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The Transported Flowers of Botany Bay: Herbarium, Greenhouse or Botanical Ark?

Early Representations of the Australian Flora in the Work of British and French Naturalists, Botanical Artists and Gardeners

Abstract: The story of the transported flowers of Botany Bay cannot be told without referring to one important principle of Enlightenment which is the idea that scientists cooperated in their shared aim to learn and to earn. Science made travelling safer and enabled governments to make use of their new discoveries: unknown territories and exotic species also added empirical findings to the knowledge of that time period. It was easier than before to record and spread knowledge whether it was documented in encyclopaedias or exhibited in the public sphere. The fascination with botany was widespread at the end of the eighteenth century and it demonstrated the interest of enlightened circles in natural sciences in a very colourful way. In this essay, the author explores botanical representations, made by British and French naturalists, gardeners and painters who were pioneers in their field of research: They put Australia's flora on the botanical map and introduced it to a wider public with astonishing results. These pioneers came together in one historic endeavour: to present and to preserve Australia's exotic world of plants in herbaria, in paintings and in gardens. A discussion of the early perception, description and nursery of New Holland's plants in Europe exemplifies important aspects of this particular chapter of Australian history. At the same time it reveals a successful collaboration between British and French botanists during times of war.¹

"How vain are the hopes of man! Whilst the whole botanical world, like myself, has been looking for the most transcendent benefits to our science, from the unrivalled exertions of your countrymen, all their matchless and truly astonishing collection, such as has never been seen before, nor may ever be seen again, is to be put aside untouched, to be thrust into some corner, to become perhaps the prey of insects and of destruction".² When the Swedish botanist and rector of Uppsala University, Carl von Linné (1707–1778) heard that his former student, Daniel Solander (1733–1782), intended to participate in a new research expedition, only a few months after his return from the southern hemisphere, von Linné was not exactly delighted. Daniel Solander and Joseph Banks (1743–1820) had returned to England in July 1771. These two surviving naturalists had accompanied James Cook on his voyage around the world between 1768 and 1771. The famous Swede wrote his letter to the British naturalist John Ellis (d. 1776) in October 1771. At this point in time, he thought that the new discoveries, unknown species brought home to England by Banks and Solander from their voyage to the South Sea, would not receive any critical appraisal in the foreseeable future. In his letter, von Linné voiced his concern by telling John Ellis that Solander's intention to leave Europe once more "has affected me so much, as almost entirely to deprive me of sleep", and he urged Ellis "to do all that in you lies

1 In memoriam of Professor Jan Bender († Portland, Oregon 2018). The author gratefully acknowledges Bender's advice who commented upon an earlier version of this article.

2 Carl Linnaeus to John Ellis, October 22, 1771, in: James Edward Smith, ed., 1821. *A Selection of the Correspondence of Linnaeus and Other Naturalists from the Original Manuscripts*, Vol. 1, 267.

for the publication of these new acquisitions, that the learned world may not be deprived of them".³

A Theoretical Approach: The Virtual Greenhouse

The correspondence between Carl von Linné and John Ellis identifies two key questions: How was it possible to learn something about New Holland's exotic flowers, unfamiliar trees and wild shrubs without visiting the unknown continent? And: Who made use of any such botanical knowledge and in which way? These were relevant questions in 1771 as the participation in a scientific expedition was a privilege of only very few people. It must not be forgotten that the expedition of *HMS Endeavour* was the first known voyage to the southern hemisphere devoted exclusively to scientific discovery.⁴ It was a high-profile project marking the age of Enlightenment in Europe. Botany was an important field of scientific research, and natural resources were respected for their economic potential by statesmen in many countries.

The greenhouse of Botany Bay was never built. It is a hypothetical concept, rendered by the author who is a historian, and serves as a useful approach to the following analysis which deals with a successful collaboration between British and French botanists in the age of discovery for the benefit of Australian natural sciences. The historian's question behind its hypothetical construction is whether or not any new – botanical or horticultural – knowledge gained at the time could be useful or at least self-serving. The (re)construction of a virtual greenhouse and the display of a selection of Australian plants at the time of their first description at the end of the eighteenth century reflect the way of dealing with the exotic, in general, and with New Holland's flora in particular. Important sources can be found in the first books on Australian flora and in the literature about the earliest experiments of Australian plant breeding in England and France.⁵ For this purpose, I explain the hypothetical design of a virtual greenhouse as follows:⁶ Its four sides exhibit the lines of botanical

3 Linnaeus to Ellis, October 22, 1771, in: Smith, *Correspondence*, Vol.1, 268.

4 It must be noted that William Dampier's landfall at Shark Bay (Western Australia) in 1699 resulted in the first known description of Australian flora: William Dampier, 1729. *A Voyage to New Holland in the Year 1699*.

5 As this essay focuses on the early representation of the Australian flora in Europe and the transfer of plants to Europe, readers are advised to consult different types of primary sources: (a) the records of the first British and French scientific expeditions to New Holland, (b) catalogues of botanical gardens in England and France, (c) the first known botanical works on the so-called 'general Australian flora'. For a first orientation see: the journals written or/and edited by Arthur Phillip (1789), John White (1790), or Jacques-Julien Houtou de Labillardière (1800). Another important group of primary sources are the catalogues of cultivated plants, compiled by: Charles Louis L'Héritier de Brutelle (1788), William Aiton (1811) and Aimé Bonpland (1813). The third group refers to the category of 'general Australian flora', i.e. works of botanical art and scientific description: James Edward Smith (1793f.), Étienne Pierre Ventenat (1803f.) and de Labillardière (1804–1806) exemplify the group of enlightened scientists and gardeners who compiled the first books on the Australian flora. The author of this essay emphasizes that these works only describe a small selection of relevant research material. Several important collections of Australian flora are held in herbaria in London, Paris, Geneva and Florence. However, research for this essay focussed on a case study: it deals with *knowledge transfer* and *knowledge transformation*, i.e. the establishment of the Australian flora in Europe's cultural and horticultural contexts – a project which was achieved (not merely) by British-French collaboration. Therefore, research was limited to the Australian flora as subject of British and French botanical art and gardening (horticulture). Botanical exploration of New Holland during the age of discovery describes an important subject for research which has created a wide range of published works. In this particular context readers should refer to two carefully selected studies: Roger L. Williams, 2001. *Botanophilia in Eighteenth-Century France: The Spirit of the Enlightenment*, International Archives of the History of Ideas, Vol. 179; Williams, 2003. *French Botany in the Enlightenment: The Ill-fated Voyages of La Pérouse and his Rescuers*, International Archives of the History of Ideas, Vol. 182. For a general orientation: Wilfrid Blunt, 1994. *The Art of Botanical Illustration: An Illustrated History*; Helen Hewson, 1999. *Australia: 300 Years of Botanical Illustration*.

