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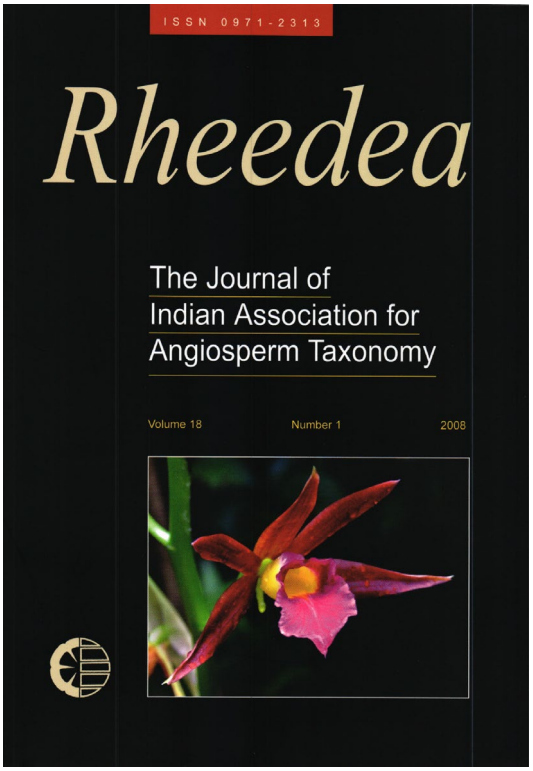

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Life and Adventures of Johann Gerhard König (1728-1785), A Phantom of the Herbaria

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Abstract

Johann Gerhard König (1728-1789) was a student of Linnaeus who influenced South and Southeast Asian botany on a strong foundation. His published contributions are however very few and a treasure trove of unpublished manuscripts went to Joseph Banks upon his bequeath. A summary of König's botanical activities is presented here.

Introduction

This paper is but a spoil of the König-project of Botanical Garden & Museum, Natural History Museum, University of Copenhagen. The project was initiated by Prof. Ib Friis and the late Dr. Bertel Hansen, the present author being an auxiliary historian only of the Linnaean class and order *Botanophilii Anomali Miscellanei* (Linnaeus, 1736a). The original scope was to provide a catalogue of the König specimens in the Copenhagen General Herbarium with supplements of taxa related to him but not at hand in Copenhagen. The catalogue was to incorporate an introduction on König's position in the history of botanical science, so my part contains no reappraisals of his plants but of his influence as a founding father of Indian botany.

My engagement with König started years back when preparing an index of literature in relation to the still ongoing research in the Thai Orchid Collection in Copenhagen. In 1791, the first part of the Contributions to the Orchid Flora of Thailand was published. Sure not of the recent edition by the late Dr. Gunnar Seidenfaden, but by another outstanding figure in Danish botany and in the discovery of the flora of South-East-Asia. Johann Gerhard König's *Epidendrorum Descriptiones* was published not by the author himself but by the Swedish botanist A.J. Retzius – like König, a disciple of Linnaeus – in his *Observationes* (König, 1791). It was published posthumously saving the author much dissatisfaction and providing taxonomists and historians an intriguing puzzle.

Figure 1. A. J. Retzius (1742 - 1821)

In the excellent history of *the European discovery of the Indian Flora* by Ray Desmond, former chief-librarian of Kew, duly recognized König's influence and importance (Desmond, 1992). In *Botany in India. History and Progress* König is mentioned just briefly but most respectfully: 'The historic publication of *Species Plantarum* by Linnaeus and his formulation of the 'Binomial System of Nomenclature' in 1753, made its impact on botanical thinking in India through König' (Johri, 1995). In another recent publication, Dr. Seidenfaden has revised his predecessor's *Epidendrorum Descriptiones* (Seidenfaden, 1995) and at the Botanical Museum, University of Copenhagen, a revised catalogue of König's herbarium has been published by Friis and Hansen, incorporating almost 2.000 specimens of 750 species, most of them types.

Johann Gerhard König never was a forgotten man(Fletcher, 1997). In 1773, the year of his medical dissertation from the University of Copenhagen, Prof. Friis Rottböll, father of Cyperaceae taxonomy, in his *Programmata* wrote: *Medicus atque Botanicus egregius* ***Königius*** *indesessa industria, et lynceis oculis in itinere, quo stationem sua in regione Malabarica adiit, indagavit, cui hodierni et futurum seculorum Botanici hac de causa semper erunt abstructi* (The unrestricted zealousness and lynxeyedness in the field of the distinguished physician and botanist König, further aided by his stationing in the Malabar region, has made botanists of today and of centuries to come forever dependent and grateful). Rottböll was a skilled taxonomist but his knowledge of Indian geography was somewhat secondary.

Of the lynx eyed *Medicus* and *Botanicus* investigating the Coast of Malabar in a way to make fellow botanists of today and of days to come forever grateful (Rottböll, 1772) and when König arrived in India in 1768 he was soon accepted as a proper apostle of Linnaeus and of Linnaean systematics – the genus *Königia* having just recently been established by the Princeps (Linnaeus,1767) – and this position has never since been challenged.

But to me König is still a phantom of the herbaria and an unsolved question. He is no revolutionary hero of science but first and foremost an illustration of the great transition of botany from herbalism to systematics and *oeconomie*.[1] He represents the learned brotherhood of pure science unrestricted by national, religious and ethnic origin. At the same time, he was expected to be a loyal subject of absolutist Denmark, of *the* – most absolutist – *most Honorable Company* and an obedient servant within the *clientela* system of Sir Joseph Banks. An incompatibility which even Banks – so much closer to a true heroic status – was never able to solve.

Historicity – compartmentalisation and the Darwinists' interpretation

Historicity indicates history to be more than simply the past and the dealing by recent humans with their ancestors. The approach in the German sense of *Geschichtsbewusstsein* is to encounter our actual existence and our attitudes towards the future as part of the ongoing evolution of mankind. The term has been defined in different ways; I prefer the one by Karl-Ernst Jeismann: *Geschichtsbewusstsein [umgreift] den Zusammenhang von Vergangenheitsdeutung, Gegenwartsverständnis und Zukunftsperspektive* (Historicity encompasses interpreting the past, understanding the present and prospecting the future Jeismann, 1979). Ever since Darwin we have known: *all true classification is genealogical* (Darwin, 1859), but we too often forget to internalize this commonplace of phylogeny.

The concept of a uniform Natural History still survives but only just so; specialization has let to compartmentalisation. Linnaeus wrote: *Naturalia trifarium seu in tria Regna Naturæ dividundur* (The produce of Nature is a triplicate or divides in three Natural Kingdoms), at the same stressing unity of nature and natural division. The naturalists of the 18th century were first and foremost *botanici* due to *oeconomie*. The learned naturalists of the 18th century did not consider themselves as botanists or zoologists nor as mineralogists. Nature was one and so were naturalists or natural philosophers. One may well be better known *inter fratres* as a *botanicus* but a formal education as such was unknown and made no sense. Linnaeus was a medical doctor, P. Russell, W. Roxburgh and N. Wallich – figures of the story here told and pioneers of Indian botany – were surgeons by profession. But specialization was on its way; not through formal training but by the way of taxonomy. Binomial names were invented for all species including the members of the new classes of phytologists; in 1736 Linnaeus published *Bibliotheca Botanica* and in the introduction is found his *Clavis Classium in Systemate Phytologorum* and *Series Classium and Ordinum* which divided the kingdom of true *botanici* into 2 divisions, 16 classes and 69 orders (Linnaeus, 1736).

[1] A reference to the 18th century marriage of natural history and national economy.

The shelves containing general textbooks on the history of botany are not overloaded. And the books are not abounding with reflections on the theory of their subject; they may well define their concept of botany, but the nature of history is normally taken for granted. A.G. Morton's *History of Botanical Science* (Morton, 1981) is unusual being based on a dialectic-materialist view, but at the same time genuinely representing an overall approach which I call *the Darwinists' theory of History* – please notice the position of the genitive.

Reflecting on Joachim Jung, the German renaissance botanist, Morton tells us: *In spite of the many points of interest, mention will only be made of those on which he expresses opinions that were ahead of his time and probably influenced the later development of botanical thought.* To the Darwinists' theory of history the true character of evolution is progress, the history of natural history is the history of advancement in human knowledge of nature since the days of Aristotle and Theophrastos be it slow and steady or some sort of punctuated equilibrium. The *raison d'çtre* of history of science is to explain how we arrived to our actual site, what ever was before was just preparatory. Just as an egg is nothing but a preparatory step to the hen. But in the 19th century already the German historian Leopold von Ranke expressed the new and very different concept of history: *Every epoch is immediate to God, and its worth is not at all based on what derives from it but rests in its' own existence, in its own self* (Ranke, 1854).

To explain this lack of historicity in the history of natural history one may point to the dichotomy between science and the humanities. In the Scandinavian languages like in German, the distinction is not that marked; history as well as botany is both named *Wissenschaft - videnskab* - and what does not exist in language does not exist in human knowledge. Of course, different disciplines do exist in their own right developing theories and methodologies of their own. Much history of science is formulated by scientists representing science at its best but reducing history to a scissor and paste activity. At the same time distinguished historians have demonstrated an almost offending ignorance when writing on science.

This view on the historiography of natural history is in no way revolutionary, but in the history of science the Linnaean congregation has been greatly overshadowed by the Newtonians. The criticism of a Butterfield, a Popper and an Agassis has been focused on hard-core science although biology is the only field of science based on a genuine theory of history however underestimated by its own devotees. *The Origin of Species* is a proper textbook on history. In some way I am just following Agassis' formula: *It is not my intension to flog this dead horse, but to show that its carcass, as it were, still harnessed to the band-wagon on which the majority of present-day historians of science fancy themselves to be riding* (Agassis, 1966). I am concentrating on the second horse only.

