Inseparable friends in life and death

The life and work of Heinrich Kuhl (1797 – 1821) and Johan Conrad van Hasselt (1797 – 1823), students of prof. Theodorus van Swinderen

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Image back cover: *Ptychozoon kuhli* (left) and *Leptobrachium hasseltii* (right)

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Foreword

In the Netherlands there exists quite a large and still popular genre of literature relating to its former colony, the Dutch East Indies. The contents of these books range from nostalgia and romanticism to sublime criticism of abuse and oppression. In any case, however, these books emanate an enthralling atmosphere of a wonderful, mysterious and distant tropical country, quite unlike the country the Dutch have created for themselves.

The events that Charles Klaver describes in his book took place for a substantial part in this familiar, yet alien tropical setting during a revitalised period in Dutch colonial history. He tells us about two erstwhile students of the University of Groningen, Heinrich Kuhl and Johan Conrad van Hasselt, who left for the Dutch East Indies in high spirits in July 1820, never to return to the Netherlands again. At the beginning of the 19th century there was still a lot to be discovered and to be explored in the Dutch East Indies. The world still awaited the era of the great explorations of the 19th century.

Kuhl and Van Hasselt were two early explorers of that era. As a result of their studies in Groningen and the ensuing scientific reputation, and shortly after they had finished their studies, Kuhl and Van Hasselt had been appointed by the Dutch government as delegates of the newly-established Commission for the Study of the Natural Sciences of the Netherlands East Indies. The author narrates how both men, who were discovering and registering natural phenomena since their early youth, were pre-eminently capable of such an assignment and with their attitude any adversity could be conquered. To travel to the tropics in those days was a hazardous undertaking. Kuhl and Van Hasselt must have been aware of their predicament before they sailed for the Dutch East Indies, but it did not stop them. Once in the East Indies they worked (too) hard to describe and sample the immense variety of tropical nature. Too hard indeed, for they paid with their lives. Kuhl died already nine months after their arrival in the East Indies at the age of not yet 24, Van Hasselt died only two years later, 26 years of age. In their short life they achieved, nevertheless, a staggering amount both in Europe and the East Indies and they have been deservedly acknowledged for this.

Next to their activities in the Dutch East Indies, the years of their study in Groningen and their scientific achievements in Groningen as well as in the Dutch East Indies are highlighted. In their mostly systematic work Kuhl and Van Hasselt employed the binominal nomenclature introduced by Carolus Linnaeus. On the other hand, they were critical of Linnaeus' artificial classifications. With their adoption of more natural classifications, they were clearly conversant with the then contemporary views concerning natural classifications as expressed by scientists they met personally, e.g. Georges Cuvier and Jean-Baptiste Lamarck. In view of the systematic character of Kuhl and Van Hasselt's work as well as their relation to the

University of Groningen, I thought it appropriate to support the publication of this book with financial assistance of the University of Groningen and to make its publication coincide with the commemoration of the 300th anniversary of Linnaeus' birthday. I congratulate the author, assistant to the Librarian at the University Library, with the interesting exposé of this part of the scientific history of the University of Groningen. I would also like to thank the publisher dr. R. Barkhuis, who took care of the publication of this well-executed book.

Prof. Dr. E. Bleumink
President of the Museum Committee of the University of Groningen
President of the Dutch Academic Heritage Foundation.

Preface

As a herpetologist in the 1970's I was familiar with the names Kuhl and Van Hasselt. After all Kuhl was the author of two scientific names of chameleons, a group of lizards that was the subject of my scientific inquiries at the time. Moreover, Kuhl and Van Hasselt were known to me from their explorations in the Dutch East Indies and their relation to the National Museum of Natural History in Leiden. After a career change into library management at the University of Groningen I happened to find out that both men had studied at the very university that employed me (Botke, 1990). This aroused my interest and through the years my search in the matter, first randomly and then systematically, evolved from mere interest, to taking down notes, to writing an article that, eventually, developed into this book.

This book, it must be said, was not written with only the general reader in mind. I hope, nevertheless, the general reader might find the result to her or his liking. Another reader I had in mind, while writing, was the fellow biologist, especially the fellow herpetologist, which explains the bias in the text as to not only biological, but especially herpetological matters. Perhaps surprisingly, the study of the publications and published letters of Kuhl and Van Hasselt, dating from the early 19th century, can still have an impact on present-day science. A scientific off-shoot of my studies of their letters has been published elsewhere (Klaver, 2007). Similarly, publication of a complete bibliography of their published works and letters might very well lead to the further study of them that might result in taxonomic elucidation in other animal groups. So to the general reader, the taxonomic elaborations in parts of this text, especially appendix B, may appear abstruse, to the taxonomist they are a treasure-trove.

As a trained biologist, writing a historical tract is not every-days work, although, admittedly, being a taxonomist makes it a great deal easier. Nevertheless, I needed a great deal of help and all those who helped me in the process are gratefully acknowledged in the section Acknowledgements. Not acknowledged there is the man to whom I like to dedicate this book. At the First World Congress of Herpetology in Canterbury, U.K. in 1989, this enthusiastic fellow herpetologist, I had met only once before, presented me without much ado with a book he had edited and that contained his *Herpetologists of the past*. I was dumbfounded as well as very pleasantly surprised. No more congenial present to a herpetologist cum librarian could be possible. I remember reading through it the same night and the next day and enjoying it immensely. Unfortunately, I never had the opportunity to sufficiently express my appreciation for his generosity as well as the contents of his book. I, therefore, like to dedicate this book to professor dr. Kraig Adler of Cornell University, Ithaca, New York, U.S.A., whose book served as an inspiration for the present one. Dear Kraig, consider this dedication a belated thank you and a tribute to your wonderful contribution to herpetology.

Charles Klaver
Groningen, 24 April 2007

Introduction

Solemn music resounded through the choir of the Academy church during the special meeting of the Natuur- en Scheikundig Genootschap (Society of natural sciences) of Groningen, the Netherlands on the evening of the 27th of March 1822. The occasion of this well-attended meeting was the commemoration of an erstwhile student of the University of Groningen and honorary member of the Society, Heinrich Kuhl, who died some six months before in Buitenzorg (Bogor), Dutch East Indies (Indonesia) at the age of 23 years (Anon., 1822a). His mentor and professor in natural history, Theodorus van Swinderen, delivered a lengthy eulogy in which he commemorated the life, character and merits of this remarkable, gifted and sympathetic young man (Swinderen, 1823a). In his speech Van Swinderen referred to C.J. Temminck, director of the natural history museum in Leiden, who was said to have remarked after having heard of Kuhl's demise: "Science has lost a second Linnaeus". Van Swinderen himself compared Kuhl, perhaps more aptly in view of his energetic style of working and his attention for comparative anatomy, with Peter Simon Pallas (1741-1811), the great natural historian of the Russian empire (Swinderen, 1822a & 1823a: 57, Mearns and Mearns, 1988: 289). In a letter of condolence to Kuhl's father he wrote: "…auch mir ist in ihm die Krone von meinem Haupte gefallen…" (Swinderen, 1822b). Science had clearly suffered a great loss with the premature death of a versatile and promising young man, as was also evidenced by communications, often by well-known scientists, in renowned journals, e.g. Anon. (1822b and c), Hasselt (5), Nees von Esenbeck (1822), Swinderen (1823b) and Tiedemann (in Swinderen, 1823a: 57).

Two years later, on 31 March 1824, there was a very similar meeting of the Society of natural sciences in Groningen. Again there was solemn music and again Van Swinderen delivered a lengthy speech to commemorate yet another former student of his: Johan Conrad van Hasselt, close friend and companion of Kuhl and honorary member of the Society as well, had passed away on 8 September 1823, also in Buitenzorg, at the age of 26 years (Anon., 1824b and Swinderen, 1825). Meanwhile, in the Dutch East Indies, the governor-general baron Van der Capellen, patron of Kuhl and Van Hasselt, had thoughtfully seen to it that Van Hasselt was laid to rest in the same grave as his friend Kuhl at the cemetery of the botanical garden in Buitenzorg, the present Kebun Raya Indonesia in Bogor (Anon., 1824a, 1829 and Scalliet et al., 1999: 53-54).[1]

Heinrich Kuhl and his inseparable friend and companion Johan Conrad van Hasselt are renowned in taxonomic literature for their prodigious collecting of natural history specimens during their

sojourn in the Dutch East Indies from 1820-1823. They were the first two scientists who were commissioned as delegates of what was to become known as the Natuurkundige Commissie voor Nederlandsch Indië (Commission for the study of the natural sciences of the Netherlands East Indies; see Fransen et al., 1997: 270-275). The botanical, zoological and mineralogical specimens they collected were shipped back to the Netherlands to be deposited in the then newly founded 's Rijks Museum van Natuurlijke Historie in Leiden, presently known as the Nationaal Natuurhistorisch Museum/Naturalis (Holthuis, 1995). According to Veth (1879: 38) the zoological material collected by Kuhl and Van Hasselt comprised 200 skeletons, 200 mammal skins representing 65 species, 2000 bird skins, 1400 fishes representing 420 species, 300 amphibians and reptiles representing 90 species and numerous insects and molluscs. Next to this there were botanical and mineralogical collections as well.

Unfortunately, Kuhl and Van Hasselt were never able to study this material further after their planned return to the Netherlands and to publish the results. Kuhl died some nine months after their arrival in the East Indies. Van Hasselt soldiered on valiantly for another two years before he, too, succumbed to the rigors of the tropical climate. Their prestige was, nevertheless, enhanced when prominent scientists of the day made subsequently good use of the collected material as well as their field notes and sketches. The most prestigious publication that made extensive use of the material Kuhl and Van Hasselt collected is the *Histoire naturelle des poissons*, a 23 volume treatise on fishes by Cuvier and Valenciennes (1828-1849; see Bauchot et al., 1997; Boeseman, 1997; Pietsch, 1995 and Roberts, 1993). Other major studies that were based on material of Kuhl and Van Hasselt are, for instance, Breda (1828) on orchids and asclepiads, Blume (1825-26 and 1827-28) on Javanese plants and Temminck (1839-1847) on the anthropology, zoology and botany of the Dutch East Indies (Kalff, 1921: 263). Not all material bearing the famous label "Kuhl and Van Hasselt" received the attention it deserved. Surprisingly, the ample bird material was largely neglected, although the original recipient, Temminck, first director of the Leiden museum, was an ornithologist of repute (Finsch, 1906: 308 and Stresemann, 1975: 131). Despite their premature death, Kuhl and Van Hasselt got some scientific recognition for their research in Java as the letters they sent back to friends and colleagues in Europe were published in various Dutch, German and French journals (see Bibliography). This yielded them, more by accident than by design, not only the distinction of authorship of quite a number of scientific names of newly described genera and species, but , unfortunately, also notoriety because of the likewise resulting taxonomic confusion and nomina nuda (see e.g. Dubois, 1982, 1992, the International Commission on Zoological Nomenclature, 1994 and Klaver, 2007).

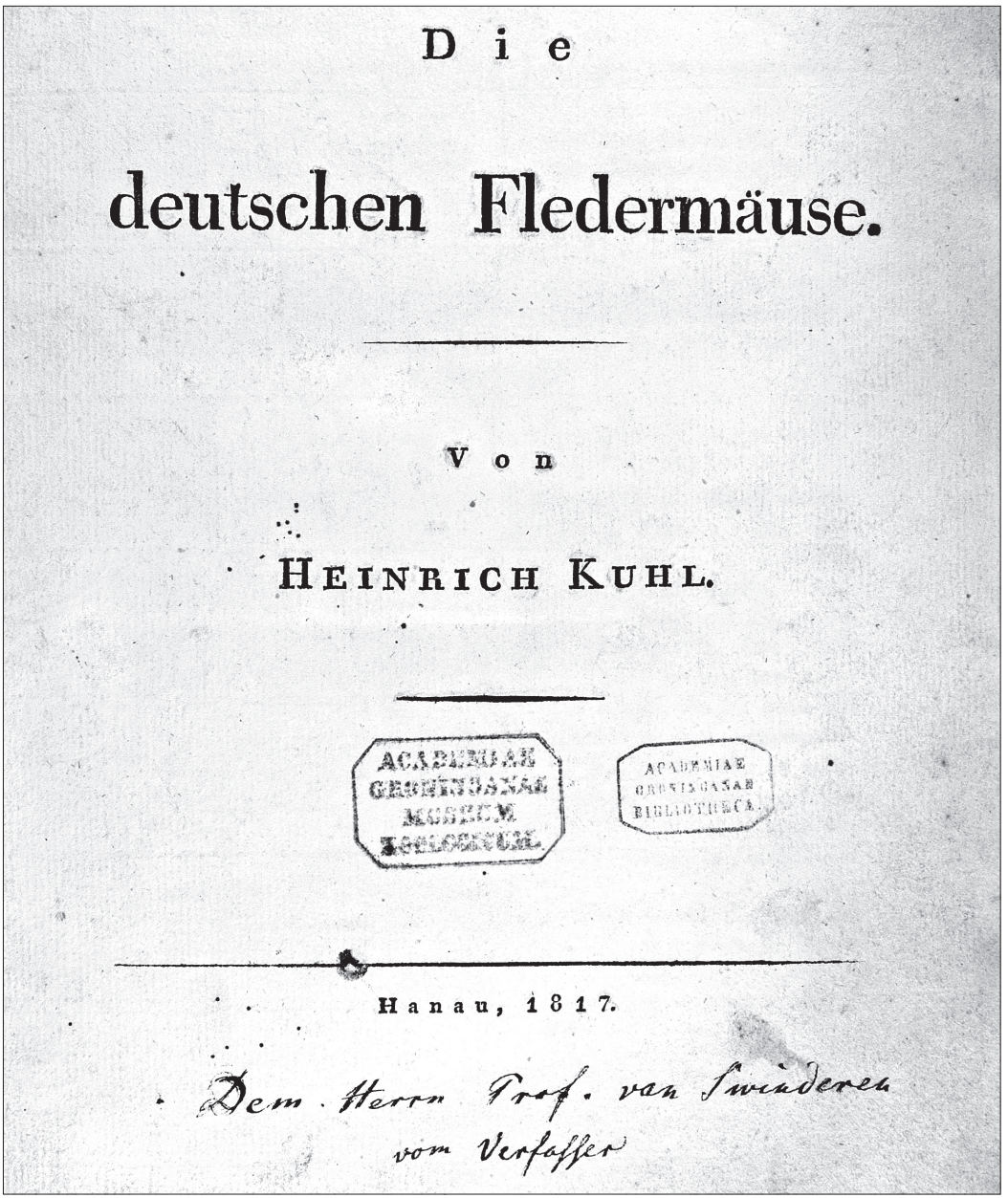
All in all, the names of Kuhl and Van Hasselt have been mainly associated with Dutch scientific exploration of the natural world of the Dutch East Indies and with the Leiden museum, as illustrated by the numerous short biographies published in periodicals and books.[2] Unfortunately, more often than not, the limited information therein was copied indiscriminately from one another, including the errors. Moreover, less well known and given far less attention in the short biographies is the part of the life of Kuhl and Van Hasselt prior to their much acclaimed sojourn in the Dutch East Indies. What was their background and education and why did they qualify already in their early twenties for such an honourable assignment? A few more extended biographies contain more information, but they are not well known and, moreover, published in either Dutch or Latin or in gothic German script (Swinderen, 1823a & b and 1825; Greshoff, 1902 and Justi, 1831). Therefore, this book is intended to make this information accessible to a wider public, to bring additional information scattered throughout little known and less accessible literature together and to supplement it with newly found information from archives and libraries. I hope this will furnish a clearer and more complete view of their lives, their studies, the relevance and reception of their publications and their place within the scientific community at the time. In the interest of keeping the focus on the primary subjects, much relevant back-ground information, commentary, explicative remarks, discussion of taxonomic issues, etc are relegated to the endnotes, that become thereby a useful source of information themselves. Moreover, a complete bibliography of the publications and letters of Kuhl and Van Hasselt is presented. The titles in the bibliography are numbered and in the text, notes and appendices, these numbers are used to refer to them. These titles, especially the published letters, are of particular importance as they are still relevant to present-day taxonomy as evidenced by the studies by Dubois (1982 & 1992), Kottelat (1987), Roberts (1993), McDiarmid et al. (1999) and Klaver (2007). A better knowledge of them and a closer study of their contents may very well result in a revision of current taxonomy and nomenclature of divergent groups. Finally, in Appendix A an overview is given of the presently valid names of animal taxa created by Kuhl and Van Hasselt and a number of commemorative names is supplied. Appendix B comprises a synopsis of new herpetological names created by Kuhl and Van Hasselt in their published letters from Java.