6 An interdisciplinary approach can be found in the following Project Paper: Susan Turner and others, n.d. "Re-creating the Botanic: Towards a Sense of Place in Virtual Environments". The authors of this paper

thinking in the age of Enlightenment *and* the findings of recent academic research about this important issue.⁷

The historical concept of botanical thinking was built on three pillars: (a) the aim to name and describe a new species, (b) the evaluation of its economical value and its possible cultivation, (c) the aesthetic perception of the plant as a living organism or as a painted image. New research has been done on this subject: Therefore, it is necessary to design a hypothetical roof construction – the fourth structure and top – which shelters the case study from the dust of outdated interpretations: (d) its flexible architecture, designed by contemporary academic discourse on the history of scientific illustration (or flower painting) and environmental concern, sheds light on the evolution of Australian botany as a self-serving field of interest.⁸ One of these architects who appreciates to work with transparent structures is Judy Dyson (Monash University). In her profound analysis, “Botanical Illustration or Flower Painting: Sexuality, Violence and Social Discourse”, Dyson argues:

Botanical illustration and flower painting are regularly designated as separate genres, one scientific, the other art historical, distinctions that are challenged [here] as problematic given that the art forms share and interrelate in ways that have not been sufficiently considered. [...] However, botanical illustration has a long genealogy that participated in developing cultural concepts of aesthetics, religion, and society long before Linnaean classificatory systems brought about a proliferation of plant illustration in the eighteenth century. (Dyson: 1)

The basic message of Dyson’s perception is her advice to read botanical representations, be they verbal or illustrative, as a “cultural text[s]” that transports “associated forms of knowledge”, such as social, psychological or political implications (ibid.: 4–5). In this context, I will focus on culturally motivated *transportation* of the exotic together with its rather tangible botanical *translation* into British and French concerted efforts to exhibit and cultivate exotic plants at home – against all natural and logistic obstacles, including administrative barriers.⁹

The “Flower Alliance”: Botany Bay on the Enlightened Horizon and the Transparency of British and French Scientific Collaboration

With this analytical approach in mind, the cornerstones of the Australian greenhouse were laid in the vestibules of Europe’s powerhouses: London and Paris. The governmental endeavour which brought Europe’s natural scientists in contact with the world overseas started with James Cook’s voyages in 1768. “Botany Bay” was

investigate “the sense of place in a real-world location”. In a rather unexpected way this discussion refers to the process of plant transfer between two locations: a native environment (New Holland) and a virtual environment (glasshouse in a European botanical garden).

- 7 In this context, enlightened thinking is defined as encyclopaedic research patterns of different social groups and professions which were anxious to shed light on an unknown world of botanical specimens.
- 8 The *architecture* of colonial botany has a complex design. It can be *rebuilt* by interdisciplinary research: Londa Schiebinger and Claudia Swan, eds., 2005. *Colonial Botany: Science, Commerce, and Politics in the Early Modern World*. The editors of this exquisite analysis stress the complexity of colonial botany by presenting a variety of approaches to their field of research. For example, 14: “Revisiting the history of the objects and practices of colonial botany requires us to think about the ways in which things from far-flung places were amassed, transported, collected, bought and sold, processed, and otherwise put to use. In most cases this concerns the storage and cultivation of specimens in gardens and other collections; colonial botany was also practiced through pictorial representation, indexing and classifying practices, and display”.
- 9 Schiebinger and Swan, 16: “The story of colonial botany is as much a story of transplanting nature as it is one of transforming knowledge”.

a neologism created by James Cook in his journal on May 14th, 1770¹⁰ – and Botany Bay was a floral wilderness which, due to the landing of the *HMS Endeavour* at the Australian coast in April 1770, lost its isolation. The isolated insulated ecosystem came into sudden contact with an outside world: the Aborigines were puzzled to see a group of collectors who did not collect plants for food but for their research aims. Europe’s enlightened naturalists had come from so far only to leave with botanical specimens in glasses and blotting blocks. How could the natives know that, for the foreigners, nature was a matter of exact description and classification? Aboriginal and European perceptions of nature certainly differed from each other and it can be speculated what Indigenous people might have thought when they watched the visitors discovering unfamiliar trees and shrubs, or collecting plants or flowers which the Aborigines had known for thousands of years.

At the end of their first expeditions, Britain and France claimed a share of the early Australian floral collection.¹¹ Until 1795, at least two major collections of Australian botanical specimens existed in Europe: James Cook’s and Daniel Solander’s herbaria, with illustrations made onboard the *HMS Endeavour* by their contracted botanists.¹² The other collection consisted of Jacques-Julien Labillardière’s (1755–1834) plant materials which he and his French colleague Felix Delahaye (1767–1829) had compiled onboard the *Recherche* and *Espérance* during the search for La Pérouse’s lost French expedition to the South Pacific between 1791 and 1795.¹³ As the Australian archaeologist and historian John Mulvaney points out: Tasmania’s Recherche Bay “was endowed with international significance through its contribution to the identification of Australian flora” (33) when Labillardière and his colleagues left the coast with several thousand of specimens which they had collected during their visits in 1792 and 1793.¹⁴ It was the time of the French Revolutionary Wars (1792–1802). There were strong political tensions between London and Paris, culminating in the War of the Second Coalition in 1798 which came to a temporary end with the Peace Treaty of Amiens in 1802. The years 1788 until 1803 mark the time between the great expeditions to the South Sea made by James Cook, de Bruni d’Entrecasteaux, and Nicolas Baudin. Exactly in this era of military conflict influential patrons and savant botanists on both sides of the channel considered publicising the first important works on Australian flora.

Carl von Linné had assumed in 1771 that British research “will afford a fresh proof that the English nation promotes science more than the French, or all other people together”.¹⁵ The most famous British patron of botanical science who came in contact face-to-face with the Australian flora was Joseph Banks. When Joseph Banks

10 James Cook, *Journal: Daily Entries*, May 14, 1770, Transcription of Manuscript 1 (Canberra: National Library of Australia, 2004), 236.

