had himself been instrumental in Tärnström's appointment; this was the first time he was able to send one of his own students to the East Indies and expectations were high. A few months before departure Linnaeus issued Tärnström with the following instructions:

"Acquire a tea bush in a pot, or at least seeds of it, preserved in the manner that I instructed you earlier.

Seeds and leaves of the Chinese mulberry tree.

All the undescribed fishes of the East Indies: to be preserved in *spiritu vini*, and to be published, since this part of the natural history of the Indies is left to our time and Academy.

As many plants as possible to be collected. Preferably with flowers and fruits.

Bulbi and *tubera* of roots of lilies to be kept in dry sand or moss, as will all succulent plants.

Insects to be kept on needles, but *zoophyta* in *spiritu vini*.

All snakes are to be collected, but in particular *naja* or *cobras de capelo*.

A piece of unworked clay for porcelain.

Unknown drugs: *anisum stellatum*, *gummi ammoniacum*, catechu, *lignum aloes* and *myrobalani*. The trees from which these originate are to be carefully observed and described.

Of mace, a correct description is to be obtained.

The ripe fruits of as many palm trees as can be had.

Living goldfish for her Majesty the Queen.

Thermometrical observations day and night below the line and in Canton.

More I have asked for in conversation.

Farewell

Upsala 22 Nov 1745

Your servant

C. Linnaeus'.¹

This seemingly haphazard list of things to do and acquire in many ways mirrors the impatience which

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OS VIAJANTES EUROPEUS E O MUNDO NATURAL ASIÁTICO - II

would become the hallmark of Linnaeus' instructions to his travelling students. At the same time, these complicated and diverse requests encapsulate the core of the Linnaean project, which from the start went beyond the grand project of mapping the natural world. Tärnström was sent out not only as a scientist, but as an industrial spy, seeking out the secret of Chinese porcelain manufacturing methods as well as the utility of plants collected. The patriotic undertones are obvious, as Tärnström was to augment the prestige of Sweden's royal family and further economic development of the fatherland.

By this time, Linnaeus had already gained a considerable reputation within the European scientific establishment. The Swede had first attracted attention in 1735 with the publication of *Systema Naturae* where he had proposed a new system of botanical and zoological classification based on sexual reproduction. The new nomenclature was designed to accommodate an ever increasing knowledge of the world, as it would now be possible to classify every plant and animal in the known world. The first editions of the *Systema Naturae* were closely linked to his three-year stay in Holland, where he had been able to see for himself the wonders of the non-European natural world in the collections and gardens connected to the Dutch East and West India Companies. After his return to Sweden Linnaeus initiated a remarkable increase in the study of natural science, which would last until the end of the 18th century. Around mid-century, Linnaeus himself was the hub around which much of Swedish natural sciences revolved. The expansion of the Linnaean project is illustrated in the many editions of the *Systema*, in which increasing numbers of species of animals and plants from Europe, Asia, America and Africa were examined and determined. Once the format was exhausted, Linnaeus compiled several supplements to accommodate new species and genera.

After taking up a chair in medicine at the University of Uppsala, Linnaeus was not to leave his native Sweden again. His work therefore depended on a great number of informants, observers and correspondents in Sweden, Europe and beyond. Within Europe, Linnaeus created an extensive network of leading European scientists. He also relied to a great extent on Swedish travellers, collectors, countrymen and, most of all, his own students, men whom he sometimes referred to as his apostles or disciples.

During the 1740s and 1750s, Linnaeus was to send out a number of his own students on travels to North and South America, the Middle East, Africa and the Far East. Although there are several older overviews in Swedish of the expeditions undertaken by some of Linnaeus' students, an evaluation of the impact of Swedish travel on the work of Linnaeus has until recently attracted relatively little scholarly attention.² However, in the last few years this has been remedied: in Sweden itself a lavish TV series with an accompanying book has been produced, and a multivolume project is under way to publish the textual material accumulated by the travelling Apostles.³ Common to these projects is the insistence on a set number of apostles, defined as those of Linnaeus' students at Uppsala who travelled abroad. In fact, this number of men sent out by Linnaeus himself was rather small. It is, however, well known that Linnaeus did not rely solely on his own students for information and collection of zoological and botanical specimens. It could, in fact, be argued that any examination of Linnaeus' knowledge of the non-European world must take into consideration the wider contribution of Swedish traders and travellers, who had not necessarily been students of Linnaeus. This is especially the case with respect to the Far East where a relatively large number of Swedes could contribute to the Linnaean project in connection with the activities of the Swedish East India Company.⁴

The uniqueness of 18th century Swedish natural history with Linnaeus at the helm is illustrated by the ways in which a variety of institutions were mobilised to financially support scientific travel. It is well known that Linnaeus himself actively encouraged and orchestrated these arrangements by securing travel grants from the University of Uppsala to enable gifted students to embark on often hazardous journeys. Both the Parliament and the Royal Household made financial contributions to enable Swedish scientists to travel outside Europe. The foremost sponsor of Swedish travel in the 18th century was the Royal Swedish Academy of Sciences, founded partly on the initiative of Linnaeus himself, which not only granted financial support for travel outside Europe, but built up its own collections and published the findings of travellers. On a practical level, Swedish travel to Asia was made possible through the fruitful collaboration between Linnaeus and the Swedish East India Company. The close co-operation

EUROPEAN TRAVELLERS AND THE ASIAN NATURAL WORLD - II

between Linnaeus, the Academy and the East India Company resulted in an immediate and intimate acquaintance with the Asian flora and fauna which hitherto had been little studied and never evaluated in a wider European context.

As the list for Christopher Tärnström shows, Linnaeus' quest for knowledge about Asia was not limited to botanical and zoological subjects. In fact, his standing instruction to his travelling apostles was: "you will ask about everything". This means that reports produced by Swedish travellers dealt with a variety of subjects: botany and zoology always were at the forefront, but was interspersed with ethnographic and anthropological observations, as well as information on agriculture, religion, architecture, and commodities. But Linnaeus' hopes for his apostles often ended in disappointment. Christopher Tärnström was not to return to Sweden: he perished at Pulau Condor in the China Sea on his outward journey. Of Linnaeus' long list, only the final point would materialise. It would be another twenty years until a living tea bush from China would finally arrive in Uppsala, where Linnaeus was still waiting impatiently to see for himself this most prized of East Indian plants.

A more systematic survey and detailed evaluation of the contribution of Swedish travellers in the East Indies to the work of Carl Linnaeus is still to be done. Therefore, what follows aims to present a bibliographical and archival overview of the material accumulated by Swedish travellers in the Far East during the time of Linnaeus and in the decades after his death in 1778. As will be seen, much of this has not been published, and fewer still of the Swedish travel journals have been translated into English.