Figure 1.
Heinrich Kuhl; copper-engraving by F. Fleichmann.
Legend: Henricus Kuhl Hanovianus Guilelmi I regis Belgii jussu in Indiam or: Naturae scrutandae causa missus egregiis animi dotibus et ad munus exsequendum singulari doctrinae copia instructus penetralia Naturae adiit summam de se expectationem excitavit. At in ipso limine praematura morte occubuit artibus infesta, patriae, regi, multisque acerba. die XIV Septembris MDCCCXI. aetatis anno XXIV. Reinward. Prof. Lugd. Bat.
(Henricus Kuhl, from Hanau, was by order of King William I of the Netherlands sent to East India to study nature, provided with the gifts of his excellent mind and an extraordinary knowledge to fulfill his assignment, he entered the secrets of nature. He aroused the highest expectations of himself, but on the threshold he succumbed to a premature death, that was disadvantageous for science and bitter for his fatherland, the king and many others, 14 September 1821, aged 24 years. Reinward. Prof. Leiden, The Netherlands.).

Youth in Hanau and Doesburg

Heinrich Kuhl was born in Hanau, near Frankfurt am Main, Germany on 17 September 1797 (fig.1).[3] He was the second of nine children of Johann Heinrich Kuhl (*b.* Marburg, 1757, *d.* Hanau, 1830), president of the "Landesgericht" (Court of Justice) and Maria Judith Walt(h)er (*b.* Hanau, 1770, *d.* Hanau, 1810), daughter of the mayor of Hanau. From his early childhood Heinrich showed a keen interest in natural history, for which he possessed remarkable talents. His interest and talents were noted by friends of his father, who stimulated his appetite for natural history during their visits to his parental home. The most notable of these visitors were the physician-naturalist Johann Philipp Achilles Leisler, who had a large private natural history collection and ran an exchange and trading business of natural history objects in Hanau, the ornithologist Bernhard Meyer, the botanist Gottfried Gärtner and the mineralogist Karl Caesar von Leonhard.[4] Especially Leisler encouraged Heinrich's interest in zoology, not only during field trips in the Wetterau region, but also at his workshop, where Heinrich spent much time after school, learning to skin, prepare and mount specimens. So talented and knowledgeable became Heinrich that, when his tutor passed away on 8 December 1813 during the aftermath of the battle of Hanau, he was able to continue the trading business and his (i.e. Leisler's) studies of indigenous bats. Thus already at the tender age of 16 he corresponded with naturalists in Germany and abroad to exchange specimens (Justi, 1831). Johann Wolfgang von Goethe (1957: 230) mentioned Kuhl by name in his diary after having met him personally when visiting Leisler's collection on 28 July 1814 and praised his (i.e. Kuhl's) scientific work on bats prior to its publication (Goethe, 1816: 109 and Bott, 1949: 58). Apart from looking after Leisler's collection (auctioned in 1816, Gebhardt, 1964: 211), Kuhl seems also to have taken care of Leisler's duties as curator of the zoological collections of the Wetterauische Gesellschaft für die gesammte Naturkunde (note 4; Justi, 1831 and Bernges, 1921). With the help of Leisler's collection of bats, oral information previously supplied by Leisler (who had not left any notes, see Goethe, 1816: 109 and 33: 4) and his own fieldwork Kuhl, with characteristic industry, set out to finish the study of his tutor. This resulted in Kuhl's first scientific publication, a monograph titled *Die deutschen Fledermäuse* (The bats of Germany), published privately in Hanau (33; fig. 2)[5]. An indication of the quality of the work of Kuhl, who was 19 at the time, is that, apart from original observations concerning ecology, distribution, reproduction etc, the names of seven of the 15 species of bats described are still valid with Kuhl as the original author (Bogdanowicz & Kock, 1998 and Appendix A).

After successfully finishing the Gymnasium in Hanau in 1816 Heinrich was to study medicine at the University of Heidelberg. Initially, his father wanted him to study law, but in view of his son's remarkable talents a study of medicine was considered the best career option in relation to his


Die

deutschen Fledermäuse.

Von

HEINRICH KUHL.

ACADEMIAE GRONINGANAE MUSEUM ZOOLOGICUM

ACADEMIAE GRONINGANAE BIBLIOTHECA

Hanau, 1817.

Dem Herrn Prof. van Swinderen vom Verfasser

Figure 2. Titlepage of Die deutschen Fledermäuse by H. Kuhl (33; see note 5) with dedication to Van Swinderen by the author, probably the very first monograph on German bats.

favourite study of natural sciences. Before he could move to Heidelberg, however, he was met by Theodorus van Swinderen, professor of natural history at the University of Groningen in the Netherlands (fig. 3 & 5).[6] In the summer of 1816 Van Swinderen, who was appointed in 1814, travelled to Germany to study the natural history collections and to secure exchange agreements. Visiting Hanau, he was introduced to Kuhl by Gottfried Gärtner and he was impressed by the extraordinary knowledge of plants, animals and minerals the youth possessed. They got on so well that Van Swinderen, upon departing, invited Kuhl to visit Groningen in the Easter holidays next year. The opportunity to visit the nearby seacoast and the Frisian islands and to collect specimens there was for Kuhl, who had never seen the sea, a dream coming true. When Bernhard Meyer, whom Van Swinderen visited next in Offenbach, also praised Kuhl exuberantly, Van Swinderen returned to Hanau and offered Kuhl the opportunity to study natural sciences in Groningen as well as a post as assistant at the museum of natural history. The prospect to be able to study natural sciences instead of medicine, the salaried position at the museum and the proximity of the renowned natural history collections in the province Holland persuaded Kuhl to accept the generous offer.

Figure 3. Theodorus van Swinderen (Groningen, 14-9-1784-Groningen, 11-4-1851; see note 6), professor in natural history, encyclopedia filosofia naturalis, oeconomia politica and pedagogy from 1815-1851 at the University of Groningen, The Netherlands. Oil on canvas (96 x 78 cm), 1851; copy with alterations of the portrait by Petrus Bernardus Buijs, 1843.

Compared with Kuhl much less is known of Van Hasselt's youth. Johan Conrad van Hasselt was born in Doesburg, The Netherlands on 26 June 1797 (note 3) as the fifth of eight children of Barthold van Hasselt (1741-1819) and Bernardina Antonia Rasch (1767-1849) (Wijnaendts van Resandt, 1963: 140 and Wildeman, 1911a: 80 and 1911b: 240; fig. 4). Like Kuhl he developed an interest in natural history in his early childhood and when Van Swinderen met him in Doesburg in 1815 he convinced him to study medicine (as well as extracurricular natural history) in Groningen, which he did since 2 January 1816 (*Album*, 1915: 267 and *Almanak*, 1817: 64).[7]

Figure 4. Johan Conrad van Hasselt (from Sirks, 1915, opposite page 97).

Figure 5.
Van Swinderen is commemorated by the black-collared lovebird Kuhl (40) named after him, viz. Psittacus swinderianus *Kuhl, 1820, presently known as* Agapornis swindernianus *(see Hoyo et al. 1997: 409). Legend by Kuhl in the original description: Psittaculae huic pulcherrimae nomen imposui Clar. Theodori van Swindern, historiae naturalis Professor Groningensis, cui publicas has qualescunque debui reddere gratias animi, per tot tantaque beneficia, a Viro humanismo in me collata, devincti. (I have named this beautiful parrot after the honourable Theodorus van Swindern, professor in natural history in Groningen, to acknowledge with gratitude the many, great benefactions bestowed on me by a humane man). In taxonomic literature, starting with the original description by Kuhl (40), two different spellings of the name are used, viz.* swinderianus *(page 9 and the colourplate) and* swindernianus *(page 62). Hoyo et al. (1997: 409) used the latter spelling, although the alternative spelling has page priorty. However, Peters (1937: 255), being the first reviser (see article 24 of the ICZN) designated* swindernianus *to be the correct spelling. It is tempting to think, incidentally, that the specific name "*swindernianus*" is somewhat of a misnomer caused by the pronunciation of Van Swinderen's name in the Groningen dialect in which the last vowel is clipped. After all one would expect it to read "*swinderenianus*", but Kuhl (40: 63) said the species was named after "Van Swindern". All in all, "*swindernianus*" is the valid name.*

Student in Groningen and Europe

In September 1816 Kuhl travelled to Groningen and on November 6 he was enlisted as student at the Faculty of Mathematics and Natural Sciences of the University of Groningen (*Album*, 1915: 268 and *Almanak*, 1817: 88). Van Swinderen had arranged quarters for his new assistant in the museum of natural history in the Sint Jansstraat (*Almanak*, 1817: 88 and Jonckbloet, 1864: 400).[8] This gave Kuhl ample opportunity to work and study outside working hours. Moreover, the museum was only a short distance from where Van Swinderen lived (Martinikerkhof) and from where Johan Conrad van Hasselt lived (Heerestraat) (*Almanak*, 1817: 82). Van Swinderen introduced the students to each other and soon they became inseparable friends. Their joint interest in and enthusiasm for natural history made them spend many hours after lectures in the museum, where they laid the foundation of their joint monograph that was to be published in 1820 (32 & 38). They supplemented each other, as also evidenced by the monograph, as Van Hasselt was most accomplished in anatomy and physiology, while Kuhl excelled in systematic and faunistic knowledge. Both men attended the lectures of Van Swinderen that, conveniently as we shall see, dealt with mammals that year and Kuhl also attended lectures in physics by prof. J.Baart de la Faille and anatomy by prof. G. Bakker (Van Swinderen, 1823a: 12)[9]. As assistant at the museum Kuhl started to identify the specimens of the collection and the new acquisitions and to preserve and mount specimens (*Almanak*, 1817: 76 & 122). For his identification work he thoroughly studied J.C.W. Illiger's *Prodromus systematis mammalium et avium* (1811), an influential work that was critical of Linnaean rigor and cleared the way for an unrestricted study of relationships (Swinderen, 1823a: 13, Stresemann, 1975: 108)).

In 1816 the university offered a prize for the best essay on the subject "De lento passu, quo natura, in mammalium classe" (literally: On the gradual change within the class Mammalia or in present-day language: On the variation and affinities of mammals; *Almanak*, 1817: 97 and Anon., 1818: XI). Both Kuhl and Van Hasselt set to work to be able to hand in an essay in Latin and in "manu aliena" before the deadline of August 1, 1817. In the winter of 1816/1817 Kuhl also made his first trip to the province of Holland to visit Johann Gottfried Voigt in Amsterdam, Martinus van Marum in Haarlem, prof. Sebald Justinus Brugmans in Leiden, and, above all, Coenraad Jacob Temminck in Amsterdam (fig. 6).[10]

Figure 6. Coenraad Jacob Temminck (Amsterdam, 31-3-1778-Leiden, 30-1-1858; see note 10), first director of 's Rijks Museum van Natuurlijke Historie in Leiden from 1820-1858, friend and supporter of Kuhl; lithograph by J.C. d'Arnaud Gerkens, 1854.

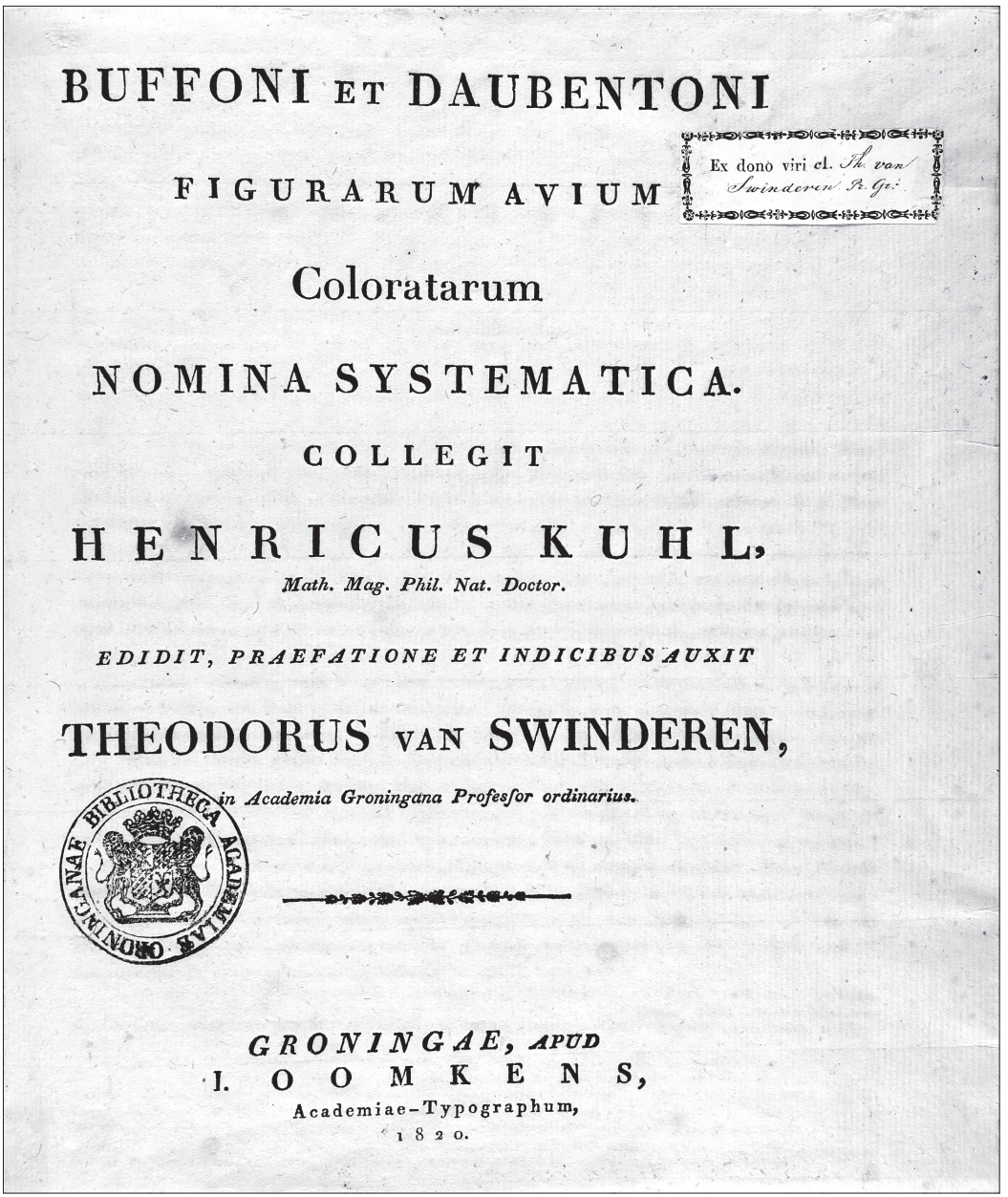
Temminck, who knew Meyer and Leisler (note 4) personally from his six months stay in Hanau in 1804 (while on honeymoon!, Lynden-De Bruïne, 2001: 27) probably heard of Kuhl already from his correspondence with both men and may even have corresponded with Kuhl himself after Leisler's death (Stresemann, 1975: 115). Temminck and Kuhl apparently got on so well together that Kuhl was invited to stay a few days at Temminck's country retreat "Wildlust" in Lisse, north of Leiden to study, collect and dissect specimens of the local flora and fauna. Back in Groningen, Kuhl regularly travelled to the Wadden Sea coast of the province of Groningen on Saturdays to collect fishes and birds, but in the Whitsuntide holidays of 1817 he and Van Swinderen were able to make the long-awaited trip to the North Sea coast of the island Rottum. He collected much material and struck a deal with the supervisor of the island, Guitjen Klaassen van Dijk (supervisor from 1802-1834; Weijman, 1999: 28) that he would send him everything he could lay his hand on. As a result many musea and cabinets in Germany were supplied by Kuhl with naturalia ranging from seals to plants.