11 This essay will not deal with other botanical collections in Europe (such as those created by Austrian or Italian collectors).

12 This statement does not refer to private collections of plant material and botanical drawings; see: Louise Anemaat, 2014. *Natural Curiosity: Unseen Art of the First Fleet*.

13 The French ships of La Pérouse’s expedition were last seen at Botany Bay in 1788. La Pérouse’s disappearance and the tragic loss of his crew and scientific staff were responsible for the commission of a search and rescue expedition in 1791. The search onboard the *Recherche* and *Espérance* served as another French scientific project: the new expedition under Commander Admiral Joseph-Antoine-Raymond de Bruni d’Entrecasteaux failed to find the lost crew of La Pérouse’s expedition but the newly contracted scientists created France’s first Australian botanical collection. Again, these ships and most of the crew members never returned to France: the search route ended in Java in 1793. Labillardière, one of the botanists of this expedition, returned to France in 1795.

14 The total number of specimens can only be estimated as the team of botanists and gardeners had collected leaves, flowers, fruits and seeds in Tasmania and Western Australia; Mulvaney: 32.

15 Linnaeus to Ellis, October 22, 1771, in: Smith, *Correspondence*, 268.

took over the position of an informal adviser for the Royal Botanic Gardens at Kew which had been offered to him by King Georg III about 1772, Britain's strategy of botanical research became visible: During the following years the Royal Botanic Gardens at Kew developed into Britain's most famous scientific centre of commercially oriented botany. Joseph Banks worked to build up Kew as a research institution where economic considerations determined scientific work. Description and classification of botanical specimens were part of the enlightened research scheme, but more than this, it was the plan to conduct experiments of acclimatization with the aim to transport plants from one part of the world to another and to grow for commercial reasons (Adams 1986: 136; Brockway). The study of plant diversity and economic botany developed into the main research aim at the Royal Botanic Gardens at Kew which were first created in 1759 (RBG, Kew webpage). Joseph Banks' work was a two-part project: he acted as patron of science who sent out gardeners to collect plants and seed worldwide and, at the same time, managed the editorial work on the publication of his *Florilegium* by supervising the documentation of the botanical collections of the *Endeavour* voyage. His editorial work which was accompanied by detailed botanical categorization work of Daniel Solander and Jonas Carlsson Dryander (1748–1810), who were both students of Carl von Linné, did not lead to a publication by Joseph Banks during his lifetime.¹⁶ Instead, Joseph Banks promoted the international exchange of knowledge as he “wanted science to continue freely” (Macinnis: 25).

The scientific work on Australian flora shows intensive concentration on the subject on both sides of the channel from the beginning. Interestingly, wartime encouraged peaceful scientific collaboration behind the curtain: The military conflict between France and Britain did not stop secret negotiations and unofficial agreements between naturalists in both countries. This collaboration culminated in the transport of Frenchman Jacques-Julien Labillardière's botanical collection from Java to England in November 1795, and its final release to France as a result of Joseph Banks' intervention in London's old Foreign Office (Hamilton 1998: Chap. 17, 207/pdf version). When Joseph Banks returned Labillardière's collection he wrote to a friend in France: “I shall not retain a leaf, a flower, or a Botanical idea of his collection” (ibid.). Banks' remark stands for collegial fairness and refers to the sanctity of intellectual property. But it also illustrates a characteristic attribute of enlightened thinking: the challenge for a high degree of transparency in scientific affairs. The author will call this kind of botanical collaboration the *Flower Alliance*. In particular, the term demonstrates the common approach of English and French botanists, gardeners, botanical agents in their joint efforts to publish works on exotic flora – and it emphasizes the work of patrons referring to the impetus created by botanists in the circles of Kew Garden or, for example, in the entourage of the French society at the Royal Park in Malmaison.

It did not take long that the *Flower Alliance* between naturalists from the United Kingdom and France made it possible to discover the novelties of Botany Bay in Europe: Artists illustrated books and decorative items with floral emblems from the Southern Pacific. Horticulturists introduced exotic plants at noble estates. Together

16 The engravings were printed and published for the first time in colour between 1980 and 1990 by Aleco Historical Editions in association with the British Museum (Natural History) in an edition limited to one hundred sets. See also: Brian Adams and Robert Hughes' ABC film documentary (DVD) of 1984 which illustrates “the massive undertaking in producing a full-colour edition of Banks' *Florilegium*” (DVD cover text).

they built a virtual greenhouse in which New Holland's newly discovered flora, figuratively speaking, could flourish: The compilation and subsequent evaluation of plant collections, the exchange of seeds between botanists and wealthy landowners, and the preparation of publications by patrons and artists followed in due course. This helped to undermine belligerent alliances and guaranteed a certain degree of collegial fairness, in itself an important chapter in the history of Australian natural sciences. Australia's flora certainly was one medium that *transported* the *exotic* into European thinking.¹⁷ We will follow up two examples of knowledge transfer between botanists in Britain and France. One was the way to publish works on New Holland's world of plants, the other to cultivate their exotic flora.

Australia's Specimen:

A Challenge for Scientific Performance or Describing the Non-Descript

Voyages of scientific exploration were part of England's and France's endeavours to expand their colonial influence overseas in the late eighteenth century. An integral part of this strategy was the documentation and publication of new discoveries. As a result, the main impetus to publish on New Holland's flora came from the idea of bringing little known plants to the attention of an interested readership in England and France. Mainly three groups participated in this effort: The first group consisted of wealthy men and women who were amateur naturalists and who acted as self-appointed patrons of science. The second group was made up of professionals, academics who had studied botany, or gardeners whose main business was the cultivation of plants. These gardener-botanists normally were hired as botanical assistants to care for the plants on a scientific voyage. The third group consisted of artists and engravers who specialized in botanical illustration.