The son of a Lutheran clergyman, Carl Linnaeus was born in the southern Swedish province of Småland in 1707.⁵ He first studied medicine at the University of Lund in southernmost Sweden, but soon transferred to the University of Uppsala. As a child, he had already acquired a special interest in botany which then was studied as part of the medical curriculum. His time in Uppsala was increasingly taken up by botanical studies, and in the early 1730s he set out on several expeditions of botanical exploration, touring and collecting plants in Lapland and other parts of Sweden. In 1735 Linnaeus left Sweden and travelled to Holland in order to further his studies. There he obtained a medical degree and in 1735 he published the first

edition of the ground-breaking *Systema Naturae*, where he presented a new classification of plants, based on a binominal nomenclature. Further publications such as *Fundamenta Botanica* and *Classes Plantarum* within a few years gave Linnaeus a name within the European scientific establishment.⁶

Linnaeus' fascination with tropical flora and fauna, and the East Indies in particular was formed during his early years in Holland.⁷ The first edition of *Systema* was compiled while Linnaeus acquired a thorough knowledge of tropical plants in the hothouses and extensive gardens of George Clifford, an Englishman who had become one of the Directors of the Dutch East India Company. Clifford employed Linnaeus as a curator of his gardens and plant collections in Haartecamp outside Haarlem, and this work would result in the magnificently illustrated *Hortus Cliffortianus* (1737). In Holland, Linnaeus also became associated with leading Dutch botanists involved with the Dutch East Indies, such as Herman Boerhaave and Johann Fredrik Gronovius. Of particular importance was his friendship with the Burmann family, known for their publications on tropical botany, and he actively assisted Johannes Burmann the Elder in the publication of his *Thesaurus Zeylanicus* (1737).

Following a lengthy visit to England, Linnaeus returned to Sweden. After practising medicine in Stockholm, he took up a chair of Medicine at the University of Uppsala in 1741. By then, his fame had grown, and in Uppsala he was able to attract students not only from Sweden but from all over Europe. He showered the most promising of these with attention, and instructed them privately, making them close associates as collectors and informants.

In Sweden, the mid-18th century would bring about a rise of economic prosperity and a general sense of optimism after decades of political turmoil. In the 17th century, Sweden had become one of the great European powers, acquiring both economic and territorial ground on the southern shores of the Baltic Sea. The so-called Great Nordic War (ending in 1721) changed much of this, as Sweden lost both people and territory, undermining its political and economic status in Europe. Towards the middle of the century, a time of relative peace and prosperity dawned. In Swedish history, this time is referred to as the "Age of Freedom", when political powers lay with the estates of the Riksdag, where the dominating

OS VIAJANTES EUROPEUS E O MUNDO NATURAL ASIÁTICO - II

political party, the Hat Party, forcefully promoted a utilitarian program with strong patriotic overtones. The goal was for Sweden to become economically independent by accumulating wealth from exports and developing manufacturing.

Utilitarian cameralist ideas were to colour much of Linnaeus' thinking too, and it has recently been argued that the whole Linnaean project was in fact propelled by economic motives; that the rise of natural history in Sweden represented a unique form of patriotic science.⁸ Linnaeus himself was convinced that economic progress and the advancement of science were intrinsically linked. He enthusiastically believed that Sweden would be able to carve a niche for itself in the scientific establishments of Europe while at the same time promoting Swedish industries, manufacturing and agriculture. This was the spirit in which he instructed his students to explore the world. From North America his student Pehr Kalm wrote back to Uppsala

"I do know that *Historia Naturalis* is the base for all things concerning Economics, Commerce, Manufacturing... since aiming for Economic progress without a mature or sufficient knowledge of Natural History is to behave like a dancing master with only one leg".⁹

The idea that new scientific findings could be used for the benefit of the country was also a key principle behind Linnaeus' approach to travel. Sweden could gain on other European nations by utilizing the great resources that Providence had laid down in Swedish soil, and Linnaeus lived in the belief that foreign plants could be transferred and adapted to Swedish conditions. This was a gospel that very much permeated the ambitions of his 'apostles' visiting the Far East.

A perhaps neglected aspect of the role of Linnaeus' informants is his persistent opinion that information and observations transmitted by his fellow countrymen were more reliable than those of 'foreigners'. In Holland he had himself experienced first hand the flora and fauna of the East Indies, but he also made use of collections, travel literature and reports from the East Indies produced in his native Sweden. In the 17th century there had already been extensive contact between the East Indies and Sweden due to the close commercial links between Sweden and Holland at this time. Thousands of Swedes took employment with the Dutch East India Company,¹⁰



G. F. Hjortberg, *Ost-Indisk Resa 1742 och 1749 författad och beskrifven af Gustaf Hjortberg* (East Indian Journey 1741 and 1749 Written and Described by Gustaf Hjortberg). Manuscript Collection, Royal Library, Stockholm, Sweden. Photo Jessica Lund.

and some travel books on Asia were published in Swedish.¹¹ Many of the Swedes in the service of the VOC served as medics.¹² One of these was Herman Grim, who was employed as a medic in Batavia in the 1670s and later published a *Pharmacopoeia Indica* (1684). Grim was also involved in the Dutch project of opening up silver mines in Sumatra, from where he brought back gold and silver which was processed in Sweden in the 1690s. Grim is said to have brought back extensive collections of *Naturalia* which he donated to the Collegium Medicum, but Grim's contribution to the knowledge of Southeast Asia is still unexplored.¹³ Another sailor, Anders Toreson, compiled a travel description which has only been published in modern times.¹⁴

An early Swedish description of the flora and fauna of the East Indies was the travel journal entitled *Beskrifning Om en Resa genom Asia, Afrika och många andra Hedna lander* [Description of a Journey Through Asia, Africa and Many Other Heathen

EUROPEAN TRAVELLERS AND THE ASIAN NATURAL WORLD - II

Countries] published in 1667 by Nils Matson Kiöping, who crisscrossed Asia over a long period of time, employed by the Dutch East India Company. Partly due to the scarcity of translated travel literature in Sweden, Kiöping's book became the most widely read description of Asia in Swedish and went through a number of editions in the 18th century.¹⁵ In addition to observations of peoples, peculiarities and rivalries between the European nations in the East, Kiöping's account contained long passages describing the flora, fauna and peoples of the countries he visited: Ceylon, Java and the East Indian archipelago as well as China. It is known that Linnaeus had been familiar with Kiöping's account since his youth, and he would make use of information provided by Kiöping in his classification of humans (see below).

Around 1700, Swedish interest in China was rife, inspired by Jesuit publications. Several academic dissertations on Chinese themes, such as Chinese history and dissertations on the Great Wall, were published at Sweden's universities. However, it was not until the 1730s that systematic and direct contact between Sweden and the East Indies was more firmly established. The Swedish East India Company was founded by a group of Swedish merchants and Scottish businessmen in 1735. Several of these had been involved in the failed Ostende Company, and modern historians have sometimes questioned whether this in fact was a Swedish venture at all.¹⁶ In any case, the new Company was viewed with suspicion by other European trading companies in Asia. The directors of the Company had plans to get a foothold in the increasingly lucrative trade on India and initially sailed on Surat, but British hostility soon forced the Swedes to focus on Canton. Linnaeus had at an early stage realized the potential opportunity offered by the Company for Swedish scientists to gain access to new knowledge, and he courted the Company directors in order to ask for students of his own to be employed on board the Swedish ships. In order to finance the voyages of trained scientists, it was necessary to associate not only with the East India Company, but to gain the support of the Royal Swedish Academy of Science.

Only four years after the first Swedish ships had left for Canton, six leading scientists and politicians (Carl Linnaeus among them) had met in Stockholm to form an Academy of Science. Although based on

equivalent institutions in Paris and London, the new Academy adopted a unique and ambitious programme from the start which aimed to promote "useful" sciences. Meetings of the Academy and its published proceedings were permeated by ideas of the practical usefulness and economic gains of the scientific findings.¹⁷ Another remarkable feature of the early activities of the Academy was the creation of networks of communication among its members and informants.¹⁸ It supported not only travelling naturalists abroad but also local collectors and informants, and actively encouraged excursions to Lapland and other remote regions of Sweden.¹⁹ Another geographical focus of the Academy's interest was China: its economy, agriculture, manufactures and natural history.