After having handed in his essay on the variation and affinities of mammals early that summer (*Handelingen*, Augustus 1, 1817) Kuhl returned to Hanau to spend his holidays with his father. From there he paid also a visit to Heidelberg to meet with professor Friedrich Tiedemann (note 16), renowned anatomist and physiologist and author of the influential *Anatomie und Naturgeschichte der Vögel* (1810/1814). On 12 August 1817 Kuhl, accompanied by his family and K.C. von Leonhard (notes 4 & 16), set out on a boat-trip along the Rhine and then back to Holland. His first stop was Schloss Monrepos in Neuwied, north of Koblenz where he paid a visit to Alexander Philipp Maximilian, Prinz zu Wied-Neuwied (1782-1867), the great explorer-naturalist-ethnologist of both South and North America, who had only just returned from his explorations in Brazil (Adler, 1989: 22). Prince Max, for intimates, had brought with him enormous collections which he was happy to show to the young Kuhl. The journey continued to Doesburg, where Kuhl probably met with Van Hasselt and his family, and hence to Utrecht, where he paid a visit to prof. De Fremery and to Leiden to visit prof. Brugmans again.[11] Kuhl's reputation must already have been considerable by now. Not only was he given hospitality by senior and established scientists/naturalists in Germany and Holland, but Brugmans, after tantalizing Kuhl by showing him the natural history cabinet of the university, his private collection of naturalia and his extensive library, offered Kuhl a position at the university in Leiden at a doubled salary as compared to that he received in Groningen. It was not so much the salary that tempted Kuhl, but the collections and the library, that were superior to those at the University of Groningen (Justi, 1831: 377). Nevertheless, Kuhl with characteristic rectitude declined out of obligation to Van Swinderen with the words: "I am so indebted to prof. Van Swinderen, that as long as I stay in the Netherlands I stay with him" (Swinderen, 1823a: 15). Van Swinderen, moved by this loyalty, even expressed his appreciation and that of the University of Groningen in print (*Almanak,* 1818: 165).

In the plenary faculty meeting of September 10 it was decided that of the two essays handed in the one marked "In plurimis me errare posse fateor, at erroribus non indulgebo" (I admit to that I can err in many things, but I shall not indulge in my mistakes) was to be awarded the first prize (*Handelingen*, September 10, 1817). Although the second essay was superior in comparative anatomy as compared with the first, the winner was more to the point with regard to the prize question as it compared species and discussed recent relevant literature. In the plenary faculty meeting of September 19 the sealed envelopes with the names of the authors were opened to reveal that Kuhl was the author of the prize-winning essay (*Handelingen*, September 19, 1817; Anon., 1818: 15-16; Swinderen, 1818). The second essay, by Van Hasselt, was deemed so good that in the plenary faculty meeting on September 27 it was decided that it was to be published next to that of Kuhl in the *Annales Academiae Groninganae* (*Handelingen*, September 27, 1817; 34 and 1).[12] On October 9 the prize-medal was presented to Kuhl (*Almanak*, 1818: 92 and Anon., 1817) and on the same day Kuhl and Van Hasselt were elected honorary members of the Society of natural sciences in Groningen.

In the second year of his study Kuhl attended the lectures in chemistry and botany by prof. P. Driessen, in anatomy by prof. G. Bakker (note 9), in physiology by prof. J.A. Uilkens and in natural history of birds by Van Swinderen (Swinderen, 1823a: 15)[13]. At Van Swinderen's lectures he was not only auditor, but acted as amanuensis and advisor. In this latter capacity Kuhl also identified and gave Latin binominal names to the birds depicted in the *Planches enluminées* by Daubenton (1764-1783). This index was to be published in 1820 (39; fig. 7).[14] Together with Van Hasselt he continued his studies on comparative anatomy of birds and fishes. Kuhl's scientific reputation increased even further when, in 1818, he was elected honorary member of the Wetterauische Gesellschaft für die gesamte Naturkunde (note 4; Anon., 1819a) and as member of the prestigious Kaiserliche Leopoldinisch-Carolinische Akademie der Naturforscher. The membership of the "Leopoldina" at such a young age with only one publication to his name was brought about by the acquaintance of Kuhl with Theodor Friedrich Ludwig Nees von Esenbeck and his elder brother Christian Gottfried Daniel, both botanists of repute (Engelhardt, 1998a). Christian became president of the Leopoldina on August 8, 1818 and he quickly enlarged its membership. Kuhl was elected in the same year as J.W. von Goethe and C.J. Temminck among others with the cognomen Johnson (Anon., 1821a: XIX).[15]

At the end of June 1818 Kuhl and Van Hasselt set out on a three months walking-tour through Germany to study natural history cabinets, visit various prominent scientists and attend their lectures. They first went to Bremen to visit prof. G.R. Treviranus and J.A. Albers, via Celle and Braunschweig to Berlin where they met prof. M.H.C. Lichtenstein and prof. K.A.


BUFFONI ET DAUBENTONI

FIGURARUM AVIUM

Ex dono viri cl. Th. van Swinderen P. Gr.

Coloratarum

NOMINA SYSTEMATICA.

COLLEGIT

HENRICUS KUHL,

Math. Mag. Phil. Nat. Doctor.

EDIDIT, PRAEFATIONE ET INDICIBUS AUXIT

THEODORUS VAN SWINDEREN,

in Academia Groningana Professor ordinarius.

BIBLIOTHECA ACADEMIAE GRONINGANAE

GRONINGAE, APUD

I. OOMKENS,

Academiae-Typographum,

1820.

Figure 7. Titlepage of the index to Daubenton's Planches enluminées by H. Kuhl (39; see note 14).

Rudolphi, then to Ziebigk to visit J.F. Naumann, to Halle to visit prof. C.L. Nitzsch, to Jena to meet prof. L.Oken, then to Hanau to visit Kuhl's father and finally to Heidelberg to meet prof. F. Tiedemann, prof. K.C. von Leonhard and H. Boie.[16] In Berlin they met Temminck (note 10), who was visiting prof. Lichtenstein as well (Lynden-De Bruïne, 2001: 201 & 203), which gave Kuhl the opportunity to discuss the offer made to him by Lichtenstein, viz. to undertake an expedition to Brazil by order of the Prussian government. Kuhl had always wanted to travel to the tropics and a similar plan was under consideration at the time in the Netherlands, i.e. to secure an assignment for Kuhl to travel to the Dutch East Indies by order of the Dutch government. Both Temminck and Van Swinderen were involved in the preparations and were undoubtedly spurred into even more action by the Berlin offer. The flora and fauna of the Dutch East Indies were relatively unexplored and already subject of Kuhl's studies, whereas Brazil had recently been explored by Prince Maximilian and was being explored at the time even further by Johann Natterer and Johann Baptist Spix (Adler, 1989: 23). So Kuhl declined the offer or at least considered the position until a decision was made by the Dutch government[17].

Kuhl and Van Hasselt were back in Groningen by September 21 and soon afterwards Kuhl started to attend the lectures by Van Swinderen that dealt that year with amphibians (incl. reptiles), fishes and invertebrates. In connection with this Kuhl identified (most of) the amphibians and reptiles depicted in volume 1 and 2 of Seba's famous *Thesaurus* and supplied Latin binominal names (fig. 8).[18] Kuhl and Van Hasselt also reported on the results of their studies during meetings of the Society of natural sciences in Groningen. Kuhl lectured already in 1817 on the poison of snakes and on December 3, 1818 on the natural history of birds (Anon., 1819d: 3 & 4; *Almanak*, 1819: 107). Van Hasselt lectured on January 5, 1819 on the natural history of amphibians and fishes (*Almanak*, 1819: 107).[19] Next to his study and work in Groningen Kuhl regularly travelled in his holidays to the province Holland to study and work in natural history collections that contained much more material than the museum in Groningen. In the winter of 1818/19 he was invited by Temminck to Amsterdam to assist him in identifying birds in his famous collection as well as in literature.[20] While in Amsterdam Kuhl received a letter from the minister of education, national industry and colonies, Anton Reinhard Falck, a close friend of Temminck (Holthuis, 1995: 9), who informed him that he was chosen to undertake an expedition to the Dutch East Indies by order of the Dutch government. In preparation for this he was also given the opportunity and an allowance to travel to London and Paris to study the natural history collections there. Kuhl, who was still only 21 years old at the time, was elated; all his dreams and aspirations had come true as a consequence of his being the right man at the right time in the right place. He was especially thankful to Van Swinderen, who furthered Kuhl's career actively as he had realised he could not keep Kuhl in Groningen. Kuhl thanked

him with the words: "It has always been my intention to live for my studies, but how difficult would that have been had I not had the fortune to meet you. My sojourn in Groningen was very pleasant and I shall never forget those wonderful days in which I started my development there." (Swinderen, 1823a: 24, Greshoff, 1902: 18).

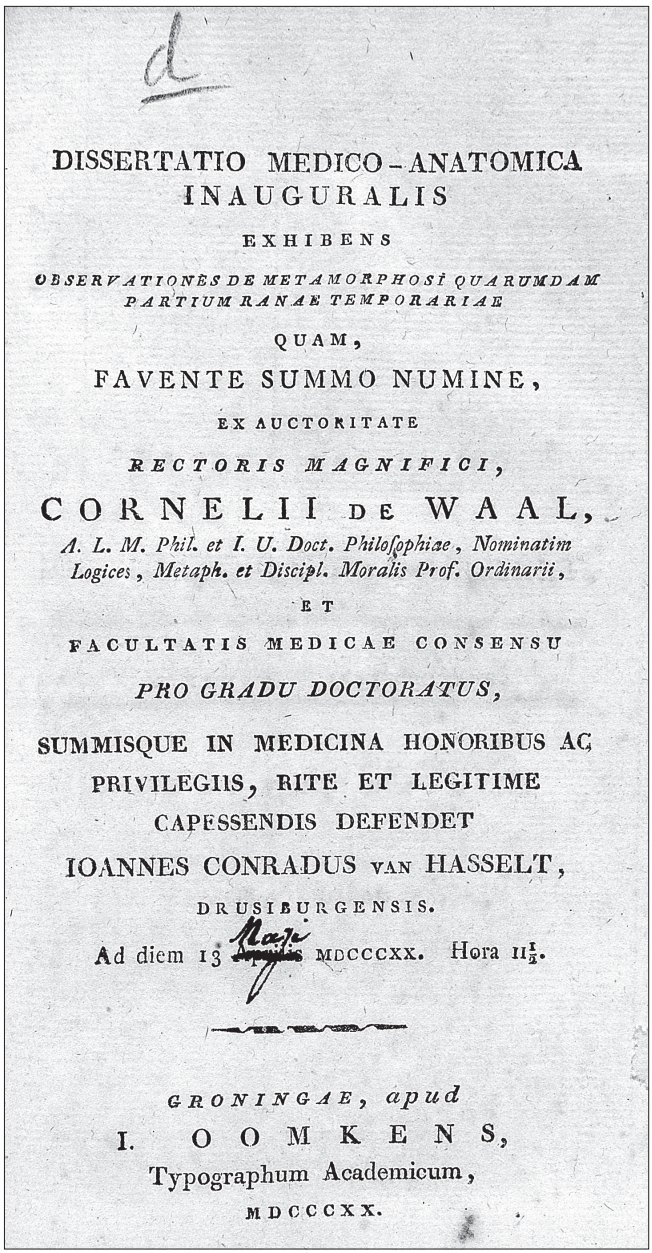
In April 1819 Kuhl travelled, accompanied by Temminck and Lichtenstein, to London.[21] In the next few months he was generously allowed to study the Bullock collection prior to its sale, the collection and library of Joseph Banks, the collections of the British Museum and the library of the Linnean Society. He also met with numerous famous scientists and natural historians, e.g. W.T. Aiton, R. Brown, A.P. de Candole, E. Forster, C.D.E. König, W.E. Leach, J.E. Smith and E.S. Stanley.[22] At the festive meeting of the Linnean Society on the occasion of the anniversary of Linnaeus' birthday Lord Stanley, in his speech, welcomed the invited foreign guests, introduced them to the gathered members and praised their contributions to science.[23] Kuhl shared this honour with de Candole, Lichtenstein and Temminck a.o. Before he returned to Groningen Kuhl, accompanied by baron Laugier de Chartrouse (note 21 & 26) and an unnamed student

Figure 8.
Identification in Kuhl's handwriting of Chamaeleon mexicanus *(Seba, 1734, I: plate 82, fig. 1) and* Chamaeleon, ex Africa *(Seba, 1734, I: plate 83, fig. 4) as* Chamaeleon calcaratus, *which is a junior synonym of* Chamaeleo africanus Laurenti, *1768 (see Klaver & Böhme, 1997 and note 18).*

from Berlin, made a tour through southern England visiting Oxford, Bath, Bristol, Southampton, Isle of Wight and Portsmouth. It goes without saying that during this trip he collected all kind of specimens, especially from the rivers and the sea.

Meanwhile in Groningen Van Swinderen had been active on behalf of Kuhl. In the faculty meeting of 17 April 1819 Van Swinderen recommended Kuhl as well as Temminck for a doctor h.c. title (*Handelingen*, 1819).[24] So, upon his return to Groningen Kuhl had, on August 6, the rare honour for a student to receive, together with Temmick, the title of "Matheseos

Chamaeleon. fasciatus. Schr. t. 83. f. 1.



DISSERTATIO MEDICO-ANATOMICA
INAUGURALIS
EXHIBENS
OBSERVATIONES DE METAMORPHOSI QUARUMDAM
PARTIUM RANAE TEMPORARIAE
QUAM,
FAVENTE SUMMO NUMINE,
EX AUCTORITATE
RECTORIS MAGNIFICI,
CORNELII DE WAAL,
A. L. M. Phil. et I. U. Doct. Philosophiae, Nominatim
Logices, Metaph. et Discipl. Moralis Prof. Ordinarii,
ET
FACULTATIS MEDICAE CONSENSU
PRO GRADU DOCTORATUS,
SUMMISQUE IN MEDICINA HONORIBUS AC
PRIVILEGIIS, RITE ET LEGITIME
CAPESSENDIS DEFENDET
IOANNES CONRADUS VAN HASSELT,
DRUSIBURGENSIS.
Ad diem 13 Maji MDCCCXX. Hora 11½.
GRONINGAE, apud
I. OOMKENS,
Typographum Academicum,
MDCCCXX.

Figure 9. Titlepage of the dissertation of Johan Conrad van Hasselt.

Magister, Philosophiae Naturalis Doctor, honoris causa" by unanimous recommendation of the Faculty of Mathematics and Natural Sciences and the Senate of the university (Anon., 1819b, Anon., 1820a and *Almanak*, 1820: 91). Thus relieved from further formal studies Kuhl set out on September 2, 1819 on another European tour, this time accompanied by Van Hasselt and a fellow medical student Hermannus Cremers. First, they travelled via Bruxelles, Namur, Liège, and Aachen to Neuwied, where Kuhl was to meet Prinz Maximillian again to ask him for expert advice for his forthcoming journey to the tropics. Then they travelled to Hanau where Kuhl stayed with his father and worked hard to finish several publications before his departure to the East Indies. Van Hasselt and Cremers continued their journey to Switzerland (Swinderen, 1825).[25] After meeting again in Strasbourg in the beginning of November the three men then set off to Paris. Van Hasselt and Cremers were to continue their medical studies there at the university and in hospitals. Kuhl went to study the collections of especially invertebrates,

amphibians and birds in the Museum National d'Histoire Naturelle and the Javanese and Timorese plants in the herbarium of Leschenault (note 26). At the museum, the famous Georges Cuvier was soon sufficiently impressed by Kuhl's faunistic knowledge to order his staff to open any cabinet at Kuhl's request, so he could correct any faulty identification (38: Vorwort). After his medical studies Van Hasselt often joined Kuhl at the museum so they could work together on the comparative anatomy of the specimens before returning to their quarters in Rue Copeau 4, near the Jardin des Plantes (the present Rue Lacépède; 37). Next to Cuvier they met with other prominent scientists and naturalists of the time, viz. J.B. Lamarck, E. Geoffroy Saint Hilaire, P.A. Latreille, G.M.J.M. baron Laugier de Chartrouse, J.B.L.C.T. Leschenault de la Tour and the man Kuhl was especially looking forward to meet, Alexander von Humboldt.[26] Both Kuhl and Van Hasselt were invited regularly to attend the scientific soirées at Cuvier's residence on Saturday evening. Humboldt, too, invited them to visit his home and, like Cuvier, gave them access to his library (Swinderen, 1823a). While in Paris Kuhl and Van Hasselt also met again, on 24 and 26 January, 1820, with Temminck, who was also visiting Cuvier, Von Humboldt and, especially, baron Laugier de Chartrouse (note 26). Temminck, accompanied by his first wife, Dionysia Catharina Temminck-Cau, travelled from 1804-1824 widely through Europe in his own carriage. A delightful edition of the diaries of his wife, relating to these travels and the people they met, was published by Lynden-De Bruïne (2001). After more than two months in Paris Kuhl left for Hanau again on February 26, 1820, where he continued to work feverishly to finish his *Conspectus psittacorum* (40) and the two *Beiträge*, one by himself and one together with Van Hasselt (38 and 32). Van Hasselt returned to Groningen, where he was awarded his M.D. on May 13 having defended his thesis *Dissertatio medico-anatomica inauguralis exhibens observationes de metamorphosi quarundam partium rana temporariae* (2; *Album*, 1915: 513, *Almanak*, 1821: 92, Anon., 1820b, Swinderen, 1825: 18; fig. 9).