On the *clientela*-system of 18th century natural history

Sir Joseph Banks is duly recognised as a central figure in the history of 18th century science. Besides being a competent naturalist himself and a respected member of the international brotherhood, he was a patron in control of appointments and carriers. Although president of the Royal Society, he held no governmental office and no university chair; he was even able to decline such irrelevant attempts to promotions. He advanced British husbandry, not as a farmer or a civil servant but simply by kindly helping as a close friend and *client* the farming king tending *His Majesty's Spanish Flock* (Carter, 1964) and at the same time most friendly turning the royal leisure gardens into *the* centre of *oeconomie* and by the way of botanical science.

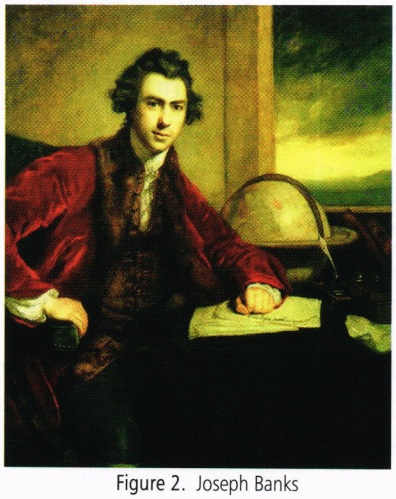


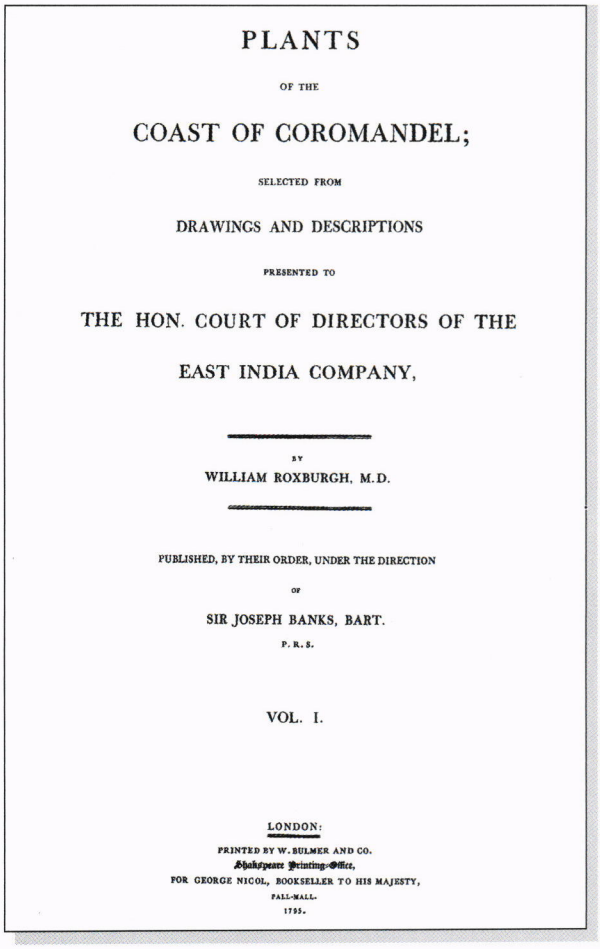
Figure 2. Joseph Banks

Banks is often figured as a *Gentleman Imperialist* and a *primus inter pares*, but I find the concept of the classical Roman *clientela*-system much more illustrating of both his figure and the 18th century world of science. Around the figure of Carl von Linnaeus a similar *clientela* existed and the systems of Linnaeus and Banks closely overlapped. Banks has been described as *the most talented disciple Linnaeus never had* and "inherited" a number of clients from the Princeps; Fabricius, Dryander, König and Solander just to mention a few.

The *clientela*-theory as a frame of reference to studies of classical Roman history has proved most useful (See Badian, 1958).

The general outlines of the *clientela*-theory stress that power and position in republic Rome were closely related to family i.e. to personal relations. Political parties in the modern sense did not exist nor did classes in a sociological – not to mention a Marxist interpretation. The overall structures were based on the *familia* and the *gens* incorporating everyone from the *pater familias*, the linear descendents as well as the fredmen and the slaves. Social mobility took place only within and supported by such relations between a *patron* and his *clientela*. The system flourished in the late republic culminating in the figure of *Augustus* another *Princeps* and *Pater*. The concepts of Roman *clientela* was never known to Linnaeus, but his preference of the title *Princeps* to his more official ranks is in some way significant.

This to me comes very close to the structure of the 18th century world of science and the Banksian architecture of influence. The transformation of botany from herbalism to *oeconomie* is part of the pattern, and so is the ascent of naturalists to political influence. In this structure König is but a minor figure, but like most details only properly understood as a part of a whole.



PLANTS

OF THE

COAST OF COROMANDEL;

SELECTED FROM

DRAWINGS AND DESCRIPTIONS

PRESENTED TO

THE HON. COURT OF DIRECTORS OF THE

EAST INDIA COMPANY,

BY

WILLIAM ROXBURGH, M.D.

PUBLISHED, BY THEIR ORDER, UNDER THE DIRECTION

OF

SIR JOSEPH BANKS, BART.

P. R. S.

VOL. I.

LONDON:

PRINTED BY W. BULMER AND CO.

Shakspeare Printing-Office,

FOR GEORGE NICOL, BOOKSELLER TO HIS MAJESTY,

PALL-MALL.

1795.

Figure 3. Title page of Roxburgh's *Plants of the Coast of Coromandel* Patrick pays homage to König in the preface.

König manuscripts in the Banksian Archives

The most imposing and unsurpassed monument to König the botanist is the imperial folio *Plants of the Coast of Coromandel* dedicated in his honour. To a taxonomist of today, the piles of sheets in various European herbaria and the relatively few articles and treatises he published however are far more important. The numerous descriptions of his material published during his lifetime or shortly after by his contemporaries are of great interest.

The major source to König, the travelling naturalist, is his *Iter siamensis* - intended for publishing most surely, but only made accessible a century after his death.

Like the majority of his learned brothers, König was an engaged correspondent but only a minority of his letters – incoming as well as outgoing – are preserved today. On the other hand, a close reading of those few indicates a very substantial correspondence lost. To Linnaeus p. 29 letters are still at hand and 5 extra to Linnaeus f. But while the Princeps kept no copies of outgoing letters, König discharged all his incoming. In the opposite way 15 letters to Solander – i.e. the Banksian connection – are in the manuscripts, but no answers are preserved; the Solander correspondence has recently been published. A few letters sent directly to Banks are in the Banks Correspondence in NHM in copies only.

His life and adventures are described in two primary biographies; the first – probably written by Rottböll – was a formal part of König's dissertation from 1773; and the second – and so far the most important – was included by Dr. Patrick Russell (See Hawgood, 1994 for a full biography) in the monumental *Plants of the Coast of Coromandel*.

When in 1785 König died from dysentery in the caring arms of his pupil and colleague William Roxburgh, he bequeathed his collections and manuscripts to their mutual patron Sir Joseph Banks – this truly "black hole" of publishing. Upon arrival to Soho Square, the material was properly registered by Banks' secretary. Today the sheets, the insects, the seashells and probably the minerals are intercalated in the general collections of the Natural History

Museum and so are the manuscripts, beautifully bound in 23 volumes by Denis Blum, St Michael's

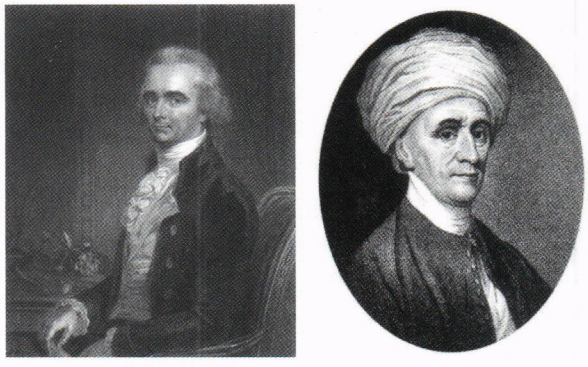


Figure 4. William Roxburgh and Patrick Russell

Abbey. To me one of the most beautiful works of book restoration ever seen.

The content of this outstanding craftsmanship is however in a most unusual condition. König had at his disposal plenty of paper of good quality, and used every kind and dimension. He wrote his *Descriptiones* in a fair Latin which he – no surprise – mastered and his notes and letters in German – his mother tongue – and therefore in a Gothic hand. In the introduction to his *Iter Siamensis* of 1894 is mentioned that the mss are *in a mixture of antiquated German and Danish in a very bad handwriting* (König, J.G.:1894). This is – partly – wrong; König never wrote much in Danish, even his letters to Copenhagen and Uppsala are in German, and Linnaeus had to have them translated. The hand of his personal notes is – like most personal notes – very personal indeed, but especially when writing Latin and addressing someone else, König had a very neat hand, cf. the copy of *Epidendrorum Descriptiones* in the Linnean Society.

Most collections of and on *naturalia* are not designed for historians of science, being based on science, and not on history. To recover a König specimen or any specimen of age is a combination of botany and history – one has to identify the taxon based on what ever is left of the specimen proper, as well as on the written evidence. This requires some knowledge of recent taxonomy besides the normal Historian's Craft. So far, a thorough search has been carried out only in the herbaria of Liverpool and Copenhagen. And the König manuscripts in the Banksian Collection are a puzzle; at some unknown time they were "pruned" by some unknown intruder. Today they consist almost exclusively of botany – most references to zoology and mineralogy have been crudely removed. Among his *Lists of Plants* one single reverse page on minerals or on zoology may have survived.