The mechanisms of East Indian reporting were put in place at an early stage. The very first year of the establishment of the Academy saw the election of one of the supercargoes of a Swedish East India ship, Hans Teurloen, to the Academy, at the recommendation of Linnaeus. This was done on the condition that he presented the Academy with two Chinese books: one on the growing of silk worms, the other on rice cultivation. Furthermore, Teurloen was given a list of things to study and report on for his next journey.²⁰

Like other scientists of his time, Linnaeus was well acquainted with existing publications on the East Indies. In his *Flora Zeylanica* (1747), which also included new plants brought back by the Swedish ships, he referred to writers such as Knox, Burmann, Kempfer, Hermann, van Rheede and Rumphius.²¹ The prospects of new findings and being presented with new East Indian species excited Linnaeus throughout his life. After his return to Sweden he actively sought to acquire not only botanical and zoological material from the East Indies, but to further knowledge about the East Indies more generally. He himself published contributions in the proceedings of the Academy, the first one being a description of a new species of Chinese pea.²² To Linnaeus, the East Indies represented a never ending source of scientific discovery, as he wrote to a student:

"When I think about all the wonderful things to be found in the Indies, it hurts to think that so little is known, which easily could be known, if only travellers collected all kinds of insects, mosses and plants or trees together with their flowers and fruits".²³

OS VIAJANTES EUROPEUS E O MUNDO NATURAL ASIÁTICO - II

In letters to the Academy, Linnaeus pleaded for a naturalist to be given financial help to undertake journeys, especially to Bengal, where

“no one has collected plants with open eyes, still less done anything for Zoology. A few blind men have picked up around 15 plants there. I had never thought that the Swedish nation would have the honour of describing the rare plants of India”.²⁴

The second charter (*Octroi*) of the Swedish East India Company, beginning in 1746, would become the commercially most successful chapter in the Swedish East India trade. It was during these years that Swedish interest in Chinese culture and arts peaked, symbolized by the building of a “China Pavillion” in the gardens of the royal castle of Drottningholm, inaugurated by the Crown Prince dressed as a Chinese Mandarin.²⁵ It was also the time when unofficial reporting by East India Company officials was replaced by more formalised links between the Academy and the Company.

On Linnaeus’ initiative the Academy began negotiations with Company directors for a *Historiae Naturalis Studiosus* to be sent to Canton on a yearly basis. The Academy mobilised its most prominent member, Count Tessin, who conducted negotiations with the Company’s directors to give free passage to the East Indies for naturalists sent out by the Academy. It seems that the terms of this arrangement remained unclear, but during the decades around mid-century the directors and administrators of the Company were often reminded by Linnaeus and other members of the Academy of the need to appoint men trained in the sciences as ships, chaplains and surgeons.²⁶ From the Company headquarters in Gothenburg, Johan Leche, medic of the East India Company, issued instructions to all the captains of Swedish ships to urge their sailors to take notes and collect specimens of natural history. The goal was to “metamorphise peasants into naturalists”.²⁷

Despite ambitions to involve every available man on board the Swedish ships, the scientific contributions were largely dependent on a handful individual men. A long-time organiser in collecting and distributing the East Indian material was Magnus Lagerström, an amateur scholar who had risen to become one of the key persons in the Company as well as a member of the Academy. In 1747, Lagerström drew up instructions for the Company



C. J. Gethe, *Dagbok hällen på resan till Ostindien, 1746-1749* (Journal from a Journey to the East Indies 1746-1749). Manuscript collection, Royal Library, Stockholm, Sweden. Photo Jessica Lund.

to appoint only men with insights in natural history as chaplains on board the Swedish ships. These men would preferably have been students of Linnaeus and should have been able to show references from the Professor himself. The chaplains as well as surgeons, supercargoes and captains were to collect *naturalia* and deliver them to the Board of Directors. In addition, the ships’ captains and mates were ordered to keep journals of cartographic, magnetic and astronomical observations. The supercargoes, who carried out the transactions with the Chinese merchants, were asked to produce general reports on the China trade to be submitted to the Academy. For several decades, Magnus Lagerström acted like a spider in the web: he arranged for trained naturalists to be employed by the Company, and organized for their collections to be distributed to collectors and institutions at the receiving end.²⁸ It was within this arrangement that streams of seeds, living and dried plants and animals were brought back to Sweden and divided up between Linnaeus in Uppsala, the Academy in Stockholm, the collections of the Royal Household and other private collectors.²⁹

EUROPEAN TRAVELLERS AND THE ASIAN NATURAL WORLD - II

Much of what was sent on to the Academy was only anonymously recorded in the Minutes, where Lagerström spoke warmly about what he called his yearly "East Indian harvest". This consisted not only of Chinese plants, but a variety of marine produce, birds' nests, turtle eggs, fishes, crabs and corals, as well as models and drawings of Chinese buildings and machinery and tools associated with agriculture and manufactures such as a silk looms, bellows, threshing machines and tools.³⁰ A selection of zoological specimens acquired by Lagerström was published in 1754, under the title *Chinensia Lagerstromiana*. Lagerström was also said to have owned a *Botanicon Chinense*, written in Chinese characters, recently acknowledged as the well known Materia Medica *Pen ts'ao kang mu*.³¹ Lagerström also owned Chinese books and a collection of about 1000 Chinese drugs.³² Journals and diaries from the Board were copied and sent to the Academy. Plans were proposed to publish a complete description of China, a Swedish Du Halde, incorporating all the material on China accumulated by Swedish travellers, but this never materialized.³³

Among the sometimes anonymous donors to the collections of the Academy, there are a few better-known individuals who submitted both journals and collections to Linnaeus himself as well as the Academy and private collectors. The first scientist sent to China to be sponsored by the Academy was Johan Fredrik Dahlman, who was not trained in botany but in mathematics, astronomy and meteorology. Dahlman's journal, submitted to the Academy, contains excellent sea charts and other cartographical material, together with meteorological observations.³⁴ Perhaps Dahlman's most valuable contribution was a large collection of East Indian minerals. Dahlman presented Linnaeus with a piece of gold from Ophir (the Malay Peninsula) which excited the master to such an extent that he wrote that "the mere sight of it made the blood rush in my little toe".³⁵ Dahlman also brought back a collection of fruits and plants, of which nine new species would be described by Linnaeus in his *Flora Zeylanica*.³⁶

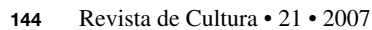
The first of Linnaeus' own students to be sent out was the above-mentioned Christopher Tärnström, whose early and sudden death on Pulau Condor off Cambodia would move Linnaeus to tears, and also cause him much grief: Tärnström had been a married man and Linnaeus himself was set to care for the widow. In future Linnaeus would make sure only to

send out unmarried students. Tärnström's recently published journal from Java and Pulau Condor gives an insight into the hectic pace of the Swedish naturalist's activities.³⁷ While staying on the little island he went ashore every day to botanize; he visited villages, thoroughly describing the people, their livelihood, customs and religion. Tärnström's journal, coming to an abrupt end almost mid-sentence, therefore illustrates well the frantic collecting and recording of flora and fauna mixed with ethnographical observation that was the hallmark of Linnean investigation.³⁸

Gustaf Fredrik Hjortberg was another student of Linnaeus who travelled to Canton three times between 1748 and 1753, supplying Linnaeus and the Academy with valuable meteorological observations as well as numerous specimens and drawings of mammals, birds and fish.³⁹ Hjortberg's diaries are systematic and detailed, and contain a longer description of his stay in Batavia. They have, however, remained unpublished.⁴⁰ His reporting from the East Indies secured him a membership in the Academy, but like many other travellers Hjortberg did not pursue a career in the sciences but ended his life as a vicar in southern Sweden.