Kuhl as well as Van Hasselt were officially appointed by Order in Council of May 2, 1820 as delegates of the Commission for the study of the natural sciences of the Dutch East Indies.[27] They were to spend four to six years studying and collecting in the Dutch East Indies and were awarded 4.000 guilders for expenses for material, instruments, preservation and conservation of material etc. After their return to the Netherlands, they would be granted an annual pay of 1.200 guilders for three years to be able to write down their experiences, to study the assembled material and to publish the results. Having finished his manuscripts and sending the *Beiträge* to the printer in Frankfurt a.M. and the *Conspectus* to the Leopoldina (note 15) on April 9, Kuhl travelled the next day from Hanau directly to Amsterdam to join Van Hasselt in the preparation of their departure. Shortly before his departure Kuhl found the time to contribute an inscription to an *album amicorum* for Joannes Willmet (1750-1835), minister,

orientalist and professor at the Athenaeum Illustre in Amsterdam since 1804, with whom he had made acquaintance during his previous stays in Amsterdam (fig. 10 and Nat, 1937).[28] Then, after a short leave-taking visit to Groningen (Justi, 1831: 330), Kuhl and Van Hasselt, subsequently, sailed from Amsterdam to the island of Texel to embark the ship *Nordloh* that was anchored on the roadstead. On July 11, 1820 the two men, aged 22 and 23, set sail for the Dutch East Indies, not knowing they had only 14 and 38 months left to live.

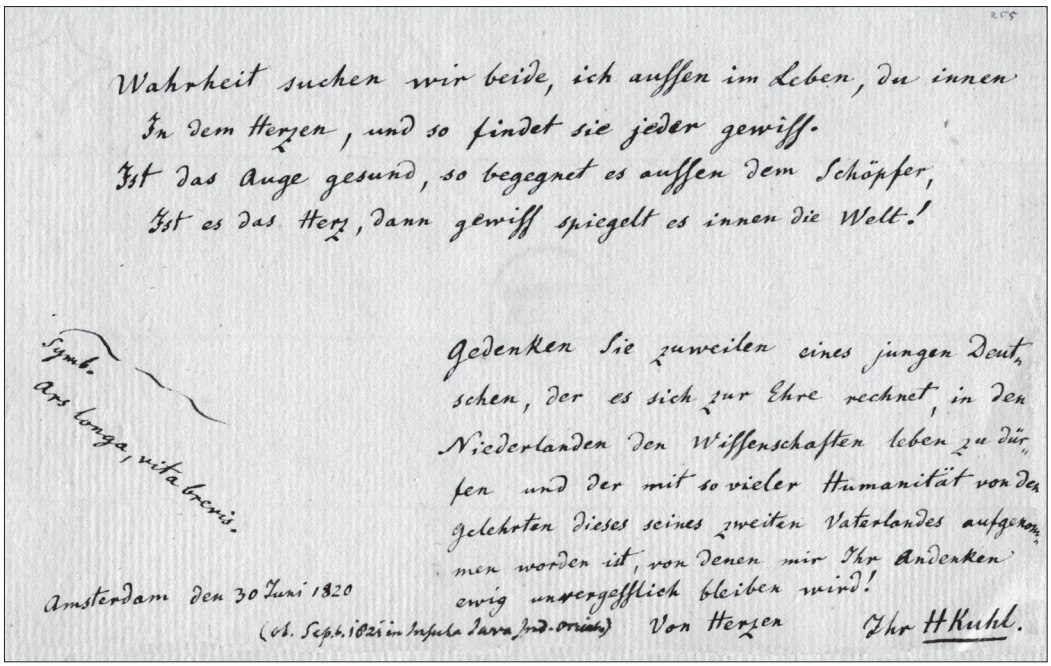


Figure 10.
Inscription by Kuhl in Album amicorum for Joannes Willmet (1750-1835), minister, orientalist and professor at the Atheneum Illustre in Amsterdam (see note 28). (We both search after truth, I outside in the world, you inside in the heart, and surely we both find it. When the vision is righteous then outside the creator is revealed, when the heart is righteous then surely it reveals the world within! Remember every now and then a young German, who considers it an honour to be able to devote his life to science in the Netherlands and who was extended so much hospitality by the scientists of his second fatherland, and of whom you will always be remembered by me! Congratulations, your Heinrich Kuhl. Amsterdam, 30 June 1820 (from September 1821 in the island of Java, East Indies).).

Explorer in Java

Characteristically, from the very start of their journey Kuhl and Van Hasselt made good use of the opportunities their sea-voyage offered them. Already in the Channel they reported to have collected seaweed and fishes, many new to them, most of which were described, dissected, sketched and preserved (43, 46, 58 & 60). After a passage of 17 days the *Nordloh* arrived at Funchal, Madeira on July 28, where it would stay for 5 days. Kuhl happened to meet the British consul, Henry Veitch, who invited Kuhl and Van Hasselt to his country-house in the mountains, the present Quinta do Jardim da Serra, north of Corticeiras. Not only did they enjoy the hospitality with Madeira wine and food, but they also managed to climb the highest peak of the island, the Pico Ruivo (1862 m) and collected some 1.000 specimens of plants belonging to 224 different species. In their letters on their botanical investigations of Madeira, they gave a detailed description of the floristic zones at different altitudes, just as Von Humboldt had done for Mt. Chimborazo, Equador in his famous *Essai sur la géographie des plantes*. They also commented on the European character of the flora and fauna and reported having collected many insects and two species of *Lacerta* (probably male and female of the only lizard species present, viz. *Teira dugesii*, that was described by Milne-Edwards not until 1829), but fresh water fishes and mammals were not to be found (41, 49, 50, 52, 53, 54, 58, 60, 62 & 63 and Anon., 1822f). Moreover, Van Hasselt showed his literary qualities with his vivid description of the arduous trips to the Quinta and the Pico Ruivo and the beauty of the Madeiran landscape, especially the breathtaking view of the Curral das Freiras (29). After these pleasant and successful days they left Madeira for the long leg to the Cape of Good Hope on August 3.

During this passage, that lasted more than two months, Kuhl and Van Hasselt again caught and studied many marine invertebrates such as jelly-fishes, thaliaceans and molluscs as well as seabirds and fishes (42, 43, 46 & 47, 49, 50, 51, 53, 54, 58, 60, 62 & 63). They reported to have discovered the reproductive organs in jelly-fishes that had eluded even the famous Cuvier (42: 103). On October 9, 1820 the *Nordloh* arrived at the Cape and Kuhl and Van Hasselt spent fourteen days there collecting specimens on the beaches and in the mountains. They studied also the geology of the Table Mountain and established that it was not entirely made up of granite, as D'Aubuisson de Voisins had stated in his *Traité de géognosie* (1819), but that the upper part was made up of sandstone as well (58, 60, 62 & 63). They left the Cape on October 24 with two hogsheads full of zoological specimens, countless bulbs and seeds for the botanical garden in Buitenzorg and a multitude of notes and sketches. "We will arrive with rich collections in Java" Kuhl wrote enthusiastically to Van Swinderen (42).

During their trip across the Indian Ocean they collected sea slugs, annelids and tunicates (56, 58, 59 & 66) and then the *Nordloh* called at the Cocos Islands (Keeling Islands) where they went ashore. They recognised the islands to be made up entirely of coral and noted the absence of mammals, terrestrial amphibians (incl. reptiles) and land birds and the small number of plant species. The number of seabirds, however, was phenomenal although the number of different species limited. The number of crustacea (ghost crabs) was also impressive and they noted that the "Paguren" (hermit crabs) wandered into the woods and climbed trees, probably to raid the nests of the "Sulen" (= gannets and boobies; 55, 56, 59, 65 & 66). Finally, they reached the Dutch East Indies and after going ashore for some time at the Point of Bantam, West Java, where they collected a large number of corals and molluscs, Kuhl and Van Hasselt arrived in Batavia (Jakarta) at the end of December 1820 after a journey that had taken them almost six months.[29]

They received a warm welcome from the governor-general, baron Van der Capellen (note 17), who generously invited them to live in Buitenzorg (Bogor) to get accustomed to the tropical climate. There they met with Reinwardt (note 17), who allowed them to study his collections, notes and sketches, as well as Pierre-Médard Diard, a naturalist and protégé of Reinwardt at the time (59 & 66).[30] At first they acquainted themselves with the nature around Buitenzorg and they were overwhelmed by the diversity of plants, birds and mammals (44, 56, 60, 61 & 64). They started collecting, describing, sketching and preserving at a furious rate and soon reported to have recorded 185 species of (tree)ferns, 70 species of figs, 100 species of fungi and new species of orchids virtually every day. As Reinwardt had not yet been able to collect fishes, they made special efforts collecting these.

After some four months Kuhl and Van Hasselt were ready to look further afield and planned a journey to Bantam, the then little known western region of Java. An outbreak of cholera forestalled this, however, and they decided to explore the mountains south of Buitenzorg instead. They climbed Gunung Salak, Gunung Gede and Gunung Pangrango in May, June and July 1821 (5, 45, 48, 56, 57, 59, 61, 66).[31] During this trip they collected many reptiles and amphibians and soon Kuhl reported they had captured 83 different species (45), later Van Hasselt recorded 117 species, including the first caecilian found outside Guyana (7, 9, 17, 18 & 19). Their letters to colleagues in Holland dealing, with amphibians and reptiles, are still relevant systematically. In them they described the still valid genera *Megophrys*, *Occidozyga*, *Rhacophorus*, *Homalopsis* and *Ptychozoon*, (7, 9, 13, 17, 18, 19, 45, 48, 56, 57 & 64; Dubois, 1982; Klaver, 2007; Appendix A & B).[32] Moreover, not only did Kuhl and Van Hasselt amass also a large collection of snakes (250 specimens of 45 different species), they also made some perceptive observations and inferences. They noticed, for instance: "It is indeed remarkable

that none of the snakes we found occur on mainland India, because all those of Russel [sic] are different from them.[33] This appears to be not only a remarkable fact of the geographical distribution of snakes, but also something very remarkable as to the history of the origin of Java." (45: 82, 56: 101 & 57: 474).[34] Evidently Kuhl and Van Hasselt were not only avid students of the ideas concerning phytogeography of Brown, de Candolle and Von Humboldt (note 22 & 26), but they applied the methodology to animal geography as well and with remarkable foresight even contemplated a geological explanation long before that became fashionable.

Two weeks after the ascend of the Pangrango Kuhl became violently ill with diarrhoea and later hepatitis. During his sick-bed at Buitenzorg Van Hasselt, as a trained surgeon, nursed his friend and he was moved as well as horrified by Kuhl's calm and peace of mind in view of his imminent death. Then, after four weeks he died on September 14th, 1821, some nine months after he had reached the tropical land he had longed for since his boyhood in Hanau (3 & 5; fig. 11). Van Hasselt was devastated. In his letter to Van Swinderen he lamented over the loss of his friend with whom he had lived and studied for five years (Swinderen, 1825: 21 and Greshoff, 1902: 31). He was so affected that the governor-general Van der Capellen thought it wise to make him stay at his residency until he had recuperated.

In Europe the news was met by disbelief and dismay, combined with a high appreciation of Kuhl's personal qualities and tireless scientific abilities. The *Provincale Groninger Courant* published an obituary notice on its front page on 22 February 1822 (Anon., 1822d) and a month later the Society of natural sciences held a commemorative meeting (see Introduction). The *Algemeene konst- en letterbode*, an important Dutch scientific journal at the time, published an obituary as a postscript to a letter of Kuhl and Van Hasselt (Swinderen, 1822a). The renowned German journal *Isis oder Encyclopädische Zeitung von Oken* published translations of the obituaries from the *Groninger* and the *Bataviasche Courant* as well as an editorial accompanied by abstracts of eleven letters by Kuhl and Van Hasselt (Anon., 1822h & i), whereas

*** Den 14 september ll., stierf alhier in den ouderdom van 25 jaren de heer *Heinrich Kuhl*, doctor der wijsbegeerte en meester der vrije kunsten, lid van eenige geleerde genootschappen.

Door zijne uitstekende kennis werd hij door Zijne Majesteit den Koning aan het hoofd gesteld eener expeditie naar deze bezittingen, tot het doen van natuurkundige onderzoekingen; hier bragt hij door zijnen ijver in den korten tijd van 9 maanden eenen onschatbaren rijkdom van natuurlijke voorwerpen te zamen en alles liet zich voor de wetenschappen verwachten, van een' onderzoekings-geest als de zijne, die geene moeijelijkheden ontzag, zoo slechts derzelver overkoming tot bevordering der wetenschappen strekken konde.

In zijnen jeugdigen leeftijd waren reeds de wetenschappen verscheidene nieuwe ontdekkingen aan hem verpligt en deze verpligting zou elk jaar door de uitbreiding zijner kennis gestegen zijn, zoo dat de natuur-onderzoeker zijnen te vroegen dood even zeer betreurt, als hij, die het geluk had, zijn edel karakter te kennen en zijne vriendschap te bezitten.

Buitenzorg, den 16 october 1821.

J. C. van HASSELT.

Figure 11.
Obituary notice of H. Kuhl from the Bataviasche Courant, Bijvoegsel, 3 November 1821. (On 14 September last dr. Heinrich Kuhl Esq., member of several scientific societies, died at the age of 25 years. In view of his excellent knowledge he was appointed by His Majesty the King as leader of an expedition to these possessions to conduct scientific enquiries; by his industry he managed to amass in the short time of 9 months an invaluable collection of natural history objects and much more could have been expected of his scientific mind, that conquered any difficulty in the furtherance of the sciences. Science owed already various discoveries to this young man and this indebtedness would have been extended each year by the enlargement of his knowledge, so that every scientist will mourn for his premature death as much as he, who was fortunate to know his noble character and to be his friend. Buitenzorg, 16 October 1821. J.C. van Hasselt.).


HENRICI KUHL, HANOVIANI
JOH. CONR VAN HASSELT, Groningan
pares ing dot. et doctr.
magis vero moribus stud:
Labore gravis. corporisque nimia
de fatigatione exhausti
prae maturae morti
succubuere
patriae amicis acerbae
illè die XIV Sept a MDCCCXXI a et XXV
Hic die VIII Sept - MDCCCXXIII
BARON CAPELLEN
Et post mort una habitare
Superst. exmplum
pietatis, amicitiae,
et Studii amoris

Figure 12.
Sepulchral monument of Kuhl and Van Hasselt at the cemetery of the botanical garden Buitenzorg (Kebun Raya Indonesia, Bogor), oil on canvas (55 x 42 cm), artist unknown. Monument designed by architect Antoine Payen; epitaph by Caspar Georg Carl Reinwardt (see note 17 and 36 respectively).

Epitaph at the front: M.S. Henrici Kuhl, Hanoviani et Joh. Conr. van Hasselt, Groningani Medae.D.D. Qui sub regis ausp. nat. scrut. causa huc missi pares ing. dot. et doctr. magis vero moribus, stud. Quippe a prima adolesc. singulari amicitia vincti strenuissime opus vix agressi labore graviss. corporisque nimia defatigatione exhausti praematurae morti succubuere. Patriae amicis acerbe, ille die XIV Sept. a. i. MDCCCXXI aet. XXV, hic die VIII Sept. MDCCCXXIII aet. XXVI.
(In commemoration of Henricus Kuhl, from Hanau, and Joh. Conr. Van Hasselt, from Groningen, medical doctors, who, under the auspices of the king, were sent here to study nature, both gifted with an excellent mind and industrious in their studies, but above all in conduct, for joined in a special friendship since their youth, after, hardly having begun their work with great dedication, succumbed to a premature death due to exhaustion by the strenuous work and the excessive fatigue, which is bitter for the fatherland and their friends. The former on 14 Sept. 1821, aged 25, the latter on 8 Sept. 1823, aged 26.).

Epitaph at the back (in the painting it is positioned leaning against the tree): God. Alex. Ger. Phil. liber baro a Capellen tot. Ind. Belg. praef. regius hoc monum. erigi jussit ut qui in vita omn. comm. habuere et post mort. una habitarent superst. exemplum pietatis, amicitiae et studii amoris.
(God. Alex. Ger. Phil. baron van Capellen, royal prefect of all of the Dutch East Indies, has erected this monument so that they, who shared everything when alive, would also be together after their death, to pose as an example of devotion, friendship and love for science).