In a letter of July 9th 1785, Patrick Russell informed Banks of the death of König.[2] As a routine matter of safety he sent a duplicate with a few remarks added on August 4th the same year. The letter has a most intimate tune although signed by a *most obedient servant*, an important demonstration of the relationship between an 18th century *client* and his *patron* in the world of science. It bulks with assurances of the precursions taken to make the transfer of the König-material from India to London fully safe. Russell writes: *He died on the 26th of June; and, as Roxburgh informs me, two days before his death saw the papers intended for you carefully sealed up with his own seal.*

In the August version there is a p.s. on a paper-cut of König: *The enclosed was cut by a Lady one night at supper, and is a strong likeness of poor König when he returned here from Bengal.* I have not yet been able to trace this – nor any other – portrait. In an earlier letter of December 26th 1784, Russell wrote:

König was with me a short while last summer; and we made a few short excursions; he is at present in Calcutta, but talks of returning hither. I have strongly urged his preparing a fasciculus of curious and useful plants to be presented through you to the India Company, as a specimen to them of his assiduity in the employment you had so great a share in procuring for him. I think it probable they might be induced to be of some expense in the publication or engravings, which, under your auspices, would appear with much more credit to the Doctor than in foreign Journals, which he complains of, as publishing imperfect descriptions that he had sent home only for private opinion, and not for publication. He seemed to seize the hint, but is so indefatigably intent on extending his researches, that I am afraid his descriptions, memoranda, and already accumulated would, in case of any accident to him, be found in most embarrassing confusion. I have therefore strongly recommended to him to look out for an amanuensis at Calcutta to copy his scrawls under his own inspection, to allot some portion of time to that amidst his new pursuits as a measure necessary to prevent what he has already collected from being lost.

A few years later Russell wrote about the material:

— and [it] *arrived safely; but those dispersed in different places, particularly at Tranquebar, (among which unfortunately was his Ceylon Journal) have hitherto not appeared, though Dr. Roxburgh and Dr. Russell did all in their power in India to recover them* (Roxburgh, 1795-1820).

[2] The Banks Correspondence 4.1784-85:148-153.mss. in NHM. The original is in British Library.

This makes the actual state of the manuscripts even more mysterious; it is hard to imagine a dying man bequeathing to his patron his beloved papers only to cut them to pieces before sealing up the remainder.

The bulk of the mms consists of descriptions of single taxa mostly in relation to König's excursions, lists of collections, conjectures to the fathers e.g. Rumphius, van Reede and Burmann and a few regular dissertations e.g. the *Epidendrorum Descriptiones* and the – long lost – *article on tin ore*.

When the material arrived in Soho Square in 1886, it was left in care of Jonas Dryander, the curator of Sir Joseph's exorbitant collections (Dryander, 1796-1800). A Swedish born naturalist and a highly estimated pupil of Linnaeus although no match to the late Daniel Solander. The manuscripts were wrapped up first in 21 – still recent – paper packages with no regular binding and intercalated in the Banksian Library. Dryander at this time started his most useful but unfinished *Index*. The first binding took place a little later, the actual one being the third. The distribution of the mss in the original volumes is still respected, although Dryander's criteria are, at the least, inscrutable in regard to age, taxonomy or just of size. The single volume often consists of sheets ranging from folio to the size of ordinary stamps. König seems to have indexed his mss in a *litra*-system completely broken up today. This is just one of the indications of some unknown vandal. We still speak of *the 21 volumes*, the number being in fact 22 including the *Index*. Referring to the mss I use the actual binding, KJ.XII: indicating the 12th of the 19 volumes of *Journals*, KL.II: the second of the two *Lists of Plants* and KI: referring to Dryander's *Index*. In the actual binding, the volumes KJ.III. and KJ.IV. are switched ; my KJ.IV. being Dryander's – or even König's – KJ.III and *visa versa*. Since the *Index* was made, the 53 last pages of KJ.I. have been lost without further notice. They are mentioned in the *Index* as *Nomenclator Floræ Coromandelianæ (Alphabetical) 10. p.41-101. copied by himself under the name of Catalogus alphabeticus plantarum Coromandelianum 1780 1.p.299-331. This copy ends in P.* Nothing is found in *Index* concerning the pp. 279-299. When I first discovered the lacuna it caused some consternation. Rendle (1933) investigated the mss in detail most scrupulously without noticing any missing sheets; it is my tentative suggestion they were still present.

A note on A.B. Rendle

After the publication of the *Plants of the Coast of Coromandel*, no serious attempt to investigate the influence of J.G. König on our knowledge of natural history was made until 1932, when C.E. Fischer examined the 346 specimens sent by König to Retzius (Fischer, 1932). Fischer counted the taxa referred to König in the *Observationes* and had the material still present in Lund sent to London; 33 taxa mentioned were missing and quite some could not be proved to belong to König's collection proper.

The following year, A.B. Rendle published his article *John Gerard König* partly as a follow-up but much more as a result of a long and penetrating study of the manuscripts (Rendle, 1933).

As late keeper of the Botany Department of NHM, Rendle had a unique access to the material – used to the normal praxis of herbaria, he even wrote his personal notes in the manuscripts. Rendle made almost no notes in the German parts of the mss and my conclusion is that he simply did not read them. Although not in fashion any more, his habit has made me able to follow his research in a most charming way; when asking questions to the material, I often realise that Rendle had asked just the same questions and often found the same answers. The sheer number of his notes indicates that he had something more in mind than the mere 22 pages of his article. Like König, Rendle published his penetrating analysis only in part.

After all, he was a botanist; in many ways the history of science is the domain of retired scientists. His ambition was to narrate "life and adventures" and to identify and clarify the nomenclature of a late colleague. It is most strange to notice that he has no references to *Plants of the Coast of Coromandel* where a number of König's descriptions were published complete and unabridged. He noticed the "rough figures" in the manuscripts but drew no conclusions to either their nomenclatorial importance nor to Retzius' way of publishing.

Life and adventures

König represents internationalism in the most absolute sense. He was borne close to the shores of the Baltic and he died on the Coast of Coromandel. He was the first European naturalist to travel Thailand but earned his international reputation when Linnaeus established the genus *Königia* in his honour, based on material collected on Iceland where König was the first naturalist proper to travel and to collect (Linnaeus, 1767).

König's formal education was truly excellent. He was originally trained as a pharmacist in Riga and was soon after – in 1748 – employed in Denmark at the

pharmacy of the Royal Academy at Soroe – the centre of higher education of the sons of Danish nobility. In 1757-59, he studied *Historia Naturae* in Uppsala under the great Linnaeus and was to become one of the few chosen – the apostles as Linnaeus with his usual humility named them – like his close friend Daniel Solander. In 1759, König was appointed to the Royal Frederick's Hospital in Copenhagen as a surgeon and pharmacist, being by special permission allowed to study medicine at the University, and in 1764, he became amanuensis to the *professor botanicus* Georg Christian Oeder, curator of the newly launched *Flora Danica*-project. Before that, he had participated in his mentor's attempt to write a natural history of the island Bornholm in the Baltic Sea (Oeder, in Wagner,P.:1993). His first mission as amanuensis was in 1765-66 to investigate the flora of Iceland – in those days a part of the absolutist double monarchy of Denmark and Norway. The expedition was financed by the king's private purse – *Chatolkassen* – one of the focal points of *Flora Danica* was to illuminate the wisdom of the sovereign by the high standard of the learned servants of His supreme Majesty. The Iceland material was included in the extravagant folios and most of the new taxa was described by Zoëga (Zoëga, 1772) and Linnaeus (1767), and König's plants do still ornate the unique *Flora Danica* porcelain.

In 1767 König had already earned international reputation as a botanist and graduated in medicine when he suddenly was appointed missionary surgeon and royal collector at the far-away Danish trade station Tranquebar just south of Madras on the Coast of Coromandel. Linnaeus highly recommended his apostles to travel abroad, and most of them did follow his advice – some of them never to return. Oeder was of the same opinion and his intentions bringing *studiosus* König with him to Bornholm seem to have been to train him for this new vocation. The new employment in India fits perfectly well into this pattern.

But there is something wrong about this situation. König had a brilliant future in Copenhagen being the second in command of the *Flora Danica*-project. He was busily working on his dissertation. He had just married. And the civil servants in the Danish colonies were extremely badly paid. When Nathanael Wallich a generation later applied for a similar office at Serampore close to Calcutta, he knew perfectly well that his Jewish background would exclude him from any further appointment at the University of Copenhagen. But to the already renowned König such limitations did not exist. Or did they?

Flora Danica

To include a Danish dinner service – even "the most prestigious 18th century dinner service in production today"[3] – in an article on Indian botany may look strange. But in Danish historicity *Flora Danica* is much more than porcelain out of range to ordinary consumers. In any textbook on the history of absolutist Denmark *Flora Danica* – the flora and the porcelain – is mentioned in chapters on constitutional politics, on economics, on art and craft and on science.

The idea of a national flora depicting and describing every single species within the monarchies sprang from late mercantilism or physiocratism. It is worth remembering that the very same year of 1752 when Linnaeus finished the last chapters of *Species Plantarum*, a certain professor of moral philosophy got his chair, starting a revolution of economy. To increase the wealth of the nation, every aspect of nature had to be turned to its best use and the produce of the soil was the primary source of all surplus-value. This approach to nature – which for sure is not the one we associate with Adam Smith – was named *oeconomie*, and the different attempts to create systematic knowledge – whether natural or artificial – fitted the concept perfectly. Most of the best known naturalists of the 18th century – whom we today consider botanists – had chairs in *oeconomie*.

When the Bavarian-born "botanist" George Christian Oeder in 1752 was called to his chair in Copenhagen, he was to procure a flora of this kind and so he did although the project was finished only in 1883 (Oeder, 1763-70). Such monumental publications normally are coffee-table-editions, but the *Flora Danica* was sent free to all bishops and prefects and a discount-edition – tables uncoloured – to all Latin-schools to promote useful knowledge.

The production of tableware based on local materials and fuel and on local skill was another must of mercantilist economy. Even better if the standard of the goods made it possible to create an export. *Den Kongelige Porcelainsfabrik* – today's *Royal Scandinavia* – started the production of *Flora Danica* in 1790, and the first complete service – including 1,803 pieces – was finished in 1802. The remaining 1,530 pieces of the original service are today on show in *Rosenborg Castle* and – until recently – in use on state occasions and royal celebrations.

To illustrate the combination of taxonomy and mercantilism into *Oeconomie* and to illuminate the concept of absolutism – the supreme monarch

[3] Shigohiko Koshigd:1989. *Flora Danica 1790-1990*:6. Royal Copenhagen Japan Ltd. – Japan.

surrounded by his most humble servants within noble blood, science, art and craft – to a Dane nothing is as convincing as the history of *Flora Danica*. Whenever asked about my preoccupation with Johann Gerhard König, I just have to mention him among the first to collect plants for the *Flora Danica* – the one or the other – and most Danes will know. A national flora and a dinner service have become parts of our national heritage and historicity.