C. J. Gethe, *Dagbok hållen på resan till Ostindien, 1746-1749* (Journal from a Journey to the East Indies 1746-1749). Manuscript collection, Royal Library, Stockholm, Sweden. Photo Jessica Lund.





EUROPEAN TRAVELLERS AND THE ASIAN NATURAL WORLD - II

The most lavishly illustrated travel journal is that of Carl Johan Gethe, an officer at the Swedish admiralty who travelled to Canton on board the ship *Götha Leijon* 1746-1749. Even though it contains twenty skillfully drawn colored plates, Gethe's journal remained unpublished until 1975.⁴¹ Gethe was never a student in Uppsala but the journal is dedicated to the Crown Prince and is particularly valuable for the detailed descriptions of Chinese agriculture, which were eagerly seized upon by the Academy in Stockholm.⁴²

Most of the reports and journals compiled by employees of the Swedish East India Company originated from journeys to Canton and back, but there were a few men who provided specimens and reports from Southeast Asia and India. One of these was Johan

Gerhard König, a Danish-born physician who had been a private student of Linnaeus. König had first travelled to Iceland, but would spend most of his active life on the Indian subcontinent. Throughout he kept in touch with Linnaeus by sending Indian plants, many of which were described in Linnaeus' *Mantissa Plantarum*. König also visited Thailand, Ceylon and the Malay Peninsula, and died only in 1785 on his way to Tibet.⁴³

By the time König reached Southeast Asia Linnaeus was already dead. There were, however, two Swedes who in the 1750s provided Linnaeus and the Academy with information on India and the Malay Peninsula. Olof Torén, one of Linnaeus' most promising students, was sent out on two Company journeys to Asia. One of these took him to India, where he stayed for five months in 1751, and the Malay coast. Torén's seven letters to Linnaeus described various Indian ports and his journey along the Malay coast on board the ship *Götha Leyon* 1752, and were published in Swedish as an appendix to Pehr Osbeck's travels (see below).⁴⁴ From these letters it emerges that plants collected in the Malay Peninsula had been sent to Linnaeus through the Company director Lagerström. Torén's description of Kedah on the Malay coast remains one of very few published European sources on this Malay state in the mid-18th century.⁴⁵ Torén died shortly after his return to Sweden.

Another reporter and collector on board Torén's ship was Christopher Henric Braad, who would produce a wealth of information on Asia.⁴⁶ Initially not directly associated with Linnaeus, Braad had been employed as a supercargo on several ships to Canton, and had presented the Academy with a travel journal from one of these, *Berättelse om resan med skeppet Hoppet* [An Account of the Journey on Board the Ship *Hoppet*]. In 1751 Braad received instructions to go to India in order to compile reports on trading possibilities there, as the Swedes were at this time looking into the possibilities of expanding their trade in India. Based in Surat, Braad travelled in India, Ceylon and the Malay Peninsula for several years, disguised as a scientist sent out by the Swedish Academy. He eagerly recorded trade information, collected historical knowledge



Illustrations from *A voyage to China and the East Indies*, by Peter Osbeck...together with *A voyage to Surat* by Olof Torén...and account of the Chinese husbandry by captain Charles Gustavus Ekeberg. To which are added a Faunula and Flora Sinensis, London 1771. Reproduced by the permission of the Syndics of Cambridge University Library.

OS VIAJANTES EUROPEUS E O MUNDO NATURAL ASIÁTICO - II

through indigenous sources, and provided general descriptions of European trading posts along the Indian coasts.⁴⁷ Braad's extensive manuscripts reveal a keen interest in Indian society. He wrote to a German acquaintance that he had managed to lay hands on a variety of excerpts and translations from the writings of "the people themselves", which would, he hoped, enable him to put together a more accurate description of India than any traveller before him. Braad's remarkable reports were submitted to the directors of the East India Company and the Academy. The manuscript entitled *Beskrifning På Skeppet Götha Leyons Resa Till Surat och Åtskillige Andre Indianske Orter* [Description of the Journey of the Ship *Götha Leyon* to Surat and Various Other Places in India] describes both the Indian subcontinent, the Malay Peninsula and India. This report was sent to the Academy of Sciences in Stockholm, while another copy is found in the archives of the Swedish East India Company in Gothenburg.⁴⁸ A manuscript entitled *Historiske Anmärkningar Om Bengala; Dess Invånare, och närvarande Tillstånd* [Historical Remarks on Bengal, Its Inhabitants and Present State] is kept in the Uppsala University Library, written in the form of a journal starting from November 1754. Braad was not a student of Linnaeus, and has hitherto not been recognised as an informant on the natural history of Asia. From Linnaeus' correspondence with other students, it can be concluded that Linnaeus did not know Braad prior to his travels in India. The extensive Uppsala manuscript is, however, addressed to an unknown gentleman, presumably Linnaeus. Despite his lifelong ambitions to do so, Braad never published the wealth of material collected in Asia.⁴⁹

Pehr Osbeck was to become the best known Swedish traveller to China after his travel journal was translated to several European languages. A favourite student of Linnaeus, Osbeck was appointed chaplain on the ship *Prins Carl* in 1750. Osbeck started to collect plants in the Sunda Straits and spent his four months in Canton wandering around the city and its environs. His reports to the Academy were systematic and meticulous. His journal, *Dagbok öfver en ostindisk resa* [Diary of an East Indian Journey], published in 1752, provides vivid glimpses of the toils and troubles of a botanist's life in Canton.⁵⁰ He also dwells on the relationship with local populations, claiming that in comparison to other European traders, the Swedes generally got on better with the Chinese, enabling them

to acquire more precise knowledge of the flora and fauna of China. Osbeck's journal was translated into German (1765) and from that language into English in 1771 as *A voyage to China and the East Indies*.⁵¹ In the English version, Torén's and Carl Gustaf Ekeberg's accounts were added, all translated by Johann Georg Forster who was an associate of Linnaeus and was later to accompany James Cook to the Pacific. The English translation also contained an Appendix entitled *Faunula and Flora Sinensis*, where more than 150 animals and over 250 Chinese plants were described, many of them determined by Osbeck himself.

As a collector of naturalia, Osbeck was perhaps the most zealous of Linnaeus' students. He lists 150 Chinese animals and in all 244 Chinese plants, with their Linnaean names, or proposing new names.⁵² Throughout his journeys, Osbeck corresponded with Linnaeus and sent his teacher a large East Indian herbarium.⁵³ In the first edition of *Species Plantarum*, Linnaeus described 37 plants brought by Osbeck from China.⁵⁴ Like many other travellers, Osbeck chose to take up a life as a clergyman after returning to Sweden. Mainly as a result of the international success of his book, Osbeck was elected a member of the Academy in Stockholm and published a number of contributions to the *Proceedings* in the 1760s.