Former epitaph at the front: M.S. Henrici Kuhl, Hanoviani, Med. Et Philos.ae Theor.ae Doct. Qui Regis auspiciis Naturae scrutandae causa huc profectus egregiis animi dotibus et singulari doctrina munere vix suscepto jam summae expectationi de se excitatae haud defuturus mox in ipso operis limine praematurae morti succubuit Musis infestae, patriae amicisq. acerbae Ao. MDCCCXXI m. Sept. D.XIV Aetatis XXV.
(In commemoration of Heinrich Kuhl from Hanau, doctor in medicine and philosophy, sent here under the auspices of the king to study nature, gifted with an excellent mind and an extraordinary knowledge, who, as his task was only just begun and was ready to fulfil the highest expectations he had aroused, succumbed on the threshold of his work to a premature death, that grieved the Muses and was bitter for his fatherland and friends. September 14th, 1821, 25 years of age.).

another prominent German journal, *Flora oder Botanische Zeitung* published an editorial about the sad news (Anon., 1822b), a biographical sketch by Theodor and Christian Nees von Esenbeck (Nees von Esenbeck, 1822; note 15) as well as an agonised appeal for a portrait of Kuhl (Anon., 1822c).[35] Finally Van Swinderen published an extensive necrology, based on his speech at the Society of natural sciences, in the *Almanak der Akademie van Groningen* (Swinderen, 1823a), that was also published in a Latin translation in the prestigious *Nova Acta physico-medica Acadaemiae Caesareae Leopoldino-Carolinae Naturae Curiosorum* (Swinderen, 1823b). The loss felt by the people that knew Kuhl was profound. Apart from comparing Kuhl with Linnaeus Temminck also remarked "…when Kuhl left for the East Indies he possessed already more skill and knowledge than Von Humboldt after he returned from his voyage." Tiedemann (note 16) is said to have remarked: "…of all the people that ever undertook a voyage to collect natural history specimens Kuhl was the most knowledgeable." (Greshoff, 1902: 34). Meanwhile at Buitenzorg Kuhl had been buried at the cemetery in the bamboo grove of the botanical garden. The governor-general Van der Capellen commissioned the architect Antoine Payen to design and construct a sepulchral monument for which Reinwardt wrote the epitaph (Anon., 1823a and Scalliet, 1995: 79).[36] This monument still stands at the present Kebun Raya Indonesia (Lynden-De Bruïne, 2001: 59; Rijnberg, 1992: fig. 159 and Scalliet et al., 1999: 53; illustr. p.54) and was painted by an unknown artist (fig. 12).[37]

When Van Hasselt had regained his composure, he plunged himself into his studies to fulfil his promise to Kuhl to finish their joint studies as well as to forget his sorrow. In the beginning of 1822 he travelled to the coast near Batavia from where he wrote long letters to Van Swinderen with detailed observations on the anatomy and physiology of various species of *Physalia* and the blood circulation in tunicates (4, 11, 16, 18, 22 & 26). Since their arrival in the East Indies Kuhl and Van Hasselt had started to collect and study fresh-water fishes and now Van Hasselt was able to collect marine fishes as well. He continued his ichthyological studies with fervour during his subsequent exploration of Bantam, West Java he set out for in August 1822 accompanied by Gerrit Van Raalten, the taxidermist of the expedition (note 27). This resulted in letters concerning fish taxonomy (6, 8, 15 & 20) that are still so important taxonomically that some 140 years later they were published again in an English translation (Alfred, 1961).[38] Apart from the inevitable nomina nuda, nine new genera and nine new species are still valid with Van Hasselt or Kuhl and Van Hasselt as author (Alfred, 1964; Kottelat, 1987, Roberts, 1993 and Appendix A).[39] Visiting the coast near Anjer, western Java Van Hasselt also collected numerous molluscs, particularly gastropods, most of which he described in long letters to Van Swinderen (9, 13, 21 & 25). As these letters were also published, many of the species described are still valid with Van Hasselt as author (see Appendix A). While at the Gunung Karang in the Bantam district, Van Hasselt also reported on the occurrence of a fairly large

mammal that seemed to be related to bears (10 & 24). Unknown to him Raffles (note 17) had described this enigmatic animal only two years before as *Arctictis binturong* (Viverridae).

The vicissitudes of the trip through the wilderness of the Bantam district, never visited before by an European, were widely published and it soon became clear that this trip was not a fortunate one (9, 10, 12, 14, 23, 27, 28, 30 & 31 and Bik, 1866). Early March 1823 Van Raalten became ill and had to return to Buitenzorg. Governor-general Van der Capellen sent Jannes Theodorus Bik (note 3) to take Van Raalten's place as draughtsman and on 23 March 1823 Bik joined Van Hasselt in Anjer on the Sunda Strait (Bik, 1866). They continued their exploration, climbing mountains, visiting islands in the Sunda Strait and even surviving a hurricane and a major earthquake. At the end of August Van Hasselt became suddenly very ill with fever and diarrhoea and it was decided to return to Buitenzorg as soon as possible. Bik had to overcome great difficulties to transport the incapacitated Van Hasselt over difficult terrain and despite his care Van Hasselt's condition deteriorated fast. Eventually, they reached Buitenzorg, but two days later Van Hasselt died quietly in the early morning of 8 September 1823 (fig. 13). At his request he was laid to rest in the same grave as his long-time friend and companion (fig. 12). When the sad news reached The Netherlands some six months later, Van Swinderen immediately convened a special meeting of the Society of natural sciences in commemoration of Van Hasselt (see Introduction). His necrology was published in the *Almanak der Akademie van Groningen* (Swinderen, 1825) and formed the basis of subsequent biographies (Anon., 1825 and 1845).

*** Op den 8sten september, overleed, alhier, in den jeugdigen leeftijd van nog geen 26 jaren, de wel edel geboren zeer geleerde heer *J. C. van Hasselt*, M. D., in leven gecommitteerde tot het natuurkundig onderzoek in Nederlandsch Indië; allen die zijn edel hart en uitmuntende begaafdheden kenden zullen hem met mij diep betreuren.

Degenen, welke iets aan den overledenen schuldig zijn, of uit zijne nalatenschap te vorderen hebben, gelieven daarvan betaling of aangifte te doen, binnen den tijd van 6 weken.

De testamentaire mede-executeur,
G. van RAALTEN.

Buitenzorg, 12 *september* 1823.

Figure 13.
Obituary notice of J.C. van Hasselt from the Bataviasche Courant, Bijvoegsel, 20 September 1823. (On 8 September died, here, at the youthful age of not yet 26 years, dr. J.C. van Hasselt, Esq., in life delegate of the Commission for the study of natural sciences in the Netherlands East Indies; all those who knew his noble heart and excellent talents will, like me, mourn for him deeply. Those who owe the deceased anything or have outstanding debts are requested to reimburse or make a declaration within six weeks from now. The co-executeur testamentair, G. van Raalten. Buitenzorg, 12 September 1823.).

With the death of Van Hasselt the initial phase of the study of nature in the Dutch East Indies by members of the Commission ended. Much had been accomplished in the brief time available, but how much more could have been achieved had both gifted and versatile young men lived longer. Van Raalten, the only surviving member of the original team and heir of Kuhl and Van Hasselt's legacy, set himself the task to take care of the collections, sketches and manuscripts left by them. First the specimens were shipped to the Leiden museum, where they started to arrive in July 1824. In December 1825 the manuscripts and 1200 sketches arrived safely in Leiden as well (Greshoff, 1902; Veth, 1879). Heinrich Boie, since June 1821 curator

at the Leiden museum, studied the herpetological specimens and although he finished his manuscript of *l'Erpétologie de Java* before he set sail to the Dutch East Indies himself in 1825, the actual publication unfortunately never materialised (note 16). Eventually, Hermann Schlegel, successor of Temminck as director of the Leiden museum in 1858, published a summary of Boie's manuscript (Schlegel, 1826). The ample fish collection as well as the accompanying notes and sketches were put at the disposal of Cuvier and Valenciennes, although this was against the regulations as laid down in article 3 of the Order of Council (Veth, 1879).[40] It is interesting to note, incidentally, that the systematic results of Cuvier and Valenciennes' ichthyological studies agree less well with the present systematic knowledge than Kuhl and Van Hasselt's taxonomic assessment in their manuscripts (Roberts, 1993). The fish collection was at least put to the best possible use, something that could not be said of the mammal and bird material. Temminck seemed to be somewhat overwhelmed by the amount of new material and although he did publish on it, it took him a long time to do so and he left quite a lot of it unstudied (Temminck, 1820-38 and 1827-42; Stresemann, 1975). As a consequence many new forms from Java were described for the first time by scientists elsewhere (Finsch, 1906; Stresemann, 1975).

Retrospect

In their early youth both Kuhl and Van Hasselt showed an interest in and talent for the study of natural history. Especially Kuhl was a precocious child with an extraordinary knowledge of natural history, not only because he received professional tutorial support from some notable scientists of the day, but also because of his insatiable curiosity, unbridled energy and complete dedication to scientific inquiry. At the University of Groningen Kuhl and Van Hasselt subsequently received a good education as the university had some excellent professors in the natural sciences at that time (notes 9 & 13). Although Van Swinderen was not much of an original scientist himself, he was an able teacher and especially an initiator with a keen eye for quality in his students.[41] He brought them in contact with many leading scientists/naturalists of the day in Holland and abroad, who, too, appreciated their talents. In his letter to J.F. Naumann of 6 September 1819 Heinrich Boie quoted prof. Lichtenstein to have said that Kuhl "…habe es im Bestimmen der 4 höheren Thierclassen jetzt unglaublich weit gebracht und weiter wie selbst Temminck." (…Kuhl's proficiency in identifying species within the 4 higher animal classes is unbelievable and surpasses even that of Temminck; see Thomsen & Stresemann, 1953: 18). Boie, no slouch himself in natural history, stated about Kuhl "…seine Kenntnisse sind ungeheuer." (…his knowledge is awe-inspiring; see Thomsen & Stresemann, 1953; 23). Of course, Van Hasselt's activities in natural science were extracurricular and therefore more limited than Kuhl's as he had to concentrate on his medical studies. Nevertheless, for several years he worked together with Kuhl on comparative anatomical studies and published the results next to his medical dissertation in 1820. Moreover, in the course of their studies Kuhl and Van Hasselt travelled widely through Europe to study natural history cabinets and to attend lectures of leading scientists in Hamburg, Berlin, Halle, Jena, Heidelberg, London and Paris. Although Kuhl was fully aware of his extraordinary qualities, he remained unpretentious. Van Swinderen (1823: 48) recorded, for instance, that Kuhl blushed mightily all the way from the rostrum to his seat after having received the gold medal for his price-winning essay in the presence of the gathered scientific community. Kuhl and Van Hasselt were not only very energetic students, they had a modern and very hands-on attitude as well. They wanted to observe, dissect and sketch by themselves. In the preface of the *Beiträge* (38) Kuhl writes: "Eine jede freundliche Belehrung von sachkundigen Männern wird stets willkommen seyn; kleinliche Kritik von Menschen, welche ihre Bücher besser als die Natur kennen, wird mich kalt und ruhig lassen." and "Ich bemerke nur, dass ich überall selbst gesehen und nach der Natur meine Beschreibungen entworfen, das ich das Alte nicht wiederholt habe, sondern dass diese Bemerkungen neu und mir eigen seyen." Apart from the reminiscence of the notorious Miss Anne Elk the formulation brings forth Kuhl, at least, firmly stated his views as to scientific practice.

Kuhl executed most of his studies during his term in Groningen from 1816 till 1820 and published his most important taxonomic work before he departed for the Dutch East Indies. His *Die deutschen Fledermäuse* (33; fig. 2), a study executed in Hanau, but published when he was already in Groningen, can still today be considered an astonishing achievement for a boy of 19 years, the more so as he had no qualms to criticize Linnaeus, Buffon and Cuvier where he thought relevant. Moreover, in this publication he described seven new and still valid species (Appendix A). His *Beiträge* (38), dedicated to his father, Temminck and Van Swinderen, was even more ambitious and contains a systematic monograph of monkeys and apes in which 111 species were described, six of them new and still valid (sub)species; miscellaneous morphological observations on a variety of mammals; a systematic account of rodents with the description of two new and still valid species; a systematic monograph of amphibians (then still incorporating reptiles as well) with nine new and still valid (sub)species and including a critical assessment of François Marie Daudin's observations on snakes in his famous *Histoire naturelle, générale et particulière des reptiles* (1801-03); a systematic monograph of shearwaters and petrels, the first ever, describing three new and still valid species and, finally, the description of a new genus (still valid) of satin bowerbird. The paper on shearwaters and petrels was illustrated by Kuhl himself, who was, no surprise, also an accomplished draughtsman himself. In his Index to Daubenton Kuhl (39; fig. 7) identified and gave Latin binominal names to all 1008 birds illustrated in the famous *Planches enluminées* and in the process introduced a still valid subspecific name for a kingfisher. Finally, in his magnum opus, the *Conspectus psittacorum* (40; fig. 5), a monograph on cockatoos and parrots, he described 209 taxa including one new and still valid genus and 22 new and still valid (sub)species. Almost as an afterthought he rounded it off with a (mostly unnoticed) index to François Levaillant's *Histoire naturelle des perroquets* (1801-05) and supplied Latin binominals for 139 illustrated parrots and cockatoos. Together with Van Hasselt Kuhl published the result of their comparative studies on the anatomy of a large number of fishes, amphibians, reptiles, birds and mammals and furnished illustrations as well (32).

All these publications did not go unnoticed by the scientific community and they were reviewed in various scientific journals. The *Beiträge* was reviewed by Anon. (1820d and 1822g), the index to Daubenton by Anon. (1821b) and Demarest (1824) and the *Conspectus* by. Anon. (1821c and 1823b). Most reviews were quite positive in their assessment of the quality of the papers with only minor criticism. The two reviews that appeared in *Isis* apparently found Kuhl's systematic views important enough to quote large parts of Kuhl's text *verbatim* (apparently copyright did not pose a problem in those days). So when Kuhl left for the Dutch East Indies, aged 22, he had already managed to publish several major publications and could consider himself author of 50 (sub)specific and two generic scientific names (according to current views; see Appendix A). Moreover, there are reports that he was already well advanced with or had even finished several manuscripts, viz. *Fauna novae hollandiae et indiae orientalis* (Justi, 1831: 384), *Monographia Falcorum*

(Thomsen & Stresemann, 1953: 23), *Systema Amphibiorum* (Swinderen, 1823: 28), a biography of Rumphius (Rouffaer and Muller, 1902 and note 17) and an index to amphibians and reptiles of Seba's *Thesaurus* (Swinderen, 1823: 19; note 18 and fig. 8). Regrettably, none of these manuscripts were reported to be present in his estate after he died at Buitenzorg, nor do they seem to be present at the Nationaal Natuurhistorisch Museum in Leiden, the Wetterauische Gesellschaft and the Hanauer Geschichtsverein in Hanau. If they had been left in Groningen, an unlikely possibility, they undoubtedly would have been lost in the blaze that destroyed the entire natural history museum (note 6).[42] Kuhl's contributions to the ornithology of Australia, i.e. describing and naming several parrots and cockatoos, were acknowledged as recently as 1999. In Calaby's historical review of the European discovery and scientific description of Australian birds, Kuhl figures prominently next to his eminent contemporaries Joseph Banks and Daniel Solander, naturalists with James Cook's expedition with HMS *Endeavour*, Robert Brown, naturalist with Matthew Flinders' expedition with HMS *Investigator* and C.J. Temminck (see also notes 10 and 22). The birds collected by Brown were described by Kuhl in his *Conspectus* (40 and Mearns & Mearns, 1998: 114)

In their letters from the Dutch East Indies that were published in Dutch, German and French journals, Kuhl and Van Hasselt continued their contributions to systematic zoology, although they frequently referred to future comprehensive and systematic treatment of their findings after their planned return to The Netherlands. Nevertheless, their published letters too elicited a positive response in review articles published abroad, viz. Anon.(1822f) and Coquebert de Monbret (1823). After Kuhl's death Van Hasselt had to cope alone, but the nine months of fieldwork with his friend had transformed him from a anatomist into a genuine field-biologist. Despite (or perhaps because of) the loss of his friend he became his own master and in his long and expert letters on the fishes of Java he described 9 new genera and 9 new species that are still valid today (Appendix A). Some of the valid names are to be ascribed to both Kuhl and Van Hasselt, a possibility that, despite Kuhl having already deceased, the rules of the ICZN allow for. A similar distinction befell Van Hasselt himself with his description of 3 new genera and 19 new species of molluscs (ophisthobranch gastropods and cephalopods) that were published after his death (Appendix A).