When König set out for Island, he knew perfectly well that he was to send his collections – all of them – straight to Oeder in Copenhagen, and he also knew of the importance of the glorification of his Royal Majesty. In those days, Denmark and Sweden were strong competitors, not to say bitter enemies. On the field of glory of natural history, it was Oeder's duty to promote the Danish achievements. Due to the overwhelming figure of Carl von Linnaeus, Denmark had no chance of winning the contest. In this situation, König cheated his mentor and superior sending duplicates of his collection to Linnaeus, who showed his gratitude by establishing the new genus *Königia* and by publishing a few other species. The material is still in the Linnean Herbarium in London.

Figure 5. *Königia islandica* L. in the book and on the plate of *Flora Danica*. Color-photo by Cille Sterll.

In *Mantissa*, Linnaeus wrote on *Königia* (cf. note 3):
Triandria.Trigynia.
1.Königia islandica
Habitat in Islandia detacta 1765 a Jo.Ger.König, qui Islandiam adiit Historiam naturalem ejus descripturus ('Found growing in Iceland 1765 by J.G. König when traveling this island he described its Natural history').

Figure 6. *Königia islandica* L.

König had clearly trespassed against his mentor, and Oeder was deeply and rightly offended. He was already planning to publish the new genus as *Bergeria*, when he read Linnaeus' publication, and König immediately became *persona non grata*. Instead Oeder – without loosing face – wrote:

In Islandica detexit sæpius laudatus J.G. König, passim ibi nascentum locis argillosis, in alpibus and in littore maris, prope Ness, Bessestedt, Esian Reikium, Neptuns Fiadl, Oerebacke, Hlidarende, Holte.

Expectando proventum plantularum vivarum ex semine allato in horto nobis natarum demumque florentium distulimus editionem Iconis. Interim Königiam dixit Ill. à Linné, a novo S.N. cui Bergereæ nomen destinaverat Inventor in honorem Patroni sui Ill. de Berger, Archiatri Regii, ad exemplum Tournefortii, Fagoniam a Fagonio appellantis ('Found in Iceland growing in clay by the forever acclaimed J.G. König in the mountains and sea shores around Ness, Bessestedt, Esian Reikium, Neptuns Fiadl, Oerebacke, Hlidarende, Holte. I was awaiting the appearance of seedlings in my garden - i.e. The royal botanical Garden - in order to procure flowers for the illustration when in the meantime the illustrious Linnaeus named it *Königia* although the inventor - i.e. Oeder – intended to name it *Bergeria* in honor of his patron Berger physician of the King – in the mode of Tournefort naming *Fagonia* after Fagonius.').

But the cheat did work. Being known in Denmark as young and promising, the establishing of the genus *Königia* made him of international reputation. Oeder having already published 21 species collected by his unfaithful amanuensis had to go on; all together 35 species collected by König appear in *Flora Danica*. The number does not cover the material collected, most of the plants were already known from Denmark

itself, and it was an important part of the concept to make the illustrations from live material only when possible. Most of the specimens from Iceland naturally had to be herbarium-sheets – several of the specimens belong to the genera *Fucus* and *Ulva* sensu Linnaeus i.e. all kinds of larger algeae or to Lichens and Fungi – but König collected seed as well e.g. *Königia* to be sown in Copenhagen.

Instead of being dismissed, he was only "transferred", and Tranquebar became just a first step on a splendid and much better paid carrier. His first wife did not survive the long journey but soon after his arrival, he remarried. This event is documented in a most unusual way. König sent piles of collections back to Copenhagen – not to Oeder but to Prof. Rottböll – who based his revision of Cyperaceae mostly on König-material; in his description of *Cyperus pangorei* is noted: *Misit sub hoc nomine barbaro Tranqvebaria Beatus Bög, Pastor tunc temporis loci meritissimus, cujus in matrimonio successor est Dominus Königius* ('Under this barbaric name it was send by late reverent Boeg at the time vicar to this remarkable location now being replaced in matrimony by Mr. König').

A most surprising information to be found in a flora. The lady's second name was *de Titoh*, and it is mentioned that she was of local origin. This indicates an Indo-Portuguese background and such mixed marriages were in no way uncommon, nor unwelcome (Christensen, 1981). König is acknowledged as *Dominus* ~ Mr. only, since the description was published ahead of his dissertation.

This episode is a genuine illustration of the conflict between absolutism and the *clientela* of natural history. Linnaeus was a most obedient servant of the Swedish monarchy, illuminating His Majesty's glory and wisdom but at the same time a *patron* of his own *clientela* of natural history. Oeder – a pawn in the combat among monarchs – represented the new approach of the natural system. König made a deliberate choice; in India he was to become the apostle of Linnaean binomials at a time when Linnaean systematics was coming to an end in Europe.

During his first years in India, he became involved with the group of European naturalists known as *the learned brethren*; his intimate knowledge of modern systematics and nomenclature and his close relations to Linnaeus made him a central figure. William Roxburgh – later to become superintendent of the Botanical Garden in Calcutta – joined the brotherhood in 1771.

In 1773, König's medical dissertation was promoted in Copenhagen by Rottböll without König's presence and shortly after, he left Danish service to become naturalist of the Nawab of Arcot (König, 1773). The next step was taken in 1778 when he joined *the Honourable East India Company*, soon after to set out on a two-year expedition to Thailand and Malacca. The results of this *Iter Siamensis* will be mentioned later.

The circumstances seem strange: When König entered the service of *the Honorable Company*, he once again proved to be a phantom. In the index of the transactions of the court of directors in Calcutta, a certain *Captain John Edward König* is mentioned petitioning an appointment as assistant surgeon. The official document shows the same entrance, but the court-decision is:

At a Court of Directors held on Friday the 12th March 1779 ordered: That Mr John Gerard König be admitted into the Company's Service as an Assistant Surgeon at such place in India where his Services may be most wanted after those Gentlemen who had previously recommended as such are provided for.[4]

The odd John Edward in the end proved to be *that* König. When he officially entered British service, he had already arrived on board a *Company* man-of-war to the small island Pullu Pinang not far from Jung Zeylon, Phuket of today. At the very first the order of the Court is surprising. By Sir Joseph Banks – one of *those Gentlemen* – König was considered an outstanding naturalist and a true Linnaean, he had spent 10 years in India and in no way lacked experience. He was a trained pharmacist and surgeon; he had graduated in medicine and delivered an excellent dissertation. Then – once again – to become but an assistant surgeon seems a somewhat regressive carrier. But after all it was not that bad. Soon after his arrival at the Tranquebar-mission, König had discovered his salary in no way to be what he had been expecting, and his supplementary income as a royal collector in no way made ends meet.[5] The years in the service of the Nawab had been most promising but – as *the Company* well knew – this exotic prince was not too eager to meet his obligations. Usually, *the Company* paid its servants in

[4] India Office Library. Court Book 8. April 1778 to 14. April 1779. B/94/576. – London.

[5] Letters to Linnaeus in the Linnean Society. Of Copenhagen September 6th and 26th 1767. Of Tranquebar February 26th and July 26th 1769.

time, and König now finally got the means to travel. And by the way, the other Linnean apostles travelling the World were in no way better of.

I considered *Captain J.E. König* – who finally proved to be conspecific with my naturalist – a slip; but reading Lt.-Colonel D.G. Crawford. 1914. *A History of the Indian Medical Service 1600-1913*. II:142, I discovered:

It seems doubtful whether he was a regular member of the Medical Service. He drew his pay through the Military paymaster; a Fort St. George letter to that officer, dated 1st April, 1780, informs him, that König's salary has been increased from forty to sixty pagodas a month, i.e. from about 135 to about 210 rupees. Apparently, therefore, he was considered a military officer (Crawford, 1914).

I knew well of König's account of the journey and had always wondered of his apparent status as an equal of the commanding captains without any indication of duties but to collect naturalia; now things seemed to fit. The document in *India Office* is not his real appointment but just a later confirmation by the council in Madras.

The Thai expedition seems to have been successful, and for the next few years König travelled different places including Ceylon. He was planning an expedition to Nepal when he died of dysentery at Jaganathpuram on 26th June 1785 in the care of his close friend Dr. William Roxburgh.

Inspiration and influence

To illustrate the many facets of König's activities, I have chosen to go into details on four publications either of his own or deeply influenced by his contributions:

Descriptionum et Iconum Rariores et pro Maxima Parte Novas Illustratium

A collector and his influence on the first taxonomy of Cyperaceae.

This publication by the Danish professor of botany and curator of the Botanical Garden in Copenhagen, Christian Friis Rottböll, is still and – duly – recognized as the seminal work of Cyperaceae taxonomy. Like in the case of entomology, Linnaeus realized the limitations of time and maybe even more of microscopes and sufficient material, leaving the task to the next generation. The challenge was answered respectively by two Danish students of natural history. I.C. Fabricius – one of the true apostles, a member of the Banksian *clientela* and professor of *oeconomie* at the University of Kiel – became the founding father of scientific entomology, and Friis Rottböll got the same role in Cyperaceae studies. It is less known that in both cases, Johann Gerhard König was a central source of the type-material. The type-material of Fabricius has been described and analysed by E. Zimsen as has the Banksian Shell-collection including the 17 specimens sent by König and still furnished with their original labels (Wilkens, 1955), but the material of Friis Rottböll has not yet been investigated.