Another well known reporter was Carl Gustaf Ekeberg, who altogether made twelve voyages to Canton.⁵⁵ Although not a professional naturalist, Ekeberg was a relentless reporter to the Academy. His observations on magnetic inclination were published by the Academy together with treatises on Chinese agriculture and economy.⁵⁶ Ekeberg was a deeply engaged cartographer and contributed several sea charts and maps of the waters along the route to China, some of which were published in the *Proceedings* of the Academy in Stockholm.⁵⁷ In 1773 Ekeberg published the journal *Capitaine Carl Gustaf Ekeberg Ostindiska resa åren 1770 och 1773*.⁵⁸ During his long career, Ekeberg provided Linnaeus and numerous other collectors with East Indian plants.⁵⁹ In 1763 Ekeberg was able to bring back a living tea bush, which to Linnaeus' great excitement survived almost one whole winter in Uppsala. In 1766, Captain Ekeberg invited a student of Linnaeus, Anders Sparrman, to accompany him to China as a ship's surgeon. Sparrman brought back a number of plants and fruits from China to be described by Linnaeus. In 1772 Sparrman travelled to the Cape and eventually

EUROPEAN TRAVELLERS AND THE ASIAN NATURAL WORLD - II

joined James Cook on his expedition to the Pacific in 1775. He later returned to Sweden to publish a travel account that would be translated to several languages, but he was not to see China or the Far East again.⁶⁰

Overall, it seems that the frantic activity of scientific reporting from China slowed down after the 1750s, as it was becoming increasingly difficult to recruit willing naturalists to go on board the Swedish ships.⁶¹ During the following decades, several of the pioneering travellers were elected members of the Academy, and publications relating to China and East Indian natural history were still published.⁶² The interest in China during these decades also took a more theoretical turn, and the ideas of the French physiocrats were reflected in several publications on Chinese Agriculture.

Linnaeus' final years were marked by depression and low spirits. A series of mild strokes left him bedridden for several years, and eventually led to his death in 1778.

As pointed out earlier, a systematic and detailed survey of Swedish reporting and collecting in the East Indies and how this informed the work of Linnaeus as has still to be undertaken. The contributions made by men on board the ships of the Swedish East India company can only be pieced together, as many of the new Asian plants described in Linnaeus' publications are not attached to a name. Nevertheless, Linnaeus' publications show a steady increase in the number of Chinese and East Indian species known to him. In 1753, for example, the *Species Plantarum* named and described nearly 100 Chinese plants. The 1759 edition of the *Species* presented 9 new Asian species and in 1762 nineteen more were added. The additions to the *Systema*, entitled *Mantissa Plantarum*, listed twenty new 'Indian' and Asian species and the later addition *Supplementa* ten.

Less studied still are the unpublished specimens of naturalia; it would be possible to draw a fuller picture of knowledge of Asian flora and fauna in Sweden in the 18th century by charting in more detail the history of both institutional and private collections, for some of which catalogues were published.⁶³ The collections of the University of Uppsala are better known, even though some inventories made before the 1780s by Thunberg and Linnaeus Filius have been lost.⁶⁴ The collections of the Academy of Sciences were augmented throughout the 18th century, and this work relied for

decades on the above mentioned Lagerström who tirelessly worked to acquire East Indian specimens. This collection lacked a catalogue until 1786, but acquisitions and donations can be traced partly through the Minutes of the Academy. Another important collection was that of the Royal Household. During Linnaeus' time, the King and especially the Queen, Lovisa Ulrika, took a very active interest in natural history. The Queen appointed Linnaeus curator of the royal collections, and the magnificently illustrated catalogue which he published in 1763 shows that the royal cabinet contained a wealth of zoological material from the East Indian archipelago (present Indonesia).⁶⁵ The royals also kept a zoo of living exotic animals, many brought back from the East Indies.⁶⁶ As for private collectors, both travellers and amateur naturalists kept large cabinets of natural history.⁶⁷ Several of the directors of the Swedish East India Company also kept private museums. Most famous of these was Claes Alströmer and professor Peter Jonas Bergius, a student of Linnaeus who did not travel himself but built up one of Sweden's best herbaria.⁶⁸

The uniqueness of Swedish reporting and collecting lies not only in the systematic way in which a variety of subjects were linked, but in how closely scientific enquiry was intertwined with a search for the useful. The transmission of knowledge was therefore not limited to natural history: the Linnaean traveller was both an ethnographer, an economist and a geologist, an observer of industrial technology and trading activities. It has recently been argued that the entire Linnaean project in fact was ultimately driven by economic interests and patriotic cameralist ideas.⁶⁹ The Swedish publications on Chinese subjects show that much of the enthusiasm and interest for the Orient was driven by this patriotic fervour. Within the Academy of Sciences, as Sven Lindroth has shown, essays on China would be dominated by economic subjects, not zoology or botany.⁷⁰ Not only could the Swedes learn from Chinese agricultural methods and manufactures; another goal was import substitution: rice, tea plants and mulberry trees, Linnaeus believed, could and should be brought back alive. Once acclimatised to Swedish conditions and cultivated there on a larger scale, expensive imports could be replaced by homegrown produce. Commercial information was equally important, and the East India Company could rely on the Linnaean voyager for information

OS VIAJANTES EUROPEUS E O MUNDO NATURAL ASIÁTICO - II

on local trading conditions, people and their customs. The travellers to Asia therefore, by default, continued the tradition established by Linnaeus himself during his extensive travels in Scandinavia, of incorporating ethnographic observations into scientific reporting. It is here in this all-encompassing inquisitiveness of Swedish reporting that new insights into the work of Linnaeus can be gained. One example of the use of information not directly connected with botany or zoology is Linnaeus' controversial classification of Man in the tenth edition of his *Systema*, where he proposed two "missing links", both classified as humans but with only half-human behavior and physical appearance. This would fuel much criticism, and was to have wider implications for the wider European debates about the relationship between man and beast in the second half of the 18th century. Here, it is possible to trace Linnaeus' perceptions of human diversity to Swedish travellers' reports on Asia.

The tenth edition of *Systema Naturae* (1758) stands out as an almost completely new work, especially with regard to the nomenclature of man and his closest relatives. It was here that Linnaeus introduced the

term *Homo sapiens* and the concept of *Mammalia* and *Primates*. The most controversial novelty was presented within the genus *Homo*, where two new species of humans were proposed: the *Homo Troglodytes*, also called *Homo nocturnus* (night man), and the *Homo Caudatus* (the tailed man).⁷¹ The natural habitat of both these species, Linnaeus explained, was the East Indies: the night man lived in Java, Amboina, Malacca and Ternate, whereas men with tails were to be found in Borneo, on the Nicobar islands, which means that both these “human” beings could be found only in modern Southeast Asia. Traditionally, studies of Linnaeus’ anthropology have explained these “missing links” between man and beast within a European context: they have been seen as originating from continued European dependence on ancient ideas of the “wonders of the East”, Linnaeus’ uncritical belief in the supernatural and monstrous, unreliable travel lore or misguided interpretations of apes.⁷² However, a closer look at the references given by Linnaeus not in the *Systema*, but in a later dissertation of one of his students, entitled *Anthropomorpha*, reveals the full extent of the role of travelling Swedes. It seems that the two new human

Engraving accompanying Linnaeus' 1760 dissertation *Anthropomorpha*, published in the sixth volume of his *Amoenitates Academicae* (1763).