Botanical specimens from Australia were made part of larger collections with plants from different parts of the world. As a result, the first printed books which dealt with unknown leaves, nuts, and seeds from New Holland were published as part of the general literature on the exploration voyages. They included only scattered references to the Australian flora, as, for example, in the journal compiled by John Stockdale and published in London in 1789: *The Voyage of Governor Phillip to Botany Bay*.¹⁸ This journal contains the very first published botanical plate of an Australian plant, a depiction of the Yellow Gum Plant: most probably this was based on a sketch made by a First Fleet officer in New Holland although it did not show its natural habitat. The depiction accompanies Arthur Phillip's diary entry of the 26th January 1788 which among other things deals with the treatment of dysentery. Phillip's botanical observation is descriptive and pragmatic by focussing on the red and yellow gum tree's medicinal properties and its healing effects. His notes are also interesting for their anthropological aspects with regard to the use of the tree by the local Aborigines:

The plant that produces it [a resin] is low and small, with long grassy leaves; but the fructification of it shoots out in a singular manner from the centre of

17 The contemporary use of the term *exotic* refers to a *passion* (= *exotick*) which encouraged Europeans to cultivate frost-tender 'exotick' plants in the northern climate: "Capturing Flora: A Passion for the Exotick", Travelling Exhibition, Art Gallery of Ballarat (August–October 2014).

18 Arthur Phillip, 1789. *The Voyage of Governor Phillip to Botany Bay with an Account of the Establishment of the Colonies of Port Jackson and Norfolk Island*.

the leaves, on a single straight stem, to the height of twelve or fourteen feet. Of this stem, which is strong and light, [...] the natives usually make their spears; sometimes pointing them with a piece of the same substance made sharp, but more frequently with bone. (A. Phillip: Chap. VII, January 26, 1788)

Already one year later it was John White's *Journal of a Voyage to New South Wales* (published in 1790) which presented at least nine descriptions of Australian botanical specimens, created by, among others, artist Sarah Stone (c.1760–1844) and botanical specialist James Edward Smith (1759–1828).¹⁹ These were specimens that the First Fleet Surgeon-General and keen amateur naturalist John White (c.1756/7–1832) had sent back to England. His journal was probably edited by Thomas Wilson and soon translated into German, Swedish and French. Its creation and final publication served two aims, according to the dedication written by the Irish-born John White to his friend Wilson: "Its principal object [is] to afford you some amusement during your hours of relaxation. [...] It may tend to the promotion of your favourite science". In his dedication, New South Wales' "curious cones of trees and other natural productions" were classified as newly discovered plants or so-called "Non-descripts" (White: Advertisement). It is interesting to note that the book is full of references to classification work done by foreign botanists: Carl Linnaeus the younger (1741–1783), Joseph Gartner (1732–1791), or Charles Louis L'Héritier de Brutelle (1746–1800). The French connection was noted as relevant, for example, in the Journal's Appendices on "The Peppermint Tree": "The name of Peppermint Tree has been given to this plant by Mr. White, [...]", "undoubtedly of the same genus as that cultivated in some greenhouses in England, which Mr. L'Héritier has described in his *Sertum Anglicum* [1788] by the name of *Eucalyptus obliqua*" (ibid.: Appendices). This book by the French botanist L'Héritier already offered descriptions of rare plants which the author had located in gardens around London in the period of 1786/1787. One was Australia's well-known *Eucalyptus obliqua* which L'Héritier originally located in Nova Cambria [Australis] (i.e. New South Wales).²⁰

Yet, the botanists working on White's plant material emphasized that no final determination of their example was possible until they were able to compare both plants in flower. The British reference to L'Héritier's work was notable in two ways. First, botanical classification did not come to an end by comparing fruits, leaves, barks and stamina. Botanical studies were based on the need to collect plant materials from different sources, to learn from knowledge transfer across borders, and to exchange empirical findings with the help of colleagues in London, Paris, Uppsala or other hubs of botanical research. Second, British and French botanists paid respect to each other for pivotal scientific work done by their foreign colleagues.

From today's perspective, academics with a focus on environmental history may argue that the eco-botanical archive of Australia's vegetation, as observed at the end of the eighteenth century, rests on the foundations of Joseph Banks' and Jacques Labillardière's botanical collections of 1771 and 1791. Yet, the concept of an *Australian Flora*, interpreted in an emblematic sense as New Holland's exotic image, leans on two mainstays, of 1793 and 1800: These two works, a British and a French compilation, can be seen as first drafts for a scientifically based documentation of Australian

19 John White, 1790. *Journal of a Voyage to New South Wales with Sixty-five Plates of Non Descript Animals, Birds, Lizards, Serpents, Curious Cones of Trees and Other Natural Productions*.

20 Charles L'Héritier de Brutelle, 1788. *Sertum Anglicum: Plantae Rariores quae in Hortis Juxta Londinum, imprimis in Horto Regio Kewensi excoluntur, ab anno 1786 ad annum 1787 observatae*, Tab. 20.

flora. They appear to be the basic cornerstones of Australia's botanical studies at the time of Enlightenment. The first scientific book "devoted solely to the botany of Australia" is a contemporary synopsis of botanical knowledge about Australia's flora.²¹ It reflects both British and French botanical observations in New Holland at the end of the eighteenth century. It came out between 1793 and 1795 under the title: *A Specimen of the Botany of New Holland*, and was intended to

inform the cultivators of plants concerning what they have already obtained from New Holland, as well as point out some other things worthy of their acquisition in future. (Smith 1793: vii)

The book was published in English by James Edward Smith, and it appeared to be no modest claim when Smith wrote in his preface:

As the author intends it for the use of his countrymen and countrywomen, it is written in their own language – a language every day growing more universal, and which many circumstances now seem to point out as likely to become the most so of any modern one. (ibid.)

In spite of this statement, Smith and the famous botanical artist James Sowerby (1757–1822), who created 16 hand-coloured illustrations, did not refrain from paying respect to French botanists and their research. In fact, references to the French botanist L'Héritier, whose pioneering work they appreciated, were ample.