Ever since his arrival in Denmark, König maintained close relations to the young *professor medicinæ* Christian Friis Rottböll. He was later to succeed Oeder as *professor botanicus* and a central figure of the Copenhagen University and the narrow brotherhood of academic life. Like Retzius in Lund, Rottböll described and published several of König's specimens, he promoted his dissertation of 1773 and arranged for his membership of the *Royal Danish Academy of Science and Letters* -and König fully understood the importance of their mutual relationship. Eight of his substantial letters to Rottböll are still in Botany Library, Copenhagen. Rottböll's interests include a wide area - his publications were equally divided between medicine, natural history and the classics. Even in those days an impossible task; the much later remarks of Carl Christensen are characteristic of his reputation: *If Rottböll had only concentrated more energetically on the publication of the König collections, our Botanical Museum to day would posses innumerable type-specimens of Indian plants later published by others* (Christensen,1924). Rottböll received the *Diospyros*-treatise which he published – with some delay – and the *Monandriarum* and *Epidendrorum Descriptiones*. Among his letters are two related to the *Iter Siamensis*, one of Malacca 22nd August 1777 and one of Jung Zeylon 2nd May 1779 the former indicating a preliminary visit to this region. But a comparison to König's diary of the stay in 1779 shows a close likeness indicating a simple slip of the hand. On the July 17th he had been forced to find a new residence:

Meanwhile my great weakness, loss of appetite, and a rapid decline, threatened to kill me. Therefore I resolved to go on Captain Scott's three-master bound for Malacca, my Captain readily made all arrangements for my passage, as he feared to have a corpse onboard his ship, while Captain Scott could easily make funeral arrangements at sea.

This is further supported by his entrances of August 20th and 28th:

The lameness of my right hand and especially of the fingers

hindered me very much in any examination of plants and in writing. And: *During all these days I was busy writing letters to Dr. Solander, to whom I send a short description of my journey; also to Professor Friis, and other good friends in Copenhagen. I send all these letters, both those for Denmark and for England, with a ship passing here on its way to China* (König, 1894).

In a postscript to the letter to Rottböll, the same shipping is mentioned; the letter to Solander is found in KJ.III:177-249, it is of 15 pages with no indication of sore fingers. A few days later, the funeral preparations too were happily overcome: *A glass of Dutch beer drove away all paralysis* König notes.

Among the duties of the *professor botanicus* was to give an annual series of lectures, and for the years 1772 and 1773 Rottböll decided on the Cyperaceae. This included two publications, in 1772 the introductionary *Descriptiones Plantarum Rariorum Illustrandas, Cum Earum, Quæ Primo Proimeque Prodituro Fasciculo Continebuntur, Elencho, Programmata, Quo Lectiones in Horto Botanico Ao.1772 Auspicatur, Indicit Christianus Friis Rottböll* in taxonomic literature later to be cited as *Rottb.Prog* and in 1773 the *Descriptionum et Iconum Rariores et pro maxima Parte Novas Plantas Illustratium Liber Primus* to day known as *Rottb.Desc.Nov.P.* A second volume never occurred, but a program was published in 1773 too. I therefore suggest the two to be referred to as *Prog.72* and *Prog.73* respectively.

Since the years in Soroe, König sent sheets of Cyperaceae to Copenhagen and he continued this when abroad. König-specimens of Cyperaceae have been identified in Berlin, Copenhagen, Liverpool, London and Munich too, the Berlin- and London-material being badly damaged.

In *Prog.72*, 80 taxa are described in *Desc.Nov.P.* supplied by a further 10. Of those 31 are types and 41 are directly referred to König.

To illustrate the dawn of Cyperaceae-taxonomy I have chosen just one sheet. In 1995 I found *Cyperus tuberosus* Rottb. in the Munich Herbarium; originally it was send by König to von Schreber. While the original sheet is lost, the label is still guarded in the archives as an example of von Schreber's hand. The specimen has later been intercalated *C. rotundus* L. Today the Rottböll-taxon is represented in Copenhagen by a single sheet including the top of the plant only, and – without proper investigation – I suggest the Munich-sheet conspecific to the *C. hexystachyos* Rottb. based on the table in *Desc.Nov.P.* only. In 1936, having analysed the *C. rotundus* complex, G. Kükenthal decided to rank *C. tuberosus* Rottb. as *C. rotundus* ssp. *tuberosus* (Kükenthal, 1936). The Copenhagen sheet is a rather bad demonstration of the specific epithet, and I therefore suggest the Munich specimen as a lectotype. Kükenthal noticed to have seen the original specimen and suggested no lectotypification. His interpretation now is generally accepted, e.g. *Flora Malesiensis* 7:605.

König soon received Rottlboel's beautifully illustrated publications and ever since kept straight to Rottböll's nomenclature – partly his own. In the field he usually coined proper Linnaean 12-word diagnoses, but having suggested a name leaves the description to his European correspondents.

Like most other Linnaean apostles König was no name-hunter; being referred to and properly cited was all enough to an 18th century naturalist. And so he was; only recent concepts have reduced him to a phantom.

Diospyros ebenum – König on *Oeconomie*

König's article *Diospyros ebenum eller Äkte Ebenholtz – Diospyros ebenum* or proper Ebony – was published in Stockholm in *Physiographiska Sälskabets handlinger* – Transactions of the Physiographic Society in Lund – by A.J. Retzius (König, 1783). This paper represents König on the combination of Linnaean systematics and *oeconomie* and as a member of the European learned societies. The manuscript was sent to the editor in Lund but also to Rottböll in Copenhagen who published it in part in his *Beskrivelse over nogle Planter fra De malabariske Kyster* – Description of some plants from the Coast of Malabar – in the transactions of the Danish Royal Society (Rottböll, 1783) – his knowledge of Indian geography not too convincing – the mentioned taxa being all from Ceylon or the Coromandel; Denmark possessed two minor factories on the west coast but König so far as I know never paid them a visit. I have not been able to trace the Lund-manuscript but the one for Copenhagen is still in Botany Library[6].

The published article is partly in Latin – the botanical description - and partly in Swedish and Danish respectively – the economic aspects; in the Copenhagen manuscript the latter are in German. In a letter of Madras, January 24th 1774 to Solander – the

[6] Letters from J.G.König til C.F.Rottböll. In BCM. – Copenhagen.

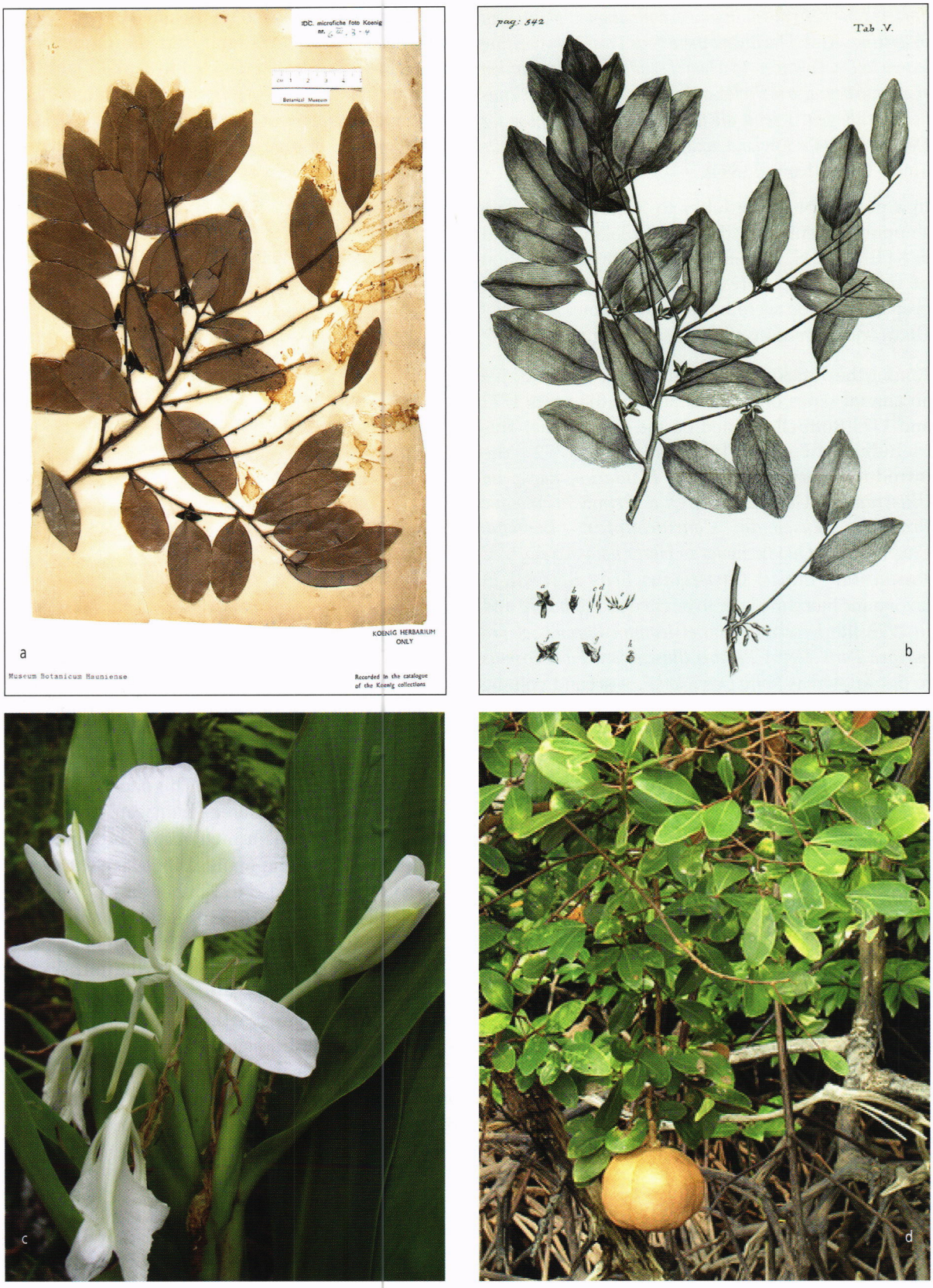


Figure 7. a. *Diospyros ebenum* J. Köenig. The original Koenig-sheet in the general herbarium. With kind permission of Botanical Garden & Museum, University of Copenhagen; b. *Diospyrus ebenum* J. Köenig. Engraving by Peter Haas based on the Koenig-sheet in the general herbarium. In Rottböll, A.F.:1783. *Beskrivelse over nogle Planter fra de malabariske Kyster*. Det Kongelige Danske Videnskabernes Selskabs Skrifter. Ny Samling 2:525-594, tab.V. – Copenhagen; Two of Köenig's taxa: *Hedychium* J. Köenig and *Xylocarpus* J. Köenig - c. *Hedychium coronarium* J. Köenig; d. *Xylocarpus granatum* J. Köenig.

curator of the library and collections of Sir Joseph Banks and an intimate friend of his, an old classmate of König's back in Sweden and a fellow apostle of the princeps – König wrote: *the languages' English, French, Latin and Swedish are all the same to me, only the preparation prevents me from writing in any other language than German.*[7] Of cause König wrote his descriptions in Latin like anybody else, but for daily use he clung to his native German. The manuscript in London contains but a few pages in any other language; they were his private papers but most of his correspondence too is in German. When writing to Linnaeus – some 20 of his letters are still in the Linnean Library – the letters had to be translated before presented since Linnaeus was unable to read his Gothic hand. Although Linnaeus created what to day is known as Botanical Latin he was in no way a great linguist. A short note to W. Roxburgh – the last one König ever wrote – is in the herbarium of NHM serving as an example of his hand and not registered among the manuscripts; when it is remembered that this letter was written by a dying man it is worth noticing its – almost – correct English and the neat handwriting.