EUROPEAN TRAVELLERS AND THE ASIAN NATURAL WORLD - II

species were indeed created mainly from observations by his countrymen. The 17th century travel journal by the earlier mentioned Nils Matson Kiöping was used as the main source. The most recent observations of these peculiar people, Linnaeus claimed, had been recorded in the Malay Peninsula by C. H. Braad. This information, relayed to Linnaeus in a private conversation, originated to a great extent from local circumstances, namely the often uneasy relationship between the coastal Malays and the peoples of the interior, a persistent theme in Southeast Asian history.⁷³ The sightings of “half-humans”, which to Linnaeus confirmed the existence of a different species of the genus *Homo*, was simply based on Malay perceptions of the aboriginal peoples of the Malay Peninsula, today referred to as *orang asli*. The case of the *Homo Troglodytes* therefore highlights the patriotic element in Linnaeus’ thinking in his insistence on the reliability of information provided by his own countrymen. But the tracing of informants also show how the writings of Linnaeus evolved from a network of informal reporting from Asia, and the sometimes crucial role of men who have not been acknowledged in the official list of “travelling apostles”.⁷⁴

Historiography generally saw the decades after the death of Linnaeus as a time of decline for Swedish science, and it has been argued that “without Linnaeus the project died”.⁷⁵ Linnaeus’ chair at Uppsala was taken over by his son, also named Carl, but the younger Linnaeus was never able to take up the fallen mantle of his father. During the decades after the death of Linnaeus, a few naturalists did however continue the traditions of travelling and collecting. Swedes travelling to Canton continued to send back plants and reports. One of these was Peter Johan Bladh, supercargo in the service of the Swedish East India Company who spent many years in Canton and provided the University of Uppsala as well as the Academy and private collectors with botanical collections.⁷⁶ In Sweden and Uppsala, the work of Linnaeus was continued by Professor Carl Peter Thunberg, who also forged close connections to Asia.

Thunberg had been Linnaeus’ favorite student.⁷⁷ After studies in Holland and Paris he was called to go out as a botanist on board a Dutch ship to Japan. After a long stay at the Cape, where he made several expeditions to the interior, he embarked on his journey to Japan, where he stayed more than a year.⁷⁸ On his way back to Europe Thunberg spent six months in



Hornstedt examining insects in Java accompanied by his slave Ali. C. F. Hornstedt, *Dagbok från en resa till Ostindien 1783-85*. Archives of Svenska Litteratursällskapet, Helsinki, Finland.

Java, travelling to the relatively unknown interior of the island. Throughout his travels Thunberg sent plants to a wide variety of institutions and private persons, the Botanical Gardens in Leiden and Amsterdam, but above all to Linnaeus. By the time Thunberg returned to Sweden, however Linnaeus was already dead.

Thunberg succeeded Linnaeus the younger on the chair of botany in Uppsala in 1784, a position he held until his death in 1812. His travel account *Resa uti Europa, Africa, Asia* was published in four parts in 1788-1793.⁷⁹ It was an immediate success, and translations into French, German and English brought him international fame.⁸⁰ Much of the interest in Thunberg rested on his unique description of Japan, a country which during this time was closed except to a few tightly guarded Dutch traders. Thunberg did not visit China, but instead included a rather neglected description of Java.⁸¹ During his stay in Java, Thunberg not only collected local plants, he also in true Linnaean spirit made enquiries into the history, language and industries of Java. This meant that the translation of his travel journal, he was often mentioned by contemporaries as

OS VIAJANTES EUROPEUS E O MUNDO NATURAL ASIÁTICO - II

an authority on the Malay language and he acquired a considerable collection of books on Malay and other Indian languages, which he donated to the University of Uppsala in 1782.

The last Swedish traveller in the Linnaean tradition was one of Thunberg's students, Clas Fredrik Hornstedt. During his European and Asian travels, Thunberg had forged a vast network of scientific contacts, and he corresponded with leading Dutch scholar-administrators in Batavia until his death. When Thunberg heard that a new Academy of Arts and Sciences had been founded in Batavia in 1778, he offered to send Hornstedt, his own most promising student, to work as a curator for the Society's collections. Sweden was, after all, one of the leading scientific nations, and Thunberg hoped to receive East Indian collections for himself. Hornstedt sailed out in 1783, but came to stay in Batavia for a only a year. During this time he managed to acquire substantial zoological and ethnographic collections, but also a large number of minerals and medical substances.⁸² His long journal described in detail his scientific endeavours, as well as life among the Dutch, seen through the eyes

of an outsider.⁸³ Like many other Linnaean reports, Hornstedt's journal was not published, although some of his zoological findings were published in the proceedings of the Swedish Academy of Sciences.⁸⁴

In 1784 Linnaeus the Younger wrote to Joseph Banks in London telling him about Hornstedt, suggesting that new information on Java soon might be available.⁸⁵ This was a time when British interest in Southeast Asia was awakening, partly due to the increasing importance of the China trade, and Bank's correspondence with the Swedes at this time signalled a new role for the Swedish naturalists. As informants, the Swedes were drawn into the wider contexts of European expansion. Since Linnaeus' stay in England in the 1730s there had been strong scientific links between Britain and Sweden, and the contributions made by the Swedish members of Cook's expeditions to the Pacific are well known.⁸⁶ Overall, European natural science networks were important in the ascendancy of Britain as the leading nation of natural history towards the end of the century, and Richard Drayton has recently shown how, within Britain's' imperial ambitions, the natural sciences and political economy became intertwined at this time.⁸⁷ The Swedes were important links in these networks. Thunberg and Linnaeus the Younger both upheld extensive contact with England.⁸⁸ The Swedes also acted as intermediaries between British and Dutch natural history, through exchanges of plants and publications. Examples of this expanding network is the earlier mentioned Johan Petter Bladh, who provided both the Academy in Stockholm and Sir Joseph Banks in London with plants from his posting in Canton. Another Swedish naturalist associated with Linnaeus was Johan Arnold Stützer, who like Hornstedt had been in Dutch service in the East Indies. Stützer would later be employed by the British as a source for strategic information on Java in connection with the British occupation of the island in 1811.⁸⁹

By then, the all-encompassing enquiry which had marked out Swedish travel would serve new goals. The instructions issued by Linnaeus to Christopher Tärnström in 1745 might still have been relevant, but knowledge of the natural world had entered a bigger scene, where European nations competed for political

Javanese plant. C. F. Hornstedt, *Dagbok från en resa till Ostindien 1783-85*. Archives of Svenska Litteratursällskapet, Helsinki, Finland.



Javanese lizard, from C. F. Hornstedt, *Dagbok från en resa till Ostindien 1783-85*. Archives of Svenska Litteratursällskapet, Helsinki, Finland.

EUROPEAN TRAVELLERS AND THE ASIAN NATURAL WORLD - II



OS VIAJANTES EUROPEUS E O MUNDO NATURAL ASIÁTICO - II

and economic influence. It has often been said that the scientific results by the travelling apostles was a disappointment for Linnaeus: Of the more than twenty of his own students sent out to different parts of the world, more than half perished abroad, others went insane, and some would bring back material that was never published or acknowledged. Collections were eaten by insects or lost in shipwrecks. Of all Linnaeus' travelling students, only Thunberg would pursue an academic career.

Despite calls for an overall evaluation of the contribution of Linnaeus' "travelling apostles", a comprehensive study of Swedish contribution to European knowledge of Asia has yet to be undertaken. The sketch provided here can at best serve as an introduction to the unique and mostly Swedish-language source material on Swedish contact with Asia in the 18th century. The uniqueness of these partly unexplored Swedish sources can be seen on several fronts. Firstly, the trafficking of reports, plants and naturalia was made possible by the systematic co-operation between Linnaeus himself, the Swedish East India Company, and the active role taken by the Academy of Science. Secondly, Sweden's position in Europe at this time carried advantages: after having previously lost much of its power and prestige, Sweden was no longer perceived a threat to the bigger European nations. Apart from a small trading post in the Americas, Sweden had no colonial ambitions, and in Asia it seems that Swedes indeed received a warmer welcome than other European traders.⁹⁰ This meant that the Swedes were often allowed glimpses into Asian life and its natural world that would not have been possible for representatives of other nations.