In particular, James Edward Smith mentioned the work on the "genus of *Eucalyptus*, established by the celebrated French botanist M.L. L'Héritier, of whose fate amid the present dreadful convulsions of his country we have for some time been ignorant" (Smith 1793: 39–40). L'Héritier was the first to publish the image of a species called *Eucalyptus obliqua* in 1788. It was created by a famous botanical artist: Pierre-Joseph Redouté (1759–1840). His image preceded James Edward Smith's published illustration of the *Eucalyptus robusta*. This shows that British and French botanists continued their intellectual dialogue through difficult times. It was no coincidence that Smith in his work of 1793 repeatedly points to botanical research done by French botanists when describing a new plant, as another example demonstrates: One of Sowerby's most accurate engravings illustrates the climbing Apple-berry which, according to Smith, was given the name *Billardiera scandens* "in honour of James Julian la Billardière [sic/ ...] now engaged as botanist on board the French ships sent in search of M. de la Peyrouse", and was the "only wild eatable fruit of the country [New South Wales] we are about to illustrate" (ibid.: 3 and 2). Smith notes: "Amid all the beauty and variety which the vegetable productions of New Holland display in such profusion, there has not yet been discovered a proportionable degree of usefulness to mankind, at least with respect to food" except for this plant (ibid.: 1–2). Smith placed the floral plate of the Apple-berry at a prominent place right at the beginning of his documentation.

James Edward Smith's groundbreaking treatment of the Australian flora certainly illustrated Britain's expertise in the field of natural science. It also underlined Britain's aspiration as a colonial power with strong ambitions to expand her influence in science and in politics. However, the endeavour to publish an encyclopaedic work on New Holland's world of plants developed into a French project. When French

21 James Edward Smith, 1793 [Reprint 2005]. *A Specimen of the Botany of New Holland* with figures by James Sowerby, Vol. 1, 57.

Botanist Jacques-Julien Houtou de Labillardière published his impressive work of the Australian flora, this showed a peak of scientific occupation with exotic plants, and it demonstrated that, in fact, “Paris [had become] the center of botanical development” (Williams 2001: 1).



Billardiera scandens.
James Edward Smith.
A Specimen of the Botany of New Holland.
Engraved by James Sowerby.
London: J. Davis, 1794
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The two volumes of *Novae Hollandiae Plantarum Specimen* were printed in the years 1804 to 1806.²² They were the results of extensive collection work in Southwest Australia and Tasmania onboard the *La Recherche* during the years 1792/93. Labillardière had assembled hundreds of specimens of Australian flora during his visits with Joseph-Antoine-Raymond Bruny d'Entrecasteaux (1737–1793) to the Recherche Archipelago at the South coast of today's state of Western Australia and Tasmania. Numerous new specimens were described. However, the author later had been criticised for not acknowledging the botanical work of his colleagues Claude Riche (1762–1797), Étienne Pierre Ventenat (1757–1808), Félix Delahaye (1767–1829) or Jean-Baptiste Leschenault de la Tour (1773–1826) who accompanied Nicholas Baudin (1754–1803), and for giving inaccurate references to locations of collection (Nelson: 159–170). Exactly at the turn of the century, in the year 1800, Labillardière presented first illustrations of certain botanical specimen from Australia in his expedition journal: *Relation du Voyage à la Recherche de la Pérouse*.²³ Although this journal was not conceived to be a botanical compendium, its selected illustrations of Australian flora reflect face-to-face observation by the author himself.

22 Jacques-Julien Houtou de Labillardière, 1804–1806. *Novae Hollandiae Plantarum Specimen*, 2 Vols. For Open Access see: Online Biodiversity Heritage Library (BHL).

23 For example: Drawings of *banksia repens* and *banksia nivea* in: Jacques-Julien Houtou de Labillardière, 1800. *Voyage in Search of La Pérouse*, Vol. 1, 466–467.

Habitat research *and* the aesthetic performance of the exotic appeared to be two essential aspects which enlightened botanists tried to satisfy with their publications. This, in particular, was a challenge for botanical artists as well as for gardeners who were on the payroll of state institutions or wealthy landowners. Therefore, it is worth discussing a few examples which support the thesis that all research on the Australian flora remained theory until illustration *and* cultivation would *transport* the exotic into the mind of the people.



Banksia repens.

Atlas pour servir à la relation du voyage à la recherche de la Pérouse. Plate no. 23

Engraved by Pierre-Joseph Redouté.
Paris: H.J. Hansen, 1800; Chez Dabo 1817.

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Australia's Flora:

Plant Breeding and the Cultivation of the Exotic – a Matter of Prestige

Most of what had come to light about New Holland's plants after James Cook's expedition up to the year 1800 was the work of British and French artists and engravers, but also of agents and their botanical assistants who made seeds and sprigs available. In their work they filled abstract terms of Latin plant nomenclature with vivid colour. French botanists and their contracted artists produced remarkable illustrations of newly discovered Australian flora. In this context, it is worth noting that France's enlightened botanical audience, in particular, was interested in aesthetic principles rather than economic purposes: patrons spent huge amounts of money for their passion. In his fundamental work on *Botanophilia in Eighteenth-Century France*, the American historian Roger L. Williams has shown in a most impressive way that it had been French influence that dominated the development of botanical studies, turning it into "the amiable science" (Williams 2001: 2). It is a highlight of enlightened thinking that the botanists among the French encyclopaedists developed into

defenders of the “assumption that pleasure was compatible with learning” (ibid.). The French approach to botany as “the amiable science” also influenced the image of Australian flora in the early period. Williams argues that “an elegant work of art designed to attract the wealthy botanical amateur dictated the format” of botanical publishing by referring to the French naturalist Louis-Jean-Marie Daubenton (1716–1800). The renowned keeper of the Department of Natural History at the Cabinet du Roi (associated to the Jardin du Roi) and member of the French Academy of Sciences Daubenton “urged that the methodical order [in a bound herbarium] be violated to achieve an arrangement more pleasing to the eye” (ibid.: 148, 2).