The style of the treatise comes very close to the Linnaean dissertations formulated by the princeps himself but disputed and defended by his students (Linnaeus.1749). The dispoition although is very different, the economic part being most dominantly put up in front and in the vernacular. The heading is a Linnaean classification of the taxon as *Polygamia. Dioecia* – the 2nd order of the 23rd class – but no proper Linnean diagnoses follows; the description itself being totally Bauhinian.

König starts: *Trädet som hos Rumphius. Herb. Amboin.T.3.L.IV.Cap.I. heter Ebenus.*[8] This is a correct reference to Burmann's edition that was in his possession and one of his favourite occupations – his manuscripts abound with references and annotations to Rumphius – but together with the classification and the binomial the only sign of Linnaean systematics. The genus *Diospyrus* was established by Linnaeus in 1737 based on live material in Clifford's collection (Linnaeus. 1737). The type species was later described as *D. Lotus* (Linnaeus. 1753) - it has delicious fruits as the epithet indicates – to day *D. kaki* is probably better known although no longer considered exotic.

Rumphius – having never seen live material – was much more interested in the qualities of the wood; König combines systematics and *oeconomie* in his revision: he accepts the Linnaean genus based on sexual characters only and – most respectfully transferred Rumphii genus to a specific epithet thus following the recommendations of his mentor to pay respect to the ancient; in the protologue P. Vergilii *Georgia* is mentioned next to Rumphius.

Like Van Reede – another of his favourites – he carefully notes the name of the locals *Tamales Karingalli vel Karingali*, the habitat and the special technique used by the native craftsmen to procure the proper blackness of the wood:

The ebony-wood is produced from old trees which are really black; the young ones not so are helped by chopping holes in the trunks in several places to accelerate a kind of inflammation / rust causing the wood to blacken properly. The French induces this to trees much too young and do not leave them time enough which causes their ebony much too often to have a whitish taint.[9]

This is even to day a disgrace of Sri Lanka ebony – speckled Ebony ~ Kaluwara. The description of the provoked fungus-inflammation may well sound strange, but to acquire its proper blackness the timber is still subjected to a number of ingenous devices e.g. the chopped trunks are girded in iron bars before being submerged in water for a year to prevent splitting when later manufactured.[10]

The medical aspects of this most useful tree are mentioned too: *To purify the blood* – [i.e. as a diuretic] – *it is used extracted in spirit, and it is knows as an excellent remedy agains toothache.*

It is in fact amusing – and most informative – to notice that the Swedish publisher did not regard König's taxon to be conspecific with Rumphii *Ebenus*; he referres to a number of characters from *Herbarium Amboniensis*: *Flosculi pusilli, tripetali, magnitudine seminis Porri* (The florets are tiny, trepetaloid, of the size of leek seed) – it was commonplace to refer measures to well known seeds. Most interesting is the number of petals this being a genuine Linnaean character; König gives the number as four and to day we know both numbers to be found within the genus and even within the same species often reflecting the sexuality. König knew well of the inconsistency of this character – the phrase *tres vel quattur* is often

7 KJ.mss.I:149-156. The translation is quoted from Rendle 1933:148.

8 In Herbarium Amboniensis I.3.L.IV.Cap.I the tree is named Ebenus by Rumphius.

9 Quotations are my translation from the Copenhagen mss.

10 Risør, W.E.:1962. *Træ-bogen.* – Copenhagen.

found in his descriptions. The rest of the reservations does just not hit the point; König does not mention the size of the flowers – but according to the sheet they truly are small – nor the colour of the fruit, just the other way around he writes of the colour of the flowers and the size of the fruit *magnitudine Cerasi nigri* – of the size of a Wild Cherry.

But most interesting among the editorial notes I find the comments on the policy of science. It is noted Rumphius never visited the habitat and then goes on:

But Mr. König has been to Ceylon himself and visited the area of which Rumphius claimed Arbores ingentes admodum copiosæ. To those having access to the Indies – especially to the Islands – it is highly recommended to make such visits and to follow the examples of a König and a Thunberg who did not collect just to create a herbarium but to procure useful discoveries.

While it is generally accepted that König was the first to introduce Linnaean systematics in India it is surprising to realize that – although he kept strictly to Linnaean nomenclature – his descriptions – published and unpublished together – do in no way correspond to the prescriptions of the Princeps. They come much closer to the scheme of the Swiss renaissance botanist Caspar Bauhin (Bauhin, 1623).

To understand this heresy of a devoted apostle one has to remember that the Linnaean diagnoses were coined to facilitate identification of specimens of already known taxa, not to describe the new ones. Contrary to this it was focal points of botanical research to discover new species in the field or in the herbarium and not to produce keys. When a Retzius or a Rottböll published their folio-editions of Linnaean diagnoses and detailed plates, but without more lengthily descriptions, they produced indexes to their herbaria only. They told their fellow botanists: "If you posses a specimen keyed out as *Cyperus rotundus* nob. come and compare". On one occasion – one description among a 103 formal 12-word diagnoses in Linnaean style – Retzius wrote on 2. *Gratiola Lobeloides* after his own formal 12-word diagnoses *Descriptionem celeberrimi inventoris, quamvis non nihil prolixam, potius quam novam ex sicco specemine conficere, addere volui.*[11] And here follows a proper page-long Bauhinean description.[12] But since Retzius was an honourable man he carefully chose the term *prolixus* – sumptuous - to illustrate the style of his correspondent.

It is worth mentioning that the direct König quotations in *Observationes* are mostly referring to *oeconomie* c.f. *16.*

Cyperus Jemenicus: etiam in graminosis Zeylonae nascitur, ubi bulbi ab indigines comeduntur, ut in litteris retulit Cel. König.[13]

And *34.*

Saccharum arundinaceum: Tamulis Pee-carumbo, id est: Saccharum Daemonum. Culmi toti saepe ad infinum tectorum stratum adhibentur, quum reliquis melius durent; sed refugium quoque praebent Serpentibus, Lacertis etc. haec tecta. Cel. König in litt.[64]

The marked difference between the two contemporaries reflects a difference of temper too, Retzius represents a lexical tradition, König a more encyclopaedic. König did not formulate his sumptuous descriptions in opposition to Linnaeus; his two monographs on *Epidendrorum* and *Monandriarum* were both send directly to the Princeps before being published by Retzius. I shall comment on those later. In the case of *Diospyros ebenum* König was not only revising one of the fathers but erecting a new species based on a Linnaean genus and his own careful observations. In this way he was much more than a clever collector; he was a true apostle.

Descriptiones Epidendrorum-The first Contribution to the Orchid Flora of Thailand

When Malacca in 1795 was conquered by the British, this was partly due to its strategic position; the Straits were of great importance to the trade on China. But *oeconomie* played its parts as well. Even today, the peninsula is known for its tin and rubber, and so it was in the 18th century. The Honourable Company possessed a thorough knowledge of those riches, partly due to the research of Johann Gerhard König. To read his account of those two years of travelling onboard the Company's heavily armed ships – the *Bristol* under Capt. Leith and the *Prince* under Capt. Scott in 1778-79 – is most interesting and entertaining – König probably was the first naturalist to participate

[11] Quotations are my translation from the Copenhagen mss.

[12] I have added the description of the celebrated inventor which – although a little sumptuous – Is more informative than any dried specimen. "It too grows in the Ceylonese bogs being eaten by the locals as written by the most fameous König."

[13] The Tamuls call it Pee-carumbo - Demons' Sugarcane. The entire tops are often in great quantity used for thaching the roofs being of long duration although a shelter to snakes and lizards &c. Retzius, A.J.: Observationes IV:8.

in a naval battle – and at the same time most problematic. The translation by Miss Overbeck has often been criticised, and it is truly not a critical or annotated edition. Having compared it to the manuscript, I can only agree with Russell's recommendation to his friend to engage an amanuensis to transcribe the author's most "personal" hand.

On this expedition to the coastal regions of the countries east of the Indian Ocean in 1778-1780, König made piles of notes on his immense collections. He also wrote four separate papers clearly in a state for publication:

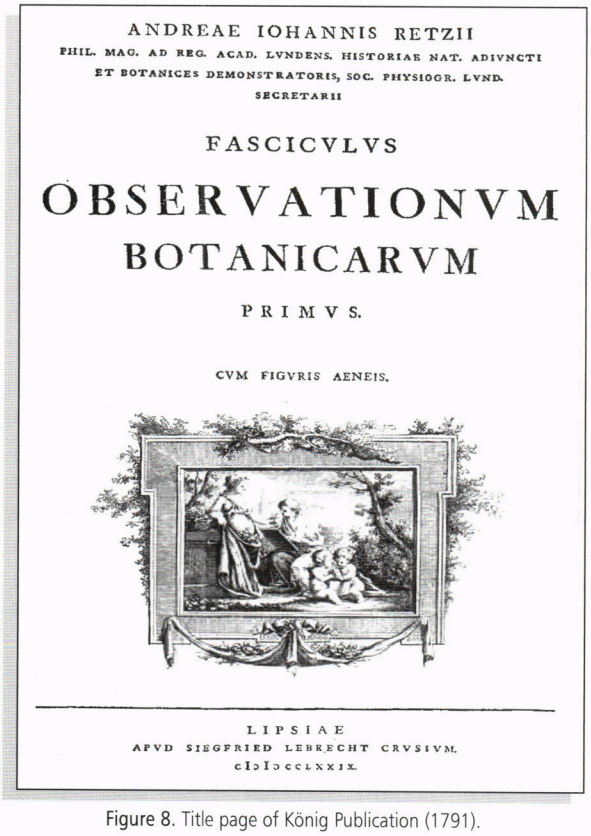
The *Iter Siamensis* published in 1894 in Journal of the Straits Branch of the Royal Asiatic Society as *Journal of a Voyage from India to Siam and Malacca in 1779.*

The article on tin ore, probably a classified report for Fort St. George.