These circumstances resulted not only in a rich scientific reporting from Asia, but accumulated material that due to its diversity provide unique sources for European knowledge of Asia. Throughout his life, Linnaeus was preoccupied with utility and economic prosperity, and his great project of ordering the world encompassed a variety of subjects. All this is mirrored in the Swedish reports, where concern for the useful often overshadows purely scientific goals. In

his inauguration speech to the Academy, Pehr Osbeck spoke on "What should be attended to in Voyages to China", arguing that knowledge of the local food and medical drugs always should be the primary concerns for a traveller to China.⁹¹ In Sweden the tradition of "asking about everything" would change towards the end of the century, when the all-encompassing enquiry would give way for more specialized sciences. The earlier Linnaean tradition of one-man expeditions, with the goal of drawing up meticulous and endless lists and detailed descriptions of individual objects and specimens came to an end, giving way to new ways of seeing the natural world.⁹²

The hallmark of Linnaean travel had been the excitement over prospects of new additions to the great map of the natural world. This map, it was felt, was being drawn up back in Sweden, from where Linnaeus urged his travellers not to miss any opportunity to collect and observe. Restless impatience therefore permeated the activities of the Swedes in Asia. Osbeck once vented his frustration off the coast of Java: not being able to go ashore, he had to walk the deck of the Swedish ship "like a hungry man forced to watch food from a distance".⁹³ Back in Uppsala, Linnaeus eagerly awaited news, findings, specimens and travel reports. Most reliable of all were reports by his own men, those with a calling, men trained in the natural sciences, with knowledge and ability to see. Linnaeus once wrote to Osbeck:

"Most of the voyages hitherto published, by imposing barbarous names on their discoveries, have rather sharpened our desire for knowledge, than afforded any real instruction. You, Sir, have everywhere traveled with the light of science: you have named every thing so precisely, that it may be comprehended by the learned world; and have discovered and settled both the genera and the species. For this reason, I seem myself to have travelled with you, and to have examined every object you saw with my own eyes".⁹⁴

This unfaltering belief that fellow countrymen provided the most reliable knowledge marks the Swedish travellers out as unique informants of Linnaeus' grand project of mapping the natural world. **RC**

EUROPEAN TRAVELLERS AND THE ASIAN NATURAL WORLD - II

NOTES

- 1 'Instruction för Magister Tärnström', in Linné 1908, 53-54.
- 2 Selander 1960 and Schildt 1960 both introduce the travelling apostles and the contents of their published accounts. The most detailed study of contacts between Sweden and Asia is still Arne 1952.
- 3 Sörlin & Fagerstedt 2004; See also www.ikfoundation.org
- 4 The most detailed account of the reporting from China to the Academy of Sciences is found in Lindroth 1967. A useful overview of Sweden's relationship with the non-European world is found in Holmberg 1988. For an evaluation of Swedish attitudes to the Chinese, see Nyberg 2001. Swedish travel in Southeast Asia in the 18th century is summarized in Lind & Svensson 1987.
- 5 Biographies of Linnaeus in English are Stafleu 1971 and Wilfrid Blunt, *The Compleat Naturalist: A Life of Linnaeus*, with the assistance of William T. Stearn, London: Collins, 1971, several editions.
- 6 On Linnaeus' contribution to botany, see, for example, Eriksson 1983.
- 7 For Linnaeus' impact on Dutch natural history in the East Indies, see Smit 1978, 45-47.
- 8 See Koerner 1999.
- 9 Pehr Kalm to Linnaeus, 3.6.1748, translation in Sörlin 2000, 65.
- 10 It has been estimated that 4-8 % of soldiers and sailors on board VOC ships during the period 1633-1687 were of Scandinavian origin. See Steenstrup 1982.
- 11 None of the Swedish 17th century travel accounts are mentioned in the otherwise exhausting inventory of European writing on Asia, Donald Lach's multivolume work *Asia in the Making of Europe*, Chicago, 1977-1993.
- 12 Arne 1956; Åberg 1981, 207.
- 13 Löwegren 1936, 347.
- 14 Sundberg (ed.) 1948.
- 15 Kiöping 1667; Almqvist 1965.
- 16 Frängsmyr 1976, 20-21. Histories of the Swedish East-India Company are Frängsmyr 1976, Kjellberg 1975 and C. Koninckx. 1980. *The first and second charters of the Swedish East India Company (1731-1766): a contribution to the maritime, economic and social history of north-western Europe in its relations with the Far East*. Kortrijk. Bengt Johansson (ed.) 1992 contains useful articles on Sweden's trade with China. A new and valuable publication on the China trade is Kristina Söderpalm (ed.), 2000. *Ostindiska Compagniet. Affärer och föremål*, Göteborg: Göteborgs Stadsmuseum.
- 17 See Liedman 1989. For the history of the Swedish Academy of Sciences, see Lindroth 1967, Frängsmyr 1989.
- 18 Sörlin 2000, 59.
- 19 The regions of the far north, its people, flora and fauna were the subject of scientific curiosity in Europe and had attracted several French expeditions.
- 20 Lindroth 1967, 632.
- 21 Linnaeus 1747. Although Linnaeus made references to Rumphius, it has been claimed that he lacked a thorough understanding of Rumphius' works. See Beekman (transl. & ed.) 1999, Introduction.
- 22 'Beskrifning på et slag ostindiska ärter...ingifne af amiral Ankarcrona' (1742).
- 23 Linné 1911, 329.
- 24 Linnaeus to Elvius, in Linné 1908, 72f.
- 25 See Sirén 1948-49.
- 26 Lindroth, 635.
- 27 Leche to Linnaeus, quoted in Lindroth 1967, 638.
- 28 Lagerström also managed to salvage some journals, letters and specimens from men who had died during the journey. Linné 1911, 160, 162. See also Lindroth 1967, 636f.
- 29 Löwegren 1952, 354. No letters from Linnaeus to Lagerström have survived, but the frantic traffic in plants, animals and seeds can be followed in Lagerström's letters to Linnaeus. See, for example, Linnaeus 1920, 166.
- 30 Lagerström to Wargentin, Secretary of the Academy, in *Minutes*, 3.3.1750 (KVA).
- 31 The volumes of this work now held in the collections of the Linnean Society, London, probably originate from Lagerström.
- 32 Bretschneider 1898, 63; Lindeke & Yue 2000.
- 33 Lindroth 1967, 640. See also *Minutes* 15.6.1754 (KVA).
- 34 Dahlman's journal is kept in the archives of the Royal Swedish Academy of Sciences (KVA). For biographical information on Dahlman, see Frängsmyr 1976, 142f.
- 35 Linnaeus to Dahlman, in Linné 1911, 329.
- 36 Linnaeus 1748.
- 37 Grape 1918. Tärnström's journal has recently been published in Swedish as *Christopher Tärnström's Journal. A Passage between Europe and East Asia in the year 1746*. Mundus Linnaei, 1, 2005.
- 38 Tärnström's scientific contribution was a great disappointment for Linnaeus, only a box of seeds and a 'sea-fruit' from Java reached him. Linné 1922, 160; Frängsmyr 1976, 142.
- 39 Frängsmyr 1976, 143.
- 40 Three manuscripts by Hjortberg are held in the Royal Library, Stockholm: *Ostindisk resa 1748-49*, *Resedagbok 1749-50* and *Minnesanteckningar*.
- 41 Gethe 1975. Ten of the twenty plates are reproduced in Frängsmyr 1975.
- 42 See Gethe 1975, 52-57 for biographical notes.
- 43 For a description of his journey to the Malay Peninsula, see Koenig 1894.
- 44 A republication of Torén's journal is Torén 1961.
- 45 See Dianne Lewis 1979, 'Kedah - the development of a Malay state in the 18th and 19th centuries', in *Pre-colonial state systems in Southeast Asia*. Monographs of the Malaysian Branch of the Royal Asiatic Society, 6. Kuala Lumpur, 39ff.
- 46 Braad's papers are scattered around various archives in Sweden and Finland. The Braad collection in the Helsinki University Library contains most of his later correspondence, including five short letters from Linnaeus. The archives of the Linköping's Stiftsbibliotek holds material related to Braad's East Indian journeys, including lists of his readings during his stay in India, while Uppsala University Library has a substantial collection of notes taken in India.
- 47 C. H. Braad, *Curriculum Vitae* (manuscript), 29, Royal Library, Stockholm. On his homeward journey, Braad was shipwrecked off Limerick, and most of his collections were lost. See Frängsmyr 1976, 109-120; Nauman 1925, 626; Lindroth 1967, 642f. Biographical information is also found in Allan Ranius. 1997. *Nya strövtåg I Linköpings stiftsbibliotek*. Linköping, 65-78. The only publication on Braad's travels in India is Franks 1997.
- 48 The full title is *Beskrifning På Skeppet Götha Leyons Till Surat och Ånskillige Andre Indianske Orter. Uppsatt och i ödmjukhet öfverlemnad Till [Höglofda] Swenska Ostindiska Compagniet af Christ: Hind: Braad*.
- 49 Braad to P. Wargentin, Secretary of the Royal Academy of Sciences, 8.10. 1759. Braad collection, Helsinki University Library.
- 50 A facsimile of the 1757 edition of Osbeck's journal is Osbeck 1969.
- 51 Osbeck 1771.
- 52 For 21 plants found in or near Canton Osbeck proposed new names. See Bretschneider 1898, 59.
- 53 Linnaeus' correspondence with Osbeck has been partly published in Fox Maule & Hansen 1972-74.
- 54 Linnaeus described a further eighteen Chinese plants which appear in Osbeck's list, omitting Osbeck's name.