The French approach did show that the ‘violation’ of taxonomic description as the prevailing principle of description in favour of the aesthetic principle of botanical instruction did not necessarily affect scientific demands. Aesthetic botany and horticulture perfectly fit into the artificial habitat of European greenhouses or royal gardens. Aesthetic botany also found its reconstruction on rough copper plates on which able engravers made exact etchings of the specimens from overseas or from grown offspring. Among these talented men who gave shape to the exotic and, thereby, for the first time depicted today’s most famous floral emblems of the Australian continent was the famous botanical artist Pierre-Joseph Redouté. As mentioned previously: During his stay at the Royal Botanic Gardens in Kew in the year 1787, the artist from the small village of Saint Hubert (then part of the Grand Duchy of Luxembourg), Pierre-Joseph Redouté, pictured the first Eucalyptus known to be grown in Europe (Hamilton 1999: 21/pdf version).²⁴ This symbolic act not only illustrated the British-French botanical collaboration in a beautiful way but started the era of prestigious publications on exotic plants, as for example, Labillardière’s *Novae Hollandiae Plantarum Specimen* (1804–1806). The compendium includes more than 250 black-and-white illustrations and more than 350 descriptions.²⁵ Most of the engravings were made by Auguste Plée (1787–1825) and his son Victoire, using drawings which for the most part had been created by Redouté and Pierre Antoine Poiteau (1766–1854). Pierre Jean F. Turpin (1775–1840) and other artists added drawings to the compendium, and Labillardière and Jean Piron contributed sketches which they had made during their visits to the Australian coast.²⁶ This illustrious team marked the first peak of Australian floral documentation right at the beginning of France’s “golden” period of botanical art (Rix: 128–145). Illustrated folios literally helped to step into the virtual greenhouse of Australian flora. Although only a few wealthy people could afford to buy botanical folios, it was the enjoyable moment of looking at botanical illustrations which they shared with others and which opened a window to a new world: What became a matter of prestige – to own one of the rare editions or to be invited to privileged circles which had access to them – promoted the natural sciences, in general, and Australian natural sciences, in particular.

Botanical artists like Pierre-Joseph Redouté or Pierre Antoine Poiteau not only filled the imagination of a far distant natural environment with colour by shedding light on the unknown. From today’s perspective, their reconstruction of Australia’s

24 L’Héritier, *Sertum Anglicum*, Plate *Eucalyptus obliqua* (created by Redouté).

25 Description of *Novae Hollandiae Plantarum Specimen* by Antiquariaat Junk (Natural History Bookseller): <http://www.antiquariaatjunk.com/item.php?item=8716>, Accessed 23 March 2015 but in 2019 deleted from the internet.

26 Ibid. Until 2005/6 when Edward Duyker published his biographical research very less information was available about the artist Jean Piron: “Uncovering Jean Piron: In Search of D’ Entrecasteaux’s Artist”, *The French Australian Review*, No. 39, 37–45. For information on botanising and drawing by Piron, see Mulvaney, ‘The Axe had Never Sounded’, 32.

flora at the beginning of the European immigration presents precious insights into a complex biotope rich in species and nearly untouched by systematic settler cultivation. For example: A likely source of authentic “Australian ‘type’ specimens” which, in fact, would have equipped a botanical ark with Australian flora (of his time) is Félix Delahaye’s collection of dried plant material and seeds (Duyker 2010: 3). According to Edward Duyker it is “now held in herbaria in Paris, Geneva and Florence” (ibid.). However, Delahaye was a gardener and, as a result of his profession, he created the first European vegetable garden in Van Diemen’s Land (Tasmania) during the same period: in 1792/93. In a metaphorical sense: While Delahaye entered the botanical ark he abandoned it (by changing the status quo of Australia’s environment). This left historical documentation of the *status quo* to scientific description and botanical art – preserved by enlightened collectors.

Although Redouté, the master of French botanical art, had to rely on sketches drawn by other artists, he turned dried material from herbaria into vivid representations of flowers and trees. He regarded flowers and plants as individual creatures. This talent made his widely reproduced work very popular. In fact, Redouté’s beautiful depictions of the Australian flora were masterpieces characterizing the distinguishing features of New Holland’s nature. Many of these watercolours were reproduced and printed in compendiums. Redouté’s artful and astonishing output of illustrations, probably more than one hundred, promoted interest in Australia’s vegetation on a wide scale (Hamilton 1999: 3/pdf version). Many of the original drafts and paintings are now housed at the Fitzwilliam Museum at Cambridge University and in the Muséum d’Histoire Naturelle in Paris.

For wealthy people, it certainly was a matter of prestige to gain access to such publications, outdone only by the chance to cultivate exotic plants in their own gardens. The only way to come in touch with exotic flora and their strange features was the access to plants which were grown in the mild climate of French or British gardens, since glasshouses were hardly common.²⁷ This was characteristic of the age of Enlightenment, in which “everything seemed possible”, and the transplantation of exotic plants into European soil was just another experiment (Ingleton Paper). When the offspring of a Banksia plant, an Eucalyptus obliqua or the emblematic Waratah sent out their first leaves, this was a success, a unique moment, in which the exotic became tangible. James Edward Smith, for example, refers to such rare cases by describing the successful nursing of a Waratah: “Only one garden in Europe, we believe, can boast the possession of this rarity, that of the Dowager Lady de Clifford, at Nyn Hall, near Barnet, who received living plants from Sidney Cove, which have not yet flowered. The seeds brought to this country have never vegetated” (Smith 1793: 20).

Another example demonstrates that botanical artists, in particular, depended on the chance to observe unfamiliar plants in real life. Smith mentions the “new and very singular species of Embotrium a plant brought from New Holland flowered last summer, for the first time, at Messrs. Grimwood’s at Kensington, from which our figure was drawn” (ibid.: 23). A growing number of British and French parks developed into test nurseries where New Holland’s botanical offspring were observed by

27 William Aiton, 1811. *Hortus Kewensis or, a Catalogue of the Plants Cultivated in the Royal Botanic Garden at Kew*, Vol. 2, 36 and 39 (Aiton listed plants from New Holland which were introduced by Joseph Banks, Lee & Kennedy and other collectors or plant agents in 1790/91).

artists and “scientific botanists”, as James Edward Smith designated them (*ibid.*: 3). Landowners and their landscape designers experimented with the construction of so-called hothouses which emerged with increasing shipments of exotic plants to Europe. Prominent nurserymen and plant agents like John Kennedy and his partner James Lee acquired and provided exotic plants for cultivation tests in hothouses and on the pleasure grounds of the nobility. One of the earliest constructions was built by Napoléon’s first wife, Joséphine de Beauharnais, at her royal estate Malmaison near Paris. Her exhibition of Australian plants and animals as well as her patronage of famous landscape designers, botanists and artists highlighted this development which had started long before Nicholas Baudin in 1802 sent home new botanical cargo with the *Naturaliste*. The wish to grow exotic plants from New Holland prevailed among the wealthy in England and France.