The appreciation of Kuhl and Van Hasselt's accomplishments is also clearly evidenced by the numerous eponymous scientific names that have been created by illustrious scientists, some of whom knew them personally and some of them living much later, viz. Maximilian, Prinz zu Wied-Neuwied, George Cuvier, Achille Valenciennes, Thomas Edward Bowdich, Charles Lucien Bonaparte, Nicholas Vigors, Hermann Schlegel, Pieter Bleeker, Leonhard Stejneger, Johann von Tschudi, John Edward Gray, William Elford Leach and, of course, Coenraad Jacob Temminck (Appendix A).[43] Their lives may have been short, but what accomplishments! Kuhl and Van Hasselt, arguably two of the most prolific students of the University of Groningen in the 19th century,

achieved a staggering amount in Europe as well as in the Dutch East Indies. Although their sojourn in the Dutch East Indies amounted to a mere nine months and approximately two and a half years respectively, they contributed significantly to the knowledge of the natural world of Java and they can be rightfully considered the co-founders of the systematic knowledge of that region.

Let me conclude this book with a reminiscence of Kuhl written in Latin by H.C.F. Schlemmer from Hanau in a style very characteristic of the early 19th century, here in the English translation (Schlemmer, 1825; fig. 14).[44]

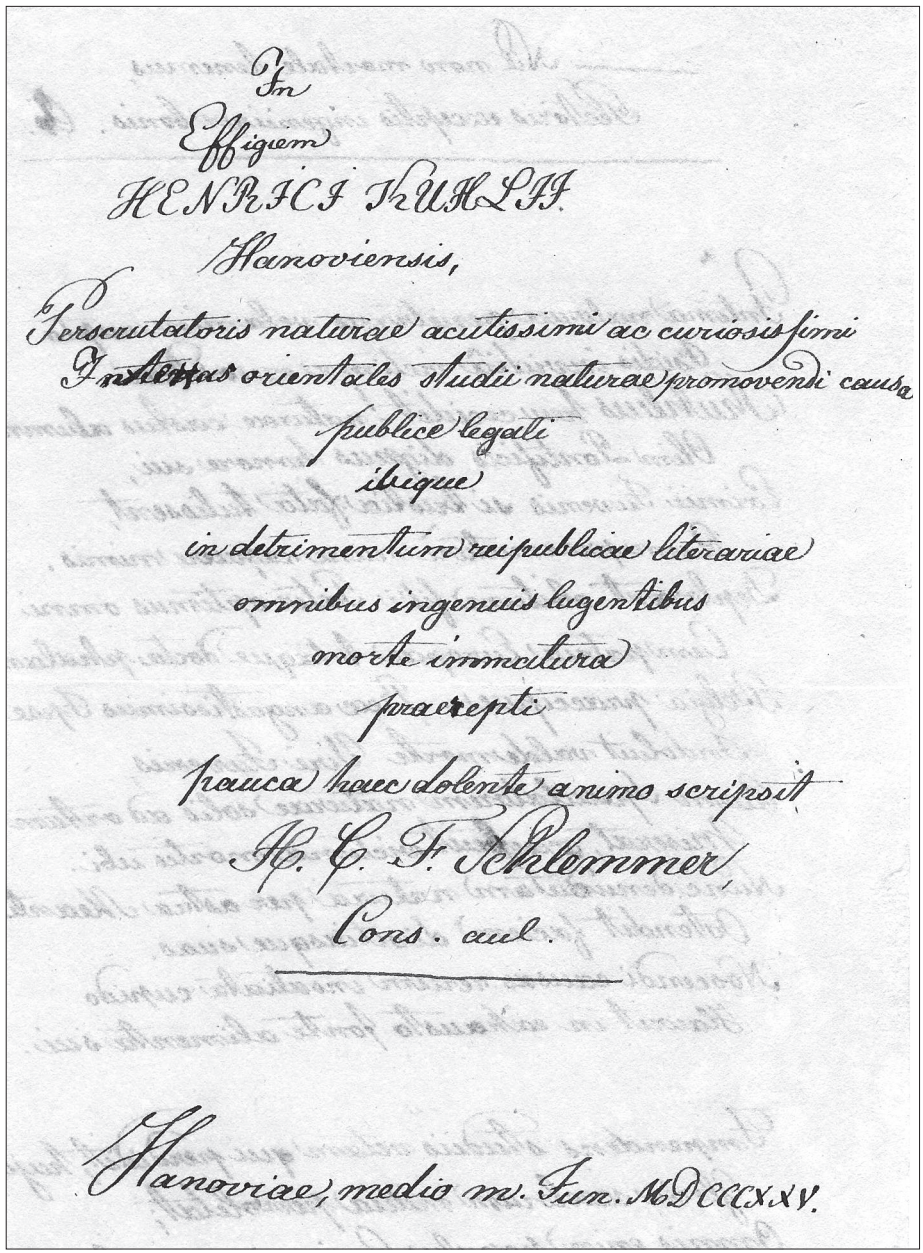
A letter-press to the portrait of Heinrich Kuhl from Hanau

The sagacious and inquisitive scientist
who was sent by order of the government to the East
to advance the study of nature and
who, to the detriment of the scientific community,
to the grief of all cultivated minds,
was cut off there by a premature death.

These brief words wrote, with a grieved heart,
H.C.F. Schlemmer, Adviser of the Court
Hanau, mid June 1825

Everything we have is mortal,
except the good of heart and mind.
Ov[id]

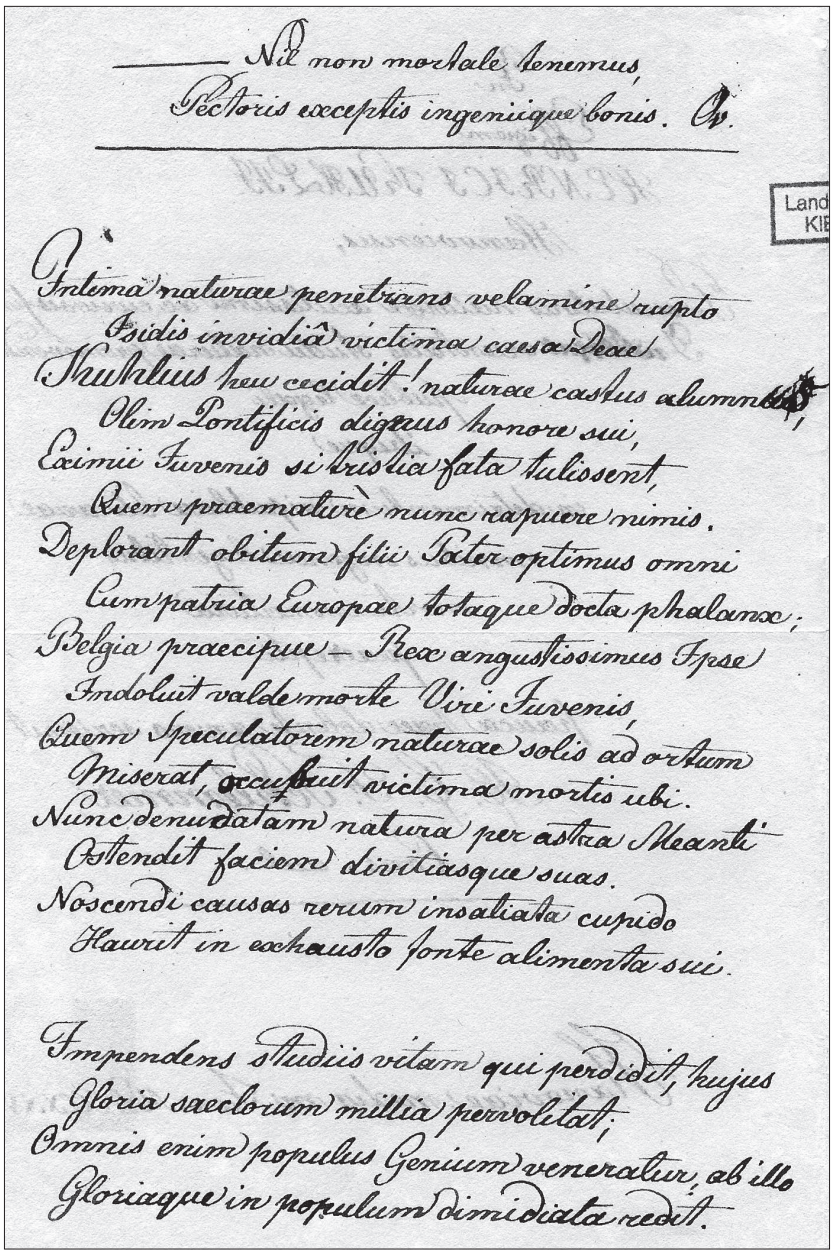
As he pushed out into Nature, after having pulled away her veil,
he fell victim to the envy of Isis.
Alas, Kuhl has fallen! the chaste disciple of Nature,
once worthy of the honour of his priest,
If the sad vicissitudes that have taken him away prematurely
had allowed it the honourable young man.
His distinguished father mourns the passing away of his son
together with all of Europe and all of the learned society,


In
Effigiem
HENRICI KUHLII
Hanoviensis,
Perscrutatoris naturae acutissimi ac curiosissimi
Indiae orientales studii naturae promovendi causa
publice legati
ibique
in detrimentum reipublicae literariae
omnibus ingenuis lugentibus
morte immatura
praereptii
pauca haec dolente animo scripsit
H. C. F. Schlemmer,
Cons. aul.

Hanoviae, medio m. Iun. MDCCCXXV.

Figure 14a. In effigiem Henrici Kuhlii. Hanoviensis/A letterpress to the portrait of Heinrich Kuhl from Hanau by H.C.F. Schlemmer

Figure 14b.



Nil non mortale tenemus,
Pectoris exceptis ingeniique bonis. Ov.

Land
KIE

Intima naturae penetrans velamine cupto
Isidis invidiâ victima casa Deae!
Thuhlius heu cecidit! naturae castus alumnus,
Olim Pontificis dignus honore sui,
Eximii Juvenis si bristica fata tulissent,
Quem praematurè nunc rapuere nimis.
Deplorant obitum filii Pater optimus omni
Cum patria Europae totaque docta phalanx,
Belgia praecipue — Rex angustissimus Ipse
Indoluit valde morte Viri Juvenis,
Quem Speculatorem naturae solis ad ortum
Miserat, occupuit victima mortis ubi.
Nunc denudatam natura per astra Neanti
Ostendit faciem divitiasque suas.
Noscendi causas rerum insatiata cupido
Hausit in exhausto fonte alimenta sui.

Impendens studiis vitam qui perdidit, hujus
Gloria saeculorum millia pervolitat,
Omnis enim populus Genium veneratur, ab illo
Gloriaque in populum dimidiata redit.

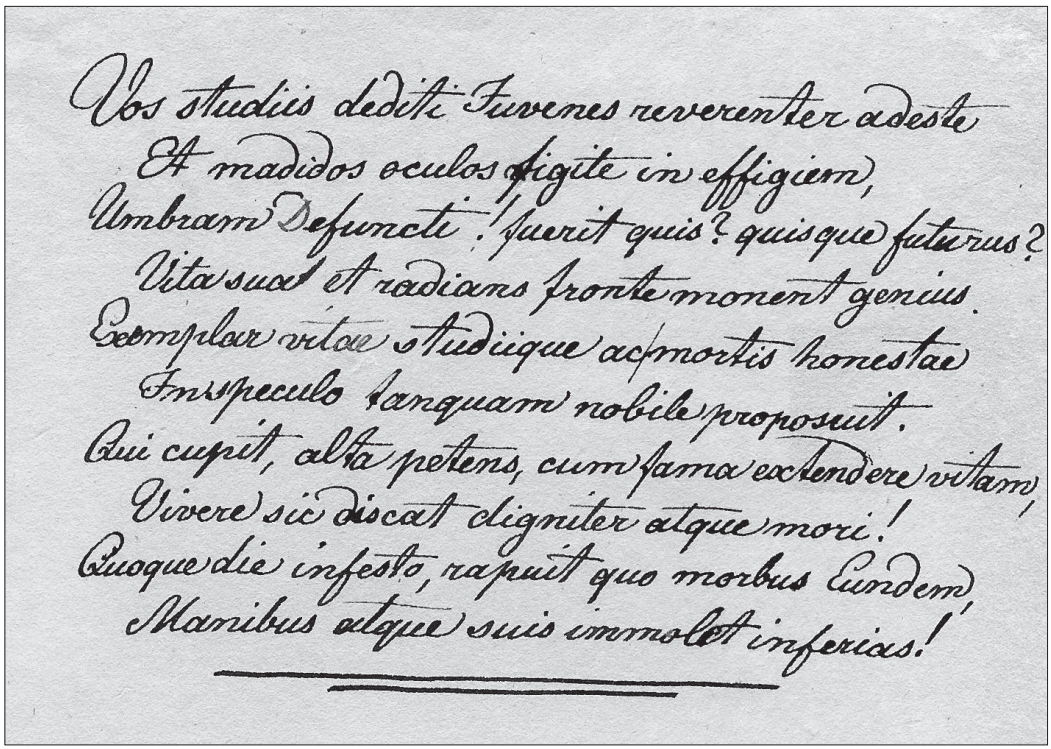


Figure 14c.

Especially Holland – the illustrious king himself
mourned over the death of the young man –
that had sent him as scientist to the East,
where he fell victim to death.
Now Nature shows her unveiled face and
her wealth to him, who dwells between the stars.
The insatiable wish to fathom the causes of Nature
draws its nourishment from an inexhaustible source.
He, who lost his life while he dedicated himself to science;
his fame spreads through thousand centuries,
For, all people honour his genius and,
in return, his fame is shared by the people.

You, young men, dedicated to science, be respectful
and fix your moist eyes upon his image,
The shadow of the deceased! Who would he have been? And who will he be?
his life and his genius, with his radiant head, admonish you,
As in a mirror he sets you an example by his life,
his study and his honourable death.
He, who strives after higher aspirations, to extend his life with fame,
may he likewise learn to live and die with dignity!
And let he on every hostile day, on which disease may pull him away,
make a sacrifice to his spirit![45]

Notes

1 One of the idiosyncrasies of the Dutch language relates to the treatment of surnames with a prefix. If a person with such a name, e.g. Johan Conrad van Hasselt, is referred to by only his surname, then the prefix is included and the first letter of the prefix is written in upper case, viz. Van Hasselt. When the surname is placed in an alphabetical order, however, it is done according to the first letter of the surname proper and not that of the prefix. As a rule, and indeed an internationally adopted rule for alphabetizing Dutch names of persons (International Federation of Library Associations, 1977), the name is entered in a list of references by the capitalized letter of the surname, viz. Hasselt, J.C. van. Note that the prefix is written in lower case again and relegated to the end of the name quotation. Consequently, in the text of this paper I might refer to "Van Hasselt" (= the man by his complete surname), but publications by him are to be found under "Hasselt" in the section Bibliography. Compound names, incidentally, as for instance "Bloys van Treslong Prins" (see References) are treated as simple surnames, irrespective of the "van" in the middle. In most literature the second Christian name of Van Hasselt is often quoted as "Coenraad". However, in his authoritative genealogy of the Van Hasselt family Wijnaendts van Resandt (1963: 142) established the name to be "Conrad". This is also corroborated by other official documents as, for instance, *Album* (1915: 267). Consequently, in this paper I shall use Conrad as the proper name, except, of course, in quotations that employed the name Coenraad.

2 See for instance Anon. (1825, 1845 and 1858), Anon. (1997a), Bauchot et al (1997), Bernges (1921), Cabard & Chauvet (1998), Fransen et al. (1977), Gebhardt (1964 & 1982), Gunn & Cott (1981), Paulus (1918a & b), Pietsch (1995), Prestwich (1963), Siebert (1919), Sirks (1914a & b), Steenis-Kruseman (1950), Stresemann (1975), Swainson (1840), Whittell (1954) and Zonneveld (1981).