Unpublished. In prep.

The *Monandriarum Descriptiones* published in Retzius,A.J.: 1783. *Observationes Botanicae* III:45-76. – Leipzig as *Descriptiones Monandriarum.*

The *Epidendrorum Descriptiones* published in Retzius,A.J.: 1791. *Observationes Botanicae* VI:41-67. – Leipzig as *Descriptiones Epidendrorum.*


ANDREAE IOHANNIS RETZII
PHIL. MAG. AD REG. ACAD. LVNDENS. HISTORIAE NAT. ADIVNCTI
ET BOTANICES DEMONSTRATORIS, SOC. PHYSIOGR. LVND.
SECRETARII

FASCICVLVS

OBSERVATIONVM
BOTANICARVM

PRIMVS.

CVM FIGVRIS AENEIS.

LIPSIAE
APVD SIEGFRIED LEBRECHT CRVSIVM.
cIↃIↃccLXXIX.

Figure 8. Title page of König Publication (1791).

The expedition remains a somewhat hazy affair. I have not yet been able to find any references in the *India Office Records*; the article on tin ore was never published and does only exist in König's German manuscript. The diary too is totally void of indications on the Madras Government's intentions of sending a highly paid officer on a two years cruise without any formal obligation. But – most strange – the diary too is almost silent in respect to Captain König's investigations of tin mining *which he flattered himself might prove acceptable to the public.* The where's and when's, are nicely documented but the why's remain unexplained.

To argue *e silentio* is a most disgraceful habit, but I feel tempted.

I consider the voyage a preparatory investigation of the Malaccan tin mines leading to the British annexation a generation later. König the mineralogist was travelling under cover of König the botanist. Of the 24 taxa of the *Epidendrorum Descriptiones* only two: *Epidendrum spathulatum* ~ *Aerides odorata* Lour. and *E. subulatum* ~ *Papilionanthe subulata* (Willd.)Garay can claim any horticultural or commercial value; the latter is still better known as *Vanda teres* Lindley and as a parent of the celebrated hybrid *V.* Miss Joaquim; the remaining 22 taxa may be of interest as collectors' items, but the *Epidendrorum Descriptiones* is a book on botany proper and a landmark as the first contribution to the orchid flora of Thailand.

Descriptiones Epidendrorum was revised by my former mentor, the late Dr. Gunnar Seidenfaden. But the original König-manuscript in the Linnean Society was newer involved.

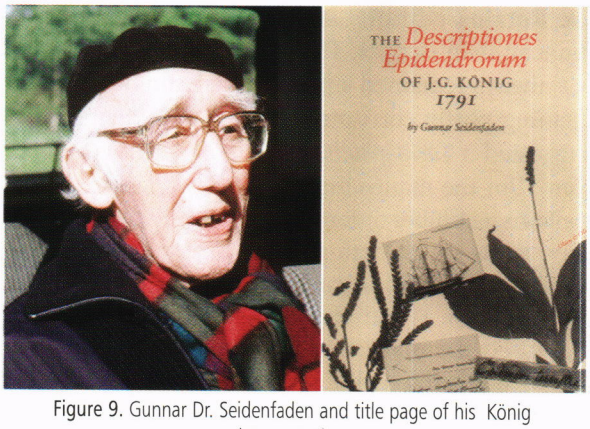


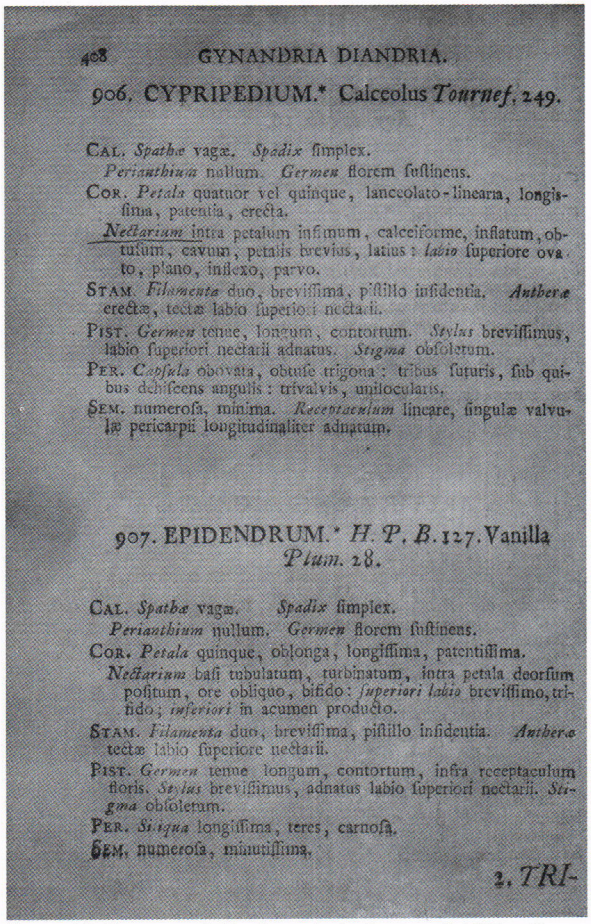
Figure 9. Gunnar Dr. Seidenfaden and title page of his König interpretation

The two treatises, which König still considered unfinished – were sent to a number of European naturalists for comments. The *Monandriarum Descriptiones* was published by Retzius to König's great dissatisfaction – letter to Patrick Russell 19th

September 1784 – since it contained a number of pre-Linnaean names, and the manuscript was sent without accompanying herbarium-specimens and was later published without the illustrations making the text partly senseless. Hooker – knowing only the Retzius edition – wrote: *The descriptions are so full and good in all but the pollinia* (Hooker, 1894.). But in KJ.XI:230 and in the Linnean manuscript the description of No. 22. *Epidendrum calceolaria terrestre Fl. niveo* includes 6 sketches of the dissected flower including a pollinarium – two pollinia, caudicles and viscidium (Seidenfaden, 1995). König used the name *E. calceolaria* twice, describing No. 3. ~ *Dendrobium acerosum* Lindley and No.22. ~ *Bromheadia finlaysoniana* (Lindley)Miq., once more proving the prematurity of the Retzius edition. I have searched the herbaria and archives of the recipients with almost no results but for the copies of the treatises in the Linnean Society. Among several König manuscripts in the Society, these two are the most remarkable; before sending them, König had them bound in half-leather and India mosaic-paper – nice craftsmanship and no sign of use – on the backs the name *König* is noted in the hand of Linnaeus f. – and the content itself is pure calligraphy. Besides the illustrations left out by Retzius, the KL.mss has several information on localities and dates. But although the Linnean Herbarium bursts with König specimens, the orchids have left no trace. No surprise; orchids – like ginger – in general make poor herbarium material; most of the material was badly damaged by the humidity onboard an Indiaman and some was lost during a tempest.

Just one example will do to prove the harm done by the Retzius editions and the importance of the Linnean manuscripts: The taxon *Epidendrum nudum* has always remained a puzzle; the Latin description seeming partly corrupted, Leslie Garay tentatively suggested a *Taeniophyllum* (Seidenfaden, 1994. pers. com). But the manuscript in the Banksian Archives contains a number of rough sketches and the Linnean copy some much better; when just showing those illustrations and indicating the locality to Phillip Cribb and J.J. Wood of Kew, we all independently identified the plant as a *Dendrobium pachyphyllum* (Kze.) Bakhuizen. Later this identification was confirmed by Seidenfaden.

The genus *Epidendrum* is conserved as it was finally formulated by Linnaeus in 1774 in the 5th edition of the *Genera Plantarum*. Today this genus includes several hundred species of orchids from the New World only, the type-species being *E. nocturnum* Jacq. But the König-concept of the genus is to be found in


408 GYNANDRIA DIANDRIA.

906. CYPRIPEDIUM.* Calceolus *Tournef.* 249.

CAL. *Spathæ* vagæ. *Spadix* ſimplex.
Perianthium nullum. *Germen* florem ſuſtinens.
COR. *Petala* quatuor vel quinque, lanceolato-linearia, longiſſima, patentia, erecta.
Nectarium intra petalum infimum, calceiforme, inflatum, obtuſum, cavum, petalis brevius, latius: *labio* ſuperiore ovato, plano, inflexo, parvo.
STAM. *Filamenta* duo, breviſſima, piſtillo inſidentia. *Antheræ* erectæ, tectæ labio ſuperiori nectarii.
PIST. *Germen* tenue, longum, contortum. *Stylus* breviſſimus, labio ſuperiori nectarii adnatus. *Stigma* obſoletum.
PER. *Capſula* obovata, obtuſe trigona: tribus ſuturis, ſub quibus dehiſcens angulis: trivalvis, unilocularis.
SEM. numeroſa, minima. *Receptaculum* lineare, ſingulæ valvulæ pericarpii longitudinaliter adnatum.