OS VIAJANTES EUROPEUS E O MUNDO NATURAL ASIÁTICO - II

- 55 For biographical information on Ekeberg, see Forsstrand 1928; Lindroth 1967, 643f.
- 56 *Kort berättelse om den chinesiska landt-bushållningen* (1757); *Underrättelse om Tutanego* (1756); *Om Chinesiska Soyan* (1764); *Chinesiska olje-präsen och präsnings-sätt* (1767); *Chinesernas sätt at utkläcka ägg...* (1768); *Berättelse om chinesiska olje-früet och dess trefnad i Sverige* (1764).
- 57 *Anmärkingar och beskrifningar öfver Bancasundet uti Ostindien*, Kungliga Vetenskapsakademiens Handlignar, 37 (1776). In 1774 he also presented to the Academy a splendid map of the little known south coast of Java.
- 58 A facsimile edition is Ekeberg 1970.
- 59 Bretschneider 1898, 61. Ekeberg was an important contributor to the herbarium of Peter Jonas Bergius.
- 60 See Andrew Sparrman 1785, *A Voyage to the Cape of Good Hope*. London.
- 61 Lindroth 1967, 640.
- 62 Sparrman published an academic dissertation at Uppsala in 1768 entitled "Iter In Chinam".
- 63 See, for example, Sparrman 1786-89.
- 64 Holm 1957, 9.
- 65 Linnaeus 1763.
- 66 The Queen specifically asked Lagerström to bring back a live deer from Java. See Lagerström to Linnaeus in Linné 1922, 171.
- 67 For an overview of these, see Löwegren 1952.
- 68 A database of 18th century plants in the Bergius collection can be accessed at www.bergianska.se
- 69 Koerner 1999. See also Koerner 1996.
- 70 Lindroth 1967, 226ff.
- 71 Linnaeus 1758. Here, however, the *Homo Troglodytes* is not separated as a species from the *Homo Caudatus*. A closer explanation of these beings and their sources are found in the dissertation *Anthropomorpha*, resp. Hoppius (1760), published in Linnaeus 1763, 63-76. A handwritten Swedish version of this dissertation is kept in the Linnean Society in London, and has been published by T. Fredbärj (Linné 1955).
- 72 Broberg 1983.
- 73 Linnaeus mentions his conversation with Braad in a letter to the Scottish writer Lord Monboddo, see Burnet (Lord Monboddo) 1967, 236, footnote.
- 74 For a detailed examination of Linnaeus' sources for the *Homo Troglodytes*, see Maria Christina Granroth, *European knowledge of Southeast Asia: Travel and scholarship in the Early Modern Era*, PhD thesis, University of Cambridge, UK, 2004, Chapter 1.
- 75 Johannisson 1979-80.
- 76 Bretschneider 1898, 111.
- 77 For biographical notes and a bibliography, see Wallin (ed.) 1993. A recent biography of Thunberg is Nordenstam 1993
- 78 Since Japan was closed to other Europeans, Thunberg had to disguise himself as a Dutchman, and he spent several years at the Cape learning the Dutch language.
- 79 A facsimile edition is Thunberg 1971.
- 80 Thunberg 1795.
- 81 A recent publication, *Observationes in linguam Japonicam* (Tokyo, 1994), has reproduced Thunberg's drawings of Japanese plants.
- 82 Although it has been claimed that Hornstedt brought back a living orang-utan to Sweden (Rookmaaker 1989), his journal clearly states that the animal died on board the Swedish ship which brought him back. His collections were later dispersed, much was donated to the Royal collections, the Academy, and Thunberg in Uppsala. Hornstedt's lists of his collected Javanese manuscripts, minerals and Materia Medica are to be found in the Uppsala University Library.
- 83 There exist several versions of this manuscript, one of which has been partly published (Hornstedt 1888). The only modern publication acknowledging Hornstedt's contribution to the knowledge of Java is Kumar 1989.
- 84 See Rookmaaker 1988. For Hornstedt's botanical collections, see Steenis 1949.
- 85 Smith 1821, 330.
- 86 Perhaps most prominent was Daniel Solander, a student of Linnaeus, who would spend the rest of his life in England and became a close associate of Joseph Banks.
- 87 Drayton 2000.
- 88 See Jonsell 1994. In his letters Joseph Banks reveals that Thunberg supplied him with Dutch publications, among them the proceedings of the Academy of Arts and Sciences in Batavia, which Banks had translated by a Swede residing in London. See Banks to Thunberg, 17.6.1785, Thunberg Collection, Uppsala University Library.
- 89 There are 5 plants collected by Bladh in the Banksian Herbarium.
- 90 Sörlin 2000.
- 91 Osbeck 1771, 130-131.
- 92 See Eliasson 1998.
- 93 Osbeck 1969, 87.
- 94 "Linnaeus's Letter to Mr Osbeck", in Osbeck 1771, 127-8.

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