3 There exists considerable confusion as to the date of birth and death of Kuhl (and of Van Hasselt for that matter), although the primary sources of information (Swinderen, 1823a & b; Justi, 1831: 375-386, Greshoff, 1902 and Siebert, 1919: 115-116) are unequivocal. They all reported Kuhl to be born on 17 September 1797 and to have died on 14 September 1821. It is, therefore, surprising that Steenis-Kruseman (1950: 303), deservedly called "a shining example" as to biographical work (Fransen et al, 1997: 205), referred to 1796 as the year of Kuhl's birth and 16 September 1821 as date of his death, although she explicitly referred to Greshoff (1902), but also to Anon.(1822h & i, 1823a and 1829), Sirks (1915) and Paulus (1918b). These latter sources of information also referred to 14 September as the date of Kuhl's death. In his obituary notice Hasselt (3; see fig. 11)

left no doubt whatsoever about the date of Kuhl's death (14 September 1821), but also mentioned Kuhl to have been 25 years old at the time (see also Anon, 1822h & i and Swinderen, 1822a). This date and age indication was also incorporated in the epitaph on the sepulchral monument of Kuhl (Anon., 1823a:321, Greshoff, 1902: 32) and later in that of Kuhl and Van Hasselt (Anon., 1829: 370, Greshoff, 1902: 46; Bloys van Treslong Prins, 1910: 376 and 1934: 175; see also legend of fig. 12). Probably, subsequent authors, unfamiliar with the year of Kuhl's birth, seem to have arrived at 1796 with the help of the more generally known year of his death and presumed age or relied on earlier sources using these data (Rouffaer and Muller, 1902:13; Paulus, 1918b: 476; Prestwich, 1963: 55 and Gunn and Codd, 1981: 214). Ironically, the indication of Kuhl having died on 16 September was mentioned by Anon.(1822b & d) and Nees von Esenbeck (1822: 238). Steenis-Kruseman (1950) only referred to Nees van Esenbeck, but why she chose to ignore the majority of sources quoting 14 September is unclear. Perhaps she was confounded by the message that G.L.Keultjes, the draughtsman accompanying Kuhl and Van Hasselt, died two days after Kuhl on 16 September (Sirks, 1915: 105 and Greshoff, 1902: 35; although Anon., 1822e mentioned him to have died the next day and Scalliet, 1995:197, note 177 mentions a source that refers to 18 September). Apart from a possible confusion of dates, the communication by means of handwritten letters or simply an error typographicus may account for the mistaken date. Roberts (1993: 4; footnote) tried also to unravel this confusion, but could not arrive at a definitive answer because of similar contradictions found in Veth (1879: 24, 26). Incidentally, the birthplace of Kuhl, Hanau, is not the same as Hannover as Roberts (1993: 4) indicated; perhaps he was let astray by the Latinized name of the place of origin of Kuhl, viz. Hanoviensis or Hanoviani. Greshoff (1902: 48; footnote) verified the date of Kuhl's birth with the authorities in Hanau to be 17 September 1797, so when Kuhl died he was only three days short of his 24th birthday. These data were corroborated by Justi (1831: 382), who corresponded with Kuhl's father before he compiled his biography, by Siebert (1919:115), who described meticulously short biographies of many famous citizens of Hanau, by Bernges (1921), who commemorated the centenary of Kuhl's demise in the Hanauer Anzeiger and also by Anon. (1997a), Bauchot et al (1997:68), Cabard & Chauvet (1998), Fransen et al. (1997: 256), Gebhardt (1982), Pietsch (1995: 260, note 44 & 45), Sirks (1914b) and Stresemann (1975: 127).

The date of birth of Van Hasselt appears to be uncertain as well; most references indicated 24 June 1797 (e.g. Swinderen 1825: 7 and Regt, 1868: 57), one mentioned 24 or 26 (Sirks, 1914a: 548) and two mentioned 26 June 1797 (Sirks, 1915: 99 and Paulus, 1918a: 65). Greshoff (1902: 7) mentioned a source that referred to 24 June, but after contacting the civil authorities of Van Hasselt's native town Doesburg indicated 26th of June as the date

of birth. This view has since then been corroborated in the authoritative genealogical study of the Van Hasselt family by Wijnaendts van Resandt (1963: 142). This publication, incidentally, has not been published commercially, but was published and distributed on a limited scale by the Familievereniging Van Hasselt, seated at the Stadsarchief (Municipal Archives) of the town of Zutphen, The Netherlands. All but three sources mention Van Hasselt to have died on 8 September 1823. Anon. (1929: 370) mentioned "VII Sept." in the new epitaph on the sepulchral monument of Kuhl and Van Hasselt, but as Greshoff (1902: 46) and Bloys van Treslong Prins (1910: 376 & 1934: 175) mentioned "VIII" September being present in the same text I assume the former date to be an error typographicus. The second source of an erroneous date of death of Van Hasselt, viz. 18 December 1823 (Finsch, 1906: 307, note 1) is in view of all other information a glaring mistake (as are, by the way, the references of 8 Sept. 1822 and 1824 (Anon., 1858: 88 and 30 respectively). The third and last erroneous date viz. 6 September (Greshoff, 1902: 48; footnote) was supplied by Bik (1866: 276). As Jannes Theodorus Bik, the younger of the two Bik brothers active as draughtsman in the Dutch East Indies, who accompanied Van Hasselt on his ill-fated trip to Bantam in 1823 (Römer, 1930: 109), published his record of the trip some 43 years after the event, I assume his memory failed him.

A further clarification as to dates concerns the text of the memorial tablet that was installed in the hall of 's Rijks Museum van Natuurlijke Historie in Leiden in 1833. The text (Memoriae Henrici Kuhl et Joh. Conr. Van Hasselt, naturae in India Batava perscrutandae munere per biennium functorum, ab anno 1820 ad annum 1822 – In commemoration of H.Kuhl and J.C. van Hasselt, who acquited themselves of the study of nature of the Dutch East Indies from 1820 till 1822) indicates Kuhl and Van Hasselt having been active in the Dutch East Indies from 1820 till 1822 (Anon., 1858: 80; Greshoff, 1902: 45; Susanna, 1834: VI and pers. observ.), implying that Van Hasselt died in 1822. However, from dated letters of Van Hasselt himself and from the obituary notice by Raalten (1823; see fig. 13), the taxidermist of the expedition and Anon. (1824a & b), it is evident that he died on 8 September 1823 at the age of 26 (and not just under 26 as Van Raalten indicated). Veth (1879: 35; footnote) and Greshoff (1902: 48; footnote) referred not only to the error in the text of the commemorative stone, but also to a similar error in literature. I have traced only one reference explicitly stating 1822 to be the year of Van Hasselt's death, viz. Anon. (1858:88). However, the texts of Anon. (1825), Anon. (1845) and Anon. (1858) as well as Swinderen (1825), on which the first three publications were based, are suggestive as the illness and death of Van Hasselt is described only shortly after his departure on his trip to Bantam in August 1822 was mentioned. The reference to his letter referring to his discoveries on "Polypen, Acteneen en Radiaten" in the same part of the text makes clear that his death had to be in 1823. This letter to Van Swinderen was

published (13) and is dated "25 May 1823". For further biographical information see also Bauchot (1997: 66), Fransen et al. (1997: 239), Kalff (1921) and Steenis-Kruseman (1950: 219).

4 These men a.o. were, in 1808, the founders of the Wetterauische Gesellschaft für die gesamte Naturkunde in Hanau. This was (and still is) a learned society, whose members studied (and study) botany, zoology, geology and mineralogy of especially the Wetterau region, north of Hanau, comprising the area between the Taunus, Vogelsberg, Spessart, Odenwald and the river Rhine. Gärtner was the first director and Von Leonhard the first secretary of the society. Biographical information: Gärtner (Justi, 1831: 108; Poggendorff, 1863: 828 and Siebert, 1919: 59); Leisler (Gebhardt, 1964: 211); Meyer (Justi, 1831: 448; Gebhardt, 1964: 240 and Stresemann 1975: 115) and Von Leonhard (Poggendorff, 1863: 1427 and Siebert 1919: 123). Gottfried Gärtner is not to be confounded with his cousin Karl Ludwig von (sic) Gärtner (Justi, 1831: 112), who became secretary of the society in 1817. Greshoff (1902: 12), Sirks (1914b: 721 and 1915: 100) and Kalff (1921: 259) all made this mistake. To be sure, the ornithologist Bernhard Meyer (1767-1836) is not to be confounded with fellow-ornithologist and namesake Adolf Bernhard Meyer (1840-1911) (see Stresemann ,1975: 115 and 232, footnote).

5 Kuhl's chiroptera study (33) is often stated to have been published in 1818 or 1819 and so it was as well. The same text was, however, not, as is often stated, published in volume 4 of the *Annalen der Wetterauischen Gesellschaft für die gesamte Naturkunde*, but in volume 1 of the *Neue Annalen der Wetterauischen* …etc. The three volumes of the original title were issued prior to the European conflagration caused by Napoleonic dictatorship. When all that was over and done, the journal was reissued under its new title. Kuhl's paper was published in two parts, viz, vol. 1 (1): 11-49 and (2): 185-215. The volume was dated 1818, but according to the preface published in 1819. According to the Principle of Priority (see ICZN, 1999: art. 23) the scientific names proposed by Kuhl are, of course, dated according to the publication date of the original paper, viz. 1817. For an official ruling concerning these matters see: International Commission on Zoological Nomenclature (1958) and for a proper quotation of the scientific names see Bogdanowicz & Kock (1998) and Mitchell-Jones et al. (1999).

6 Theodorus van Swinderen (1784-1851) studied natural sciences, law and arts at the University of Groningen and took a doctor's degree at all three faculties in 1805/06. In 1807 he was appointed as secretary of the Commission for education in the province of Groningen, a post he would hold for 44 years with great dedication and success. In 1814 he was appointed as the first professor of natural history at the University of Groningen with the instruction to establish a natural history collection for education and research. With the help of Kuhl and their good contacts with colleagues, he succeeded to establish a

large and rich collection that included the cabinet of natural curiosities of Petrus Camper (Sasse, 1911 and *Almanak*, 1821: 10-56) as well as a considerable number of mammal and bird specimens originating from the famous collection of Albertus Seba (Boeseman, 1970: 193; fig. 1). The material Kuhl and Van Hasselt later sent from the Dutch East Indies was shared by the musea of Leiden and Groningen (Swinderen, 1822c and sequels in the *Almanak*). Unfortunately, all was lost when the main building of the University of Groningen, that also housed the museum, burnt down completely in 1906. For further information of Van Swinderen and the Groningen collection see Botke (1990), Brouwer (1948), Engel (1986: 103 & 270) and Zuidema (1912).

7 It may be noted here that Johan Conrad van Hasselt was related to the famous explorer of South Africa, Robert Jacob Gordon (1743-1795), who was also born in Doesburg (Rookmaaker, 1989: 60). One of the sisters of R.J. Gordon, Maria Robertina, was the maternal great-grandmother of Van Hasselt (Wijnandts van Resandt, 1963: 140 and Wildeman, 1911a: 80 and 1911b: 240). For further information about Van Hasselt see Anon. (1825 and 1845), Bauchot (1997: 66), Fransen et al. (1977), Greshoff (1902), Paulus (1918a), Sirks (1914a), Steenis-Krusemann (1950: 219) and Swinderen (1825).

8 Characteristically, immediately after he had moved into his new quarters Kuhl had a doorbell installed (with the bell above his bed) so that the municipal nightwatch could wake him at 4 a.m. and he could make a proper start with the day's work (Justi, 1831: 383).

9 Jacob Baart de la Faille (1757-1823), professor of mathematics and physics (Molhuysen, 1918b) and Gerbrand Bakker (1771-1828), professor of anatomy and physiology at the University of Groningen (Simon Thomas, 1918).

10 Johan Gottfried Voigt (1775-1837), who was of German extraction, was a well-known dealer in naturalia in Amsterdam. Martinus van Marum (1750-1837), physician, naturalist and director of the famous Teylers Museum as well as secretary of the Hollandsche Maatschappij van Wetenschappen (Holland Society of Sciences) in Haarlem (Wemkes, 1937). Sebald Justinus Brugmans (1763-1819), professor of natural history at the University of Leiden (Sasse, 1912). Coenraad Jacob Temminck (1778-1858), ornithologist with a large and famous private bird collection and first director of what is now known as the Nationaal Natuurhistorisch Museum/Naturalis in Leiden (Susanna, 1858; Sirks, 1918b; Stresemann, 1975: 110 and Holthuis, 1995: 10 & 18).

11 The versatile Nicolaas Cornelis de Fremery (1770-1844) was physician and professor of medicine, chemistry, pharmacy and natural sciences (including geology and mineralogy) at the University of Utrecht and friend and collaborator of Van Marum (note 10). Van Marum probably introduced Kuhl to De Fremery (Jorissen, 1914).

12 An abridged and revised English version of Kuhl's essay was published as "Remarks on the characters and affinities of the Orders" in Bowdich (1821: 106-115). Kuhl is acknowledged

on page IV: "The remarks on the connections and gradations between the orders and families form the only original matter of this manual, and for these I am indebted to the instructive conversation and the patience and esteem of a friend, H. Kuhl, whose science and judgement as a zoologist have been so universally admitted, that my tribute to any thing else but his goodness and amiability as a man, would be presumptuous. He has just sailed as the conductor of a liberal scientific expedition to the East-India Islands, equally flattering to himself, promising to science, and honourable to the Dutch Government". Thomas Edward Bowdich (1791-1824) who had already travelled to Africa from 1815 till 1818 and published his well-known *Mission from Cape Coast Castle to Ashantee* in 1819, studied science, natural history as well as Arabic in Paris from 1819 till 1822. During Kuhl's stay in Paris they met, as both were protégé of Cuvier and Von Humboldt. Their contact is evidenced by a genial letter by Mrs. Sarah Bowdich and Mr. Bowdich to Kuhl (Bowdich & Bowdich, 1820) in which they tell about their activities at the Museum, their acquaintances and their appreciation to have met. Sarah Bowdich (1791-1856), *née* Wallis and after her second marriage in 1826 Sarah Lee, was one of those exceptional and irrepressible female characters of the Victorian era, who, despite Victorian prejudices, became a successful scientific writer as well as literary authoress herself. She married Thomas Bowdich on 9 January 1813 and soon afterwards they travelled more than 800 miles through Wales on horseback to study nature and language. After her husband was commissioned by the Royal Africa Company to the Cape Coast (= Ghana) in 1815 she, accompanied by her one year old daughter Florence, travelled in 1816 to Ghana as well and during the passage she helped to put down a mutiny. Upon arrival she found out that her husband had returned temporarily to England and, awaiting his return, she made observations on the local culture and natural history. Sadly, before her husband returned in March 1817, her daughter died of fever. They travelled back to England and during the passage their ship was raided by Spanish pirates, who, fortunately, were only after the provisions. From 1819-1822 she and her husband studied natural history and Arabic while in Paris and they became close friends of Von Humboldt and especially Cuvier. In 1820 both Sarah and Thomas Edward became honorary members of the Wetterauische Gesellschaft für die gesamte Naturkunde in Hanau, undoubtedly as a result of their acquaintance with Heinrich Kuhl. Sarah's admission to the society was exceptional as women were normally excluded from membership until 1945 (Grube, 1983). Although she is only mentioned as "Die Gemahlin" of Bowdich, she was nevertheless elected "… in Hinsicht ihrer zoologischen und botanischen Kenntnisse." (*Verzeichnis*, page 21). While in Paris she gave birth to three children, of whom two survived. In 1822 she, her husband and their two small children set sail for Africa again, but they were held up on Madeira for 15 months, during which time she gave birth to another child. They subsequently

sailed via the Cape Verde Islands to Bathurst (= Banjul, Gambia), where a few months later Thomas Edward died of fever (Westry-Gibson & Driver, 2004). Destitute and with three children to take care of she managed to return to England, where she arrived in July 1824. Shortly thereafter she went to Paris to seek the assistance of her friends Cuvier and Von Humboldt for the first book published under her own name (and that of her late husband): *Excursions in Madeira and Porto Santo* (Bowdich & Bowdich, 1825). According to the title page Sarah is the authoress of the appendix and Thomas the author of the main text, in which, incidentally, he described the still valid fish species *Pontinus kuhlii*. In 1826 she married a Robert Lee, but continued to use or add next to S. Lee her old name Mrs. T.E. Bowdich. Despite being a woman, who, according to Victorian views, was not capable of analytical thinking, she became a competent and successful authoress of scientific as well as literary books. In 1828 she published *The fresh-water fishes of Great Britain*, illustrated by herself and Cuvier praised the illustrations as "très belles". A French translation appeared in the same year and was accompanied by notes by Cuvier and Von Humboldt. How close her ties with Cuvier were is evidenced by her biography of him published a year after his death, that is still a valuable and first-hand source (Lee, 1833). Sarah Lee died on September 23, 1856 at the house of her daughter in Erith, Kent, at the age of 65 (Beaver, 2004). For a fascinating exposition of her life and work see Strickrodt (1998).