907. EPIDENDRUM.* *H. P. B.* 127. Vanilla *Plum.* 28.

CAL. *Spathæ* vagæ. *Spadix* ſimplex.
Perianthium nullum. *Germen* florem ſuſtinens.
COR. *Petala* quinque, oblonga, longiſſima, patentiſſima.
Nectarium baſi tubulatum, turbinatum, intra petala deorſum poſitum, ore obliquo, bifido: *ſuperiori labio* breviſſimo, trifido; *inferiori* in acumen producto.
STAM. *Filamenta* duo, breviſſima, piſtillo inſidentia. *Antheræ* tectæ labio ſuperiore nectarii.
PIST. *Germen* tenue longum, contortum, infra receptaculum floris. *Stylus* breviſſimus, adnatus labio ſuperiori nectarii. *Stigma* obſoletum.
PER. *Siliqua* longiſſima, teres, carnoſa.
SEM. numeroſa, minutiſſima.

2. TRI-

Figure. 10: The genus *Epidendrum* etc. in Linnaeus.C.:1754. : *Genera Plantarum*. 5th ed: 408. – Stockholm.

the descriptions from the second edition of *Species plantarum*. The genus has later been split into an alliance composed by some twenty genera and the former Asiatic members have been transferred to a similar alliance around the genus *Dendrobium* Sw.

When Olof Swartz – a Swedish botanist, founder of orchid-taxonomy and a pupil of Linnaeus f. – in 1799 erected his new genus, he most respectfully chose the name *Dendrobium* as a close parallel to the Linnaean *Epidendrum* both indicating "growing on trees" i.e. epiphytes (Swartz, 1799). But in 1779 when König wrote his *Epidendrorum Descriptiones* and when in 1795 Retzius published the Thai orchids, all of them – but for one – were genuine *Epidendra* sensu Linnaeus. The Princeps included those exotic plants in his 20th class and its 1st order *Gynandria, Diandria* referring to Hermann's *Paradisus Bativus* of 1698.

The *Descriptiones Epidendrum* numbers 24 taxa but for one named *Epidendra*. The last one described is somewhat strange; König chose the name *Serapias epidendrea* to this sole terrestrial originating close to his local station of Coromandel and – according to

the epithet – showing some likeness to the epiphytic relatives. Today it is considered an *Eulophia*. By some students this has been seen as an inconsistency since König omitted several orchids described from other localities elsewhere in his manuscripts some even named *Epidendræ*, but the latter all belong to the years following the Thai expedition. To König *Epidendrum* really meant epiphytes. This character made him able to identify some specimens not in flower by the help of his beloved Dolland telescope only. König was basically a Linnaean preferring the sexual characters to the natural system advocated by Oeder. He therefore put the terrestrial *Cymbidia* – in those days already well known garden-plants – among the *Epidendræ* later considered a genus of it's own by Swartz – and his *Serapias* is close enough to a small flowered *Cymbidium* to account for both the epithet and its inclusion among the descriptions.

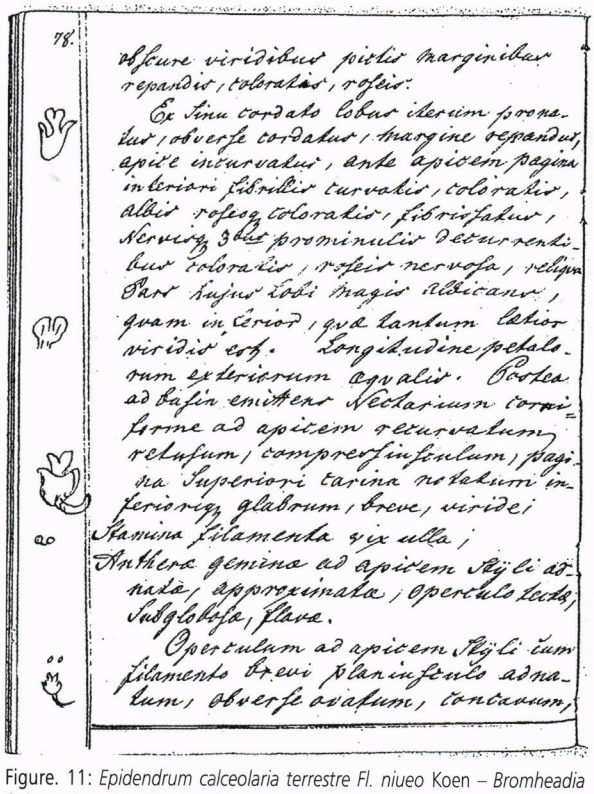


Figure. 11: *Epidendrum calceolaria terrestre Fl. niueo* Koen – *Bromheadia finlaysoniane* (Lindl.) Miq. Fide Seidenfaden. Text and drawing from the mss in the Linnean Library. Reproduced with kind permission of the Linnean Society.

Plants of the Coast of Coromandel, Monument to an unknown soldier

'König was singularly qualified for the employment he had engaged in. More covetous of fame then of fortune, he persevered in his pursuits with enthusiasm that set bodily fatigue, spare meals, and a scorching climate at defiance, while the simplicity of his manners and his assuming readiness to impart knowledge to others, conciliated, almost at first sight, the benevolence of those with whom he conversed'. (P. Russell in preface: Roxburgh, 1795-1820).

When in 1785 König died, Russell and Roxburgh were well aware of the piles of sheets and manuscripts in his possession. But for some reason, the great collector had postponed their kind suggestions of a more substantial publication and of employing an amanuensis. My tentative explanation is that König was planning a proper *Flora indica* but found his material still insufficient; Roxburgh was later to execute the plan. He was on the brink of leaving for an expedition to faraway Himalayas and totally unknown Tibet when a new and mortal attack of dysentery finished any such plans.

In 1785 already, Russell suggested to Banks a more limited publication of such descriptions of direct use to the Company servants – a proper field guide – but close-reading the manuscripts before their dispatch to London made him realize the futility of this project. In the introduction to *Plants of the Coast of Coromandel* he later remembered:

Though these manuscripts contains many valuable descriptions and observations, there was nothing found in a state fit for a distinct or separate publication; but they have afforded assistance to the present work, in which his botanical remarks will occasionally be inserted (Roxburgh, 1795).

Only 12 of the 250 taxa are genuine König descriptions. A true monument in the European Discovery of the Indian Flora but much more a monument to an unknown soldier.

König's office was passed to Russell whose major interests – and standing contributions to science – were on reptiles and fish. Now botany became a part-time field of his but genuine loyalty to his late teacher never made him a genuine botanist. I have no doubt of his ambitions, but Banks preferred Roxburgh for the job – and rightly did so. Sir Joseph had been the sovereign pilot of English natural history for more than a generation, and at first had been most positive to Russell's initiative but then changed his mind and appointed Roxburgh to lead the project later to turn out as the *Plants of the Coast of Coromandel*, Russell being degraded to the responsibility of proof-reading. Besides his scientific and political influence, Banks promised to take responsibility of the printing of the costly illustrations i.e. to pay for the introduction of the almost unknown new technique of mezzotint tables.

When Roxburgh was soon after appointed

superintendent of *the Honorable Company's* botanical gardens in Calcutta, he started a training-program of botanical illustrators aiming at the Indian artists having already acquired excellence due to the local tradition of depicting nature, e.g. the Indian princess collected not only falcons but their portraits as well. This initiative was inspired by the English Baptist-missionary, botanist and linguist, Dr. W. Carey, later to introduce the lithographic press in India. The Mission Press in Serampore became of great importance to the development of Indian science; it never reached the standards of European printing shops, but the artists acquired a solid knowledge of the possibilities and requirements of the stone.

The printing of *Plants of the Coast of Coromandel* was carried out by W. Bulmer and Co. Shakespeare Printing Office and so far as the text goes, it is just excellent. Bulmer already had executed a number of editions of Banks' works, and the company – with W. Martin as supplier of series of high quality typecasts – created a number of antiqua fonts in no way second to Bell's and Baskerville's making the name known among connoisseurs. The publishing of *Plants of the Coast of Coromandel* coincided with the highlight period when W. Bulmer was in charge of the company.

The hand-coloured mezzotints on the other hand are not of a similar standard though the English engravers translating the watercolours of the Indian artists certainly knew their trade. The mezzotint technique – at this time rather new in England – at a first glance is close to lithography, especially when the illumination is precisely done, but this is in no way the case in copies I have at hand. The colours were added at a later stage, and a black and white discount edition is known. On top the tables are printed too lightly the shading often having to be redrawn at the time of colouring. One of the great advantages of mezzotint is the shadows being much more delicate than in ordinary coppers. To me these prints appear just grey. This is a common problem which together with the time-consuming process has reduced mezzotint to somewhat of a curiosity. To explain this misery in a Shakespeare Printing Office edition, one may count on the prematurity of the technique and even more on a lack of cooperation between the engravers and the Indian artist. A few years later, some of the most outstanding illustrations in the history of botany were made by English printers and the same Indian artist. The tables are not signed – nor are the original watercolours – but in Wallich's *Plantae Asiaticae Rariores* due respect was paid to the Indian artists Visnu Prasad and Gorachaud whose outstanding mastery is easily detected in the anonymous tables of the Coromandel-publication.

The issuing became a lengthily process – it took 25 years from 1795 to 1820 to describe and publish 300 taxa – but *Plants of the Coast of Coromandel* soon became a standard reference of taxonomy and still is. Not due to a number of taxa new to science, but to a new approach to already known ones: *with a more immediate view to utility, while preference will be given to subjects connected either with medicine, the arts, or manufactures* (Roxburgh, 1795). What is really new is the economic aspects combined to the thorough use of Linnaean binomials. This new approach is typified in the descriptions of *17. Swietenia febrifuga: Roxburgh's monography, printed by order of the East India Company* which he – besides qualities as hardwood and dyeing-material – hoped to be a local remedy against malaria in the exact sense of the title of the dissertation of his late friend.

Plants of the Coast of Coromandel truly is a monument in the history of botany. But is it a monument to König? And if so, why then consider him an unknown soldier? Beside its truly monumental size, it is a monument to the introduction of *oeconomie* and of Linnaean systematics to the Indian subcontinent and König has always been duly credited as a founding father of both disciplines. But botany is a proper "publish or perish" science and in full accordance with the rules of Linnaean systematics Roxburgh is the author to the great majority of the 300 taxa of the monument. König collected, analyzed and described, but it was to his learned friends Retzius and Roxburgh to publish those collections, analyses and descriptions and thus to become quoted in the protologes of times to come.

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