Joséphine de Beauharnais, Napoleon’s first wife, and her ambitious project to introduce plants from New Holland in France represented an important concept of dealing with Australia’s floral novelties: The promotion of the exotic through aesthetic representation (Ingleton Paper: 2–3).²⁸ The famous book *Jardin de la Malmaison* which was commissioned by Joséphine de Beauharnais presented impressive illustrations of selected Australian flowers. Many of Pierre-Joseph Redouté’s paintings depicted plants which were cultivated in gardens around Paris. However, Joséphine de Beauharnais was also in close contact with scientists and plant collectors in England.²⁹ Often newly cultivated flowers or seeds had come from British collections. Several Australian specimens which can be found in this compilation were already known to scientists in England and France but were first published in Étienne Pierre Ventenat’s *Jardin de la Malmaison* (1803–1805).³⁰ Ventenat’s botanical descriptions and Redouté’s colourful paintings represent enlightened thinking in a most impressive way: spreading new scientific knowledge to a wider audience became an important feature. The botanical garden at Malmaison and Ventenat’s publication were among the first projects to promote the idea of creating ecological space for Australian flowers, shrubs and trees in Europe: Joséphine de Beauharnais received exotic plant material from England and overseas, and, at the same time, passed plants from her estate to other gardens in France. Toulon’s botanical garden received an exotic offspring from Malmaison: the *Eucalyptus diversifolius* had grown up into an impressive tree by 1814.³¹

Europe’s discovery of Australia’s flora was the result of remarkable efforts and events: William Dampier’s first collection of specimen at Shark Bay in 1699 preceded James Cook’s return to England from Botany Bay. Joseph Banks’ huge botanical herbarium at Soho Square and Sydney Parkinson’s (1745–1771) sketches of plants from New South Wales and their rework by Frederick Polydore Nodder (c. 1751–c.1800) paved the way for a better understanding of New Holland’s plant life. These were important steps on the path to wider knowledge and publication. What had started with the primary aim to acquire new knowledge about the genetics of unknown plants finally resulted in two patterns of botanical thinking: the conservation of

28 An important historical source is the edition and reprint of Ventenat’s work with coloured engravings originally created by P.-J. Redouté: H. Walter Lack, ed., [Reprint 2004]. *Jardin de la Malmaison – Ein Garten für Kaiserin Josephine*, 37.

29 Lack, *Jardin de la Malmaison* [Reprint], 35, 39–40.

30 Étienne Pierre Ventenat, *Jardin de La Malmaison* (Paris: de Crapelet, 1803–1805): Reprint of the plates in: *Jardin de la Malmaison*, ed. by Lack, 65–305. See also for selected illustrations in the French edition of 1804..

31 Lack, *Jardin de la Malmaison* [Reprint], 35.

plant material for research or cultivation *and* the depiction of the exotic for aesthetic purposes. The French, in particular, followed aesthetic concepts while both, the British and French, were efficient conservators who kept their specimens in herbaria or in nurseries. Art historians will notice that knowledge about the Australian flora mainly followed the aesthetic concepts of French publication.

The unique character and the variety of Australia's flora were made public either as accurate drawings or illustrated plates in books. Later, its flora appeared as colourful paintings on noble tableware, but also as carefully cultivated plant rarities in pleasure gardens.³² Many of the early Australian botanical paintings, undertaken by British artists, remained in archives for nearly 200 years (Hamilton 1999: 3/pdf version). In the 1980s, the famous series of more than 700 paintings, created by Sydney Parkinson on the *Endeavour* voyage, were finally printed as complete work in *The Banks Florilegium*.³³ However: When we describe the decade between 1790 and 1800 as a period of revolutionary events, this can have another meaning in regard to the establishment of Australian botanical science. In these years, the French and British collaborated in the *rediscovery* of Australia's transported plants in herbaria and gardens, and they worked on a continuing "flower chain" from the South Pacific, as the British art historian Jill Hamilton called it.

Therefore, Australian historians may consider this decade an important link between two events: the discovery of the unknown Australian flora was not immediately followed by a period of publication and exact description (in the years after 1770) but New Holland's botanical cargo was seen as exotic treasure which was made public to selected circles in the years 1790 to 1800.³⁴

The author of this article wanted to explore the links between enlightened thinking and the "management" of New Holland's early floral collections by British and French botanists.

Research shows that two principles prevailed in the occupation with Australia's flora: accurate documentation and aesthetic illustration. Both tasks served Enlightenment's noble purpose: to explain the unfamiliar and to illuminate the exotic. In the end, the analysis makes clear that there remained a gap between two concepts of two enlightened nations: the concept of collecting (or shelving) Australian specimens *and* the idea of promoting the picturesque of Australian plants. The British and

32 Tableware with exotic flower ornaments can be found at Malmaison castle. See also: Bernard Chevalier, 2013. "Empress Josephine and the Natural Sciences", in *Of Pictures & Specimens: Natural History in Post-Revolutionary and Restoration France*, 2-3.

33 It can only be assumed whether more time-consuming occupations, the economic crisis in the years preceding the Napoleonic Wars or Daniel Solander's death in 1782 had been responsible for this unfinished project which had started in 1773. About that time, Banks had decided to engage a team of artists to finish Sydney Parkinson's and Alexander Buchan's (d.1769) sketches which were made onboard the *Endeavour*. This meant to finish the colour drawings of all relevant plants by referring to the original specimens stored in Banks' herbarium, and finally to produce engraved plates. In the following years, nearly "770 folio plates" of botanical specimens were created, and although Banks at the end of his life had spent a fortune on this project, the first descriptions of New Holland's flora were published by other authors. Yet, it is interesting to note that Banks who was a patron of art and science had a clear understanding of scientific illustration: From the beginning, he did not intend to publish a colour edition of his *Florilegium* as he thought "any colour would be an artistic overlay to what had already been engraved in the copper"; see Adams, *The Flowering of the Pacific*, 176. Brian Adams estimates a sum of more than £ 12,000 (no current equivalent) was spent by Banks to prepare the research results of the *Endeavour* voyage for printing; *ibid.*, 176. For the number of folio plates: *ibid.*, 147 (Adams refers to a correspondence between Joseph Banks and Edward Hasted). See also the film documentation: Adams, and Robert Hughes, *Banks' Florilegium: The Flowering of the Pacific*, DVD.

34 It is interesting to note that the "first known prints produced in New South Wales were executed not by a convict artist but by a free settler, John William Lewin (1770-1819) – in the service of science": in 1801. Lewin illustrated insects and birds in their natural habitat. At least one image shows honeysuckers enjoying the nectar of Australian flowers. See: Roger Butler, 2007. *Printed Images in Colonial Australia 1801-1901*, 7.

the French communicated their understandings of the *New World* and her exotic flora in different ways, although not necessarily for different purposes. Science and commerce fuelled the age of discovery. Curiosity and beauty fascinated the educated elites at home. This constellation made it possible that the Australian flora appeared on the horizon of a new group of professionals: the naturalists. Accomplished artists and foreign botanists consulted Joseph Banks and visited his herbaria at Kew; engravers prepared detailed reproductions of Sydney Parkinson's botanical sketches; British nurserymen sold Australian seeds to wealthy landowners in England and France. It required a high degree of scientific transparency as well as skilful diplomacy which brought Australian botany to light. There is evidence that most of the information about New Holland's botanical specimen was shelved during the first years after their discovery – like many of the drawings which were part of the Botanical Albums of the First Fleet.³⁵

Nevertheless, it is no accident that James Edward Smith's *A Specimen of the Botany of New Holland* or Étienne Pierre Ventenat's prestigious publication *Jardin de la Malmaison* and Jacques-Julien Labillardière's *Novae Hollandiae Plantarum Specimen*, which are said to be the first general descriptions of New Holland's flora, were British and French editions. These publications highlighted the Australian flora by presenting curiosities and beauties of a far distant continent. Étienne Pierre Ventenat's prestigious publication *Jardin de la Malmaison*, in particular, illustrated that aestheticism was an important part of scientific description, at least if the editor focussed on a wider readership. Ventenat's compilation is a work of art. It presents beautiful images of New Holland's picturesque flora but only the fewest were painted from nature.³⁶ The nursery of Australian plants required a great deal of botanical knowledge and patience to flourish far away from their native environment.³⁷

In the age of Enlightenment everything seemed possible. British and French botanists were united in their goal to experiment with the *exotic*, and, as result, they exchanged knowledge and plants. Ventenat's work highlights this collaboration in a beautiful way; in fact, this collaboration never got cut off during the years of the Napoleonic Wars. About 1800 the French botanist and member of the French *Académie des sciences*, Ventenat, named the offspring of an Australian evergreen climbing plant after the famous British nurseryman John Kennedy: *Kennedia*.³⁸ John and his partner of *Lee & Kennedy's Hammersmith Nursery* supplied Malmaison park with exotic plants from many countries – complementing “Josephine's ark” in which Australian plants gained a privileged place.³⁹ The groundwork for the naming of botanical species had been laid in Sweden in 1753: In that year, Carl von Linné had published his work *Species Plantarum* which introduced the principle of binomial nomenclature in botany. Linné's work can be seen as the foundation for a new system for classifying plants which also helped to name the unknown vegetal world of

35 For example, this refers to the Derby Collection of Aylmer Bourke Lambert's botanical drawings (two volumes/ Mitchell Library – State Library of NSW Sydney), see: Louise Anemaat, 2014. *Natural Curiosity: Unseen Art of the First Fleet*, 195.

36 A new era started with Aimé Bonpland, 1813. *Descriptions des Plantes rares cultivées à Malmaison et à Navarre*: At that time, more and more exotic specimen flowered or set fruit in European glasshouses.

37 One example: In 1804, Kew Gardens “received a vast collection of seeds from the unknown parts of New Holland, and are growing plants from seed from the same place sent last winter”, Joseph Banks to James Edward Smith, 10 August 1804, 3 pp.

38 *Kennedia Rubicunda*, Plate 104 in: Ventenat (1805). *Jardin de La Malmaison* – see plate in: *Jardin de la Malmaison* [Reprint], ed. by Lack.

39 In his book of 2018 Terry Smyth argues that the collection of Malmaison expanded even in times of war because Napoleon guaranteed for the safe passage of ships that carried flora and fauna from Australia: *Napoleon's Australia: The Incredible Story of Bonaparte's Secret Plan to Invade Australia*.

Botany Bay. *Kennedia* describes a genus of plants, comprising 16 species, all native to Australia. Again, this naming illustrated an important principle of enlightened thinking: the maintenance of an *international* academic network that enabled science to continue freely – in times of peace *and* war.

Conclusion

If we come back to Judy Dyson's argument that botanical representations, whether presented in text form or as illustrations, can be defined as "cultural texts" that transport "associated forms of knowledge", then six conclusions can be drawn, (1) from the psychological point of view the un-known, the far-distant and the non-descript of New Holland's world of flowers, fruits and barks attracted scientists and amateurs to create representations of the exotic; (2) that the early description of Australia's flora was not so much a taxonomic event as an emblematic interpretation of the exotic, its charm and colour; (3) that this approach culminated in the symbiosis of flower painting and instructive essays which provided aesthetic design – executed by botanical artists and landscape designers – an independent role in the field of botany; (4) that the overlapping structure of scientific and social networks between capitals, royal courts and patrons provided access to many available resources of the time, across political and military front lines and for the benefit of research; (5) that the import of Australian seeds and their cultivation in Britain and France satisfied scientific curiosity rather than ecological aims, as it appeared to be the only way to *reconstruct* the exotic on European soil whereby, from today's perspective, this critical decision had significant impacts on the environment in Southern Europe; finally, (6) that the hypothesis of an Australian greenhouse, can not be taken as a botanical ark in which the first *transplanted* flowers, shrubs and trees from Australia found shelter but rather as an experiment of enlightened knowledge *transfer* executed by British pragmatism and French aestheticism – this collaboration *translated* the exotic character of Australia's flora into an encyclopaedic approach to Australian-related natural sciences.

In December 1793, the co-founder of the prestigious *Linnean Society of London* James Edward Smith put it this way⁴⁰:

When a botanist first enters on the investigation of so remote a country as New Holland, he finds himself as it were in a new world. He can scarcely meet with any certain fixed points from whence to draw his analogies; and even those that appear most promising, are frequently in danger of misleading, instead of informing him. (Smith 1793: 9)

By referring to New Holland's plants as "total strangers", Smith emphasized the unique character of this exotic world of flowers, bushes and trees. In today's world, most of us have met these strangers already – as a matter of fact: in Australia *and* Europe. As a result, enlightened circles of today will now have to discuss the conservation (and recreation) of native environments and genetically modified habitats at home *and* overseas.

⁴⁰ For the history of the *Linnean Society of London* (and important collections), see <https://www.linnean.org/the-society>.

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