13 Petrus Driessen (1753-1828), professor of chemistry and botany, is considered the founder of modern chemistry and chemical technology at the University of Groningen and was co-author of the first national pharmacopoeia, viz. the *Pharmacopoea Batava* (1805) (Kooystra, 1996, Molhuysen, 1918a). Jacobus Albertus Uilkens (1772-1825), professor of agricultural sciences at the University of Groningen and considered one of the founders of agricultural economy in the Netherlands (Botke, 1984 and Wumkes, 1937).

14 Apparently both Kuhl and Van Swinderen were unaware of a similar index to the *Planches* already published by Boddaert in 1783. It is likely that the reason for this omission was that this work was printed in a very limited edition of which only one copy seems to have survived. In 1874 it was reprinted by Tegetmeier in London (Brouwer, 1948: 131, note 2). Surprisingly, Kuhl (39: 4) did, nevertheless, manage to introduce a scientific name for a form of kingfisher, that is presently still valid as a subspecific name, viz. *Alcedo gularis* (= *Halcyon smyrnensis gularis*; Hoyo et al., 2001: 207).

15 The two brothers Nees von Esenbeck wrote a moving obituary after Kuhl had died in 1821 (Nees von Esenbeck, 1822) and letters from Kuhl and Van Hasselt to them were published (42 & 52). Two unpublished letters of Kuhl to Theodor and to Christian Nees von Esenbeck respectively are still present in the archives of the Leopoldina in Halle (Saale), Germany (35 & 36) and one (also unpublished) to Christian in the archives of the

Germanisches Nationalmuseum in Nürnberg (37). The letter to Theodor (35) concerned the exchange of specimens, i.e. Kuhl receiving plant, insect and spider specimens from Theodor, while returning fish and bird specimens from the North Sea as well as bat specimens. Kuhl also expressed his appreciation for the intended nomination of him as member of the Leopoldina. He also replied to the query of Theodor about the possibilities of appointments at Dutch universities for two German colleagues. Curiously, the letter is dated "Hanau, 20-9-1818", which is at odds with the indication of Kuhl being back in Groningen on 21-9-1818 (Van Swinderen, 1823: 19). In his letter to Christian (36) Kuhl referred to his meeting with Theodor in Leiden in February 1819 and his looking forward to meet him again in Amsterdam at Temminck's house, where Kuhl was working at the time. He also asked Christian to send specimens to Temminck's address, so he could study them before leaving for London in April. He, then, referred to Georg August Goldfuss, professor in Zoology at the University of Bonn, with whom he apparently corresponded previously, and who might have informed Christian about Kuhl's appointment to travel to the Dutch East Indies. In his second letter to Christian (37) Kuhl supplied information about the progress of his study on parrots to be published in the Nova acta (40). He forwarded a description of *Psittacus concinnus* (sic) for Christian to be able to judge the quality and the length of the description and indicated that when Christian's reaction were to be favourable he would be able to send the completed manuscript before long. Finally he referred to William Elford Leach of the British Museum (note 22) and Van Swinderen, who both wished to get in contact with Christian.

Kuhl was elected as a member (under number 1125 and not 1044 as stated in Anon. (1831a: XIX) on 28-11-1818 (and not on 20-12-1818 as Neigebaur, 1869: 248 stated; Eschrich, pers. comm.) with the cognomen Johnson, The bestowment of a cognomen or member-name was a curious custom that the Leopoldina adopted from Italian academies of the Renaissance after which it modelled itself (Brednow, 1966). By 1818 new members were named after an illustrious predecessor in the natural sciences. So the cognomen of Temminck was Gesnerus after the great Swiss scholar Conrad Gessner (1516-1565) and author of the famous *Historia animalium* and that of Van Swinderen was Seba after Albertus Seba (1665-1736), collectionneur and author of the famous *Thesaurus* (Anon., 1821a: XIX and XXV, Adler, 1989: 7 and 9). Kuhl was awarded the cognomen Johnson and this name is harder to interpret. It might refer to Thomas Johnson, who is known to have published a revised and enlarged edition of John Gerard's *The herbal and general history of plants* in 1633. It does not seem an apt cognomen as Kuhl's main interest lay with the study of animals. In view of the errors of date and number of membership another possibility might be contemplated. Johnson might be an error as well, i.e. for Jonston after John Jonston (1603-1673), who published his *Historiae naturalis*

de avibus libri (1657) of which especially the English translation became highly esteemed because of its lavish illustrations, but also criticized of being a mere compilation of the works of Gessner, Aldrovandi and others (Stresemann, 1975: 22). In view of Kuhl's expertise of and activity in ornithology at the time this seems a more appropriate choice. Appropriateness was a consideration with the choice of a cognomen (Neigebaur, 1860: 17), but the so-called Matrikelbuch (= enrolment register) at the Leopoldina clearly states Johnson, unfortunately without any explanation. Finally, however, I discovered another, and perhaps the most likely, possibility of the derivation of the cognomen of Kuhl: Ralph Johnson (1629-1695) was a botanist/ornithologist who made a considerable contribution to Francis Willoughby and John Ray's *Ornithologiae libri tres* published in 1676 (Horseman, 2004 and Stresemann, 1975: 43).

16 Gottfried Reinhold Treviranus (1779-1837), physician and professor of mathematics and medicine at the Gymnasium Illustre in Bremen (Anon., 1999b). Johann Abraham Albers (1772-1821), physician and anatomist in Bremen (Anon., 1995). Martin Hinrich Carl Lichtenstein (1780-1857), professor of zoology and director of the Zoological Museum at the University of Berlin (Anon.,1997b). Karl Asmund Rudolphi (1771-1832), professor of anatomy and physiology and director of the Anatomical Institute at the University of Berlin (Wüssing, 1998). Johann Friedrich Nauman (1780-1857), ornithologists in Ziebigk (Mearns & Mearns, 1988: 275-281; Streseman 1975: 306). Cristian Ludwig Nitzsch (1782-1837), professor of zoology and director of the Zoological Museum at the University of Halle (Streseman, 1975: 308). Lorenz Oken (1779-1857), professor of zoology and physiology and famous "Naturphilosoph" at the University of Jena (Engelhardt, 1998b). As an impressionable young (German) scientist Kuhl looked especially forward to meet this famous, albeit bizarre natural philosopher. It was, therefore, fortunate and hopefully illuminating that he had first visited Rudolphi in Berlin, who abhorred the mysticism that Oken and the philosopher Friedrich Wilhelm Joseph Schelling (1775-1854) developed in Jena and that pervaded German biology at the time. Rudolphi (1812: 41, note) warned his students with the (still topical) words: "Der jetzt so vielen Eingang findende Mysticismus sucht Unwissende, und die findet er reichlich genug. Unwissenheit heisst die Mutter der mehrsten naturphilosophischen Schriften. Träume kann jeder und der Nachbar hört die Träume gern. Es versteht sich, dass keine algemeine Unwissenheit dazu nothwendig ist, aber wenigstens eine über die Gegenstand, worin man dem eben so unwissenden Mystiker zuhört. Man empfängt hier auch den Trost, dass man nicht unwissend sey, und das Studium wird gar sehr erleichtert, denn man braucht ja nun keine Gelehrsamkeit, kein tiefes Eindringen, kein treues Erforschen eines Gegenstands: man verkehrt nur die Augen, und überlässt sich seinen Ahndungen, das heisst: einer zügellosen Fantasie. Jünglinge, die ihr dies leset, wählet ein System, welches es sey,

aber wählt nicht eher, als bis ihr im Schweiss eures Angesichts für die Wahrheit redlich gekämpft, als bis ihr euch würdig gemacht habt, ihr Anlitz zu schauen. Glaubt euren Lehrern, dieweil ihr Schüler seyd, aber gebt ihnen nur den Glauben, den sie als redliche Männer verdienen, das ist: historischen Glauben. Habt ihr die Übersicht eures Fachs gewonnen: dann mögen eure Zweifel beginnen, und prüfet und forscht. Vom Glauben kommt ihr nie gleich zur Wahrheit, nur die Zweifel führen euch dahin".

Friedrich Tiedemann (1781-1861), professor of zoology and physiology at the University of Heidelberg (Anon., 1999a). Karl Caesar von Leonhard (1779-1862), professor of mineralogy and geognosy at the University of Heidelberg (note 4). Heinrich Boie (1794-1827), jurist and curator of the zoological cabinet at the University of Heidelberg and Kuhl's friend since his visit to Hanau in 1814 (Susanna, 1834). In 1821 Boie became curator at the newly founded natural history museum in Leiden, where he studied especially reptile and amphibian specimens sent from the Dutch East Indies by Reinwardt and Kuhl and Van Hasselt (Holthuis, 1995: 28-29; Franssen et al., 1997: 214-215). Unfortunately, the resulting *l'Erpétologie de Java* was never published due to the Belgian uprising against the Dutch in 1830 that interfered with the printing process in Brussels (Holthuis, 1995: 29). He was appointed, as successor of Kuhl, as delegate of the Commission for the study of the natural sciences of the Dutch East Indies in 1821, but left Holland only in June 1825. He died prematurely, like most of his colleagues on the Commission, on 4 September 1827 at the age of 33 (Gijzen, 1938). He was buried, like Kuhl and Van Hasselt, in the botanical garden in Buitenzorg (Anon., 1858: 84 & 87).

17 For two centuries the Dutch paid little attention to the scientific exploration of the Dutch East Indies, as they concentrated on control of trade and exploitation (Hoëvell, 1839; Veth, 1879; Sirks, 1915 and Smit, 1978). A notable exception was, of course, Georg Eberhard Rumphius (1628-1702) of *Herbarium Amboinense*-fame (Siebert, 1919: 168; Sirks, 1914c: 1104 and 1915: 25 and Stresemann, 1975: 35), who, like Kuhl, originated from Hanau. Indeed, Kuhl, who went also to the same Gymnasium as Rumphius (Greshoff, 1902: 12) must have been inspired by his fellow-townsman to travel to the Dutch East Indies as well and he studied him well enough to be able to write a biography of his illustrious predecessor (Rouffaer and Muller, 1902: 177).

Only in 1778 the Dutch founded the Batavian Society of Arts and Sciences, nevertheless the first society of its kind in Asia, but it flourished only a few years. It took the Napoleonic occupation of Holland in 1795, the abolition of the VOC (United East-Indian Company) in 1798 and the subsequent English occupation and administration of Java under Thomas Stamford Raffles from 1811 till 1815 to end the Dutch lethargy (Veth, 1879, Smit, 1978 and Scalliet et al., 1999). In 1816 the Dutch administration was restored; the economic situation and the remarkable results of the scientific exploration

during the English occupation (Raffles, 1817) inspired the Dutch to begin of a very active period of exploration of their own. The renowned professor C.G.C. Reinwardt of the Amsterdam Athenaeum Illustre and director of the National Cabinet of Natural History in Amsterdam was appointed as director general for agriculture, arts and sciences in the Dutch East Indies (Sirks, 1918a: 1135 and Fransen et al., 1997: 282). With the active support of the governor-general baron G.A.G.P. van der Capellen (Koolemans Beijnen & Rooseboom, 1911: 569), an ardent natural historian and collector himself (see e.g. *Almanak*, 1827: 110-118), Reinwardt acquitted himself excellently of his enormous assignment, but is perhaps best known as the founder of the botanical garden in Buitenzorg, the present Kebun Raya Indonesia in Bogor (Rijnberg, 1992). The success of his activities, especially his collection of natural history specimens, was instrumental to the foundation of the Commission for the study of natural sciences of the Netherlands East Indies, of which Kuhl was to be the first delegate (see Scalliet,1995: 197, note 178), as well as the natural history museum in Leiden, of which Temminck was to be the first director, both in 1820. Before Kuhl was appointed he was already working on a manuscript titled *Fauna novae hollandiae et indiae orientalis* (Justi, 1831: 284 and Swinderen, 1823: 58) that was never published or found however.

18 Van Swinderen (1823:19) referred to the distribution of copies of this index to Seba under "famous natural scientists" at the time upon request, but did not mention one by name. It would be interesting to know if copies of this index still survive in the archives or libraries of institutions or musea where those famous scientists might have deposited them, as, unlike Kuhl's index to Daubenton, plans to publish Kuhl's index to Seba never materialized. At the Nationaal Natuurhistorisch Museum in Leiden no copy could be traced, but as luck would have it the copy of Seba's *Thesaurus* that was used by Kuhl, as evidenced by slips of paper with Kuhl's handwriting it still contains, is still present in the University Library in Groningen. These slips bear the names of the amphibians and reptiles as identified by Kuhl and doubtlessly formed the basis of the list or index that was distributed. Unfortunately, the number of slips is incomplete as compared with the number of amphibians and reptiles depicted in volume 1 and 2 of Seba (1734/35), which may be due to loss during the subsequent two centuries or to the impossibility to properly identify many of Seba's figures. Wagler (1833) did also attempt to identify Seba's figures of amphibians and reptiles in his index, but he, too, had to curtail his efforts possibly when confronted with the many baffling figures of especially snakes in volume 2, but more probably because his life was tragically cut short when he accidentally shot himself in the arm. He died nine days after the incident on August 23, 1832, 32 years of age (Adler, 1989: 23). It is, therefore, all the more desirable to trace a copy of Kuhl's list to supplement Wagler's index and to be able to compare it with Wagler's and more recent

identifications. As a herpetologist I found it interesting to note that Kuhl's identification (as far as available on paper slips) of the chameleons depicted in volume 1 of Seba (tab. 82, fig. 1-6 and tab. 83, fig. 4 & 5) compare favourably with those made by Müsch et al. (2001: 554) in their otherwise superb facsimile of the illustrations of Seba's thesaurus. Kuhl identified figs. 82.1 and 83.4 as *Chamaeleon calcaratus*, which conforms to the present identification of these figures as *Chamaeleo africanus* of which *C. calcaratus* is considered a junior synonym (Klaver & Böhme, 1997: 27; see fig. 8). The identification of fig. 83.5 as *C. margariceus* (= *C. margaritaceus*) is also in agreement with current opinion that this figure represents *Bradypodion pumilum* of which *C. margaritaceus* is considered a junior synonym (Klaver & Böhme, 1997: 25 & 55). Considering the reference to the names used by Merrem (1820) it must be concluded that Kuhl must have worked on the Seba index from the autumn of 1818 well into 1820. However, another intriguing possibility might be that the names Kuhl employed became available to Merrem, as a possible recipient of Kuhl's index to Seba, who subsequently adopted them.

19 An apparent other curious example of the broad range of activities of Kuhl and Van Hasselt concerns the report of Johan Conrad van Hasselt winning a prize of eight "dukaten" from the Maatschappij ter bevordering van den landbouw (Society for the promotion of agriculture) for studying the yield of clover grown on sandy or peaty soil (Anon., 1819c: 20). It is almost inconceivable that, next to his study of medicine, his cooperation with Kuhl on the study of natural history and their journey to Germany, Van Hasselt had, in 1818, the time and opportunity to perform rather extended agricultural experiments. The problem was solved when I discovered the existence of another Johan Conrad van Hasselt living in Groningen at the time! This namesake and distant relative of the Groningen branch of the Van Hasselt family was born in Groningen on 17 July 1787, lived there his entire life and died there on 25 July 1866 (Wijnaendts van Resandt, 1963: 184). This Johan Conrad also studied at the University of Groningen since September 1807, but did not finish his studies (*Album*, 1915: 258) and subsequently held various official and commercial posts, some of them connected with agriculture. He also owned an estate of 61 hectares in Haren, south of the city of Groningen. So it is likely that it was he who was awarded the prize from the Society for the promotion of agriculture.

20 Temminck called upon Kuhl's taxonomic and faunistic expert advice to review an already existing index, viz. the *Index ornithologicus* by John Latham (1790), that identified and especially latinized all Latham's earlier vernacular names of the birds depicted in his *General synopsis of birds* (1781-1783). It appears Kuhl and Temminck were unaware of the fact that most of Latham's binominal names were, the moment they were published, mere synonyms of the names already supplied by Johann Friedrich Gmelin in his 13th edition of Linnaeus' *Systema Naturae* in 1788-1792. The birds section was published in 1788-1789

and Gmelin's names have priority over the names supplied by Latham himself (Anon., 1820d: 398; 38 and Stresemann, 1975: 55 & 79).

21 Temminck and Lichtenstein were only two of many bird collectors who went to London that spring. The reason for this was the auction of the famous collection of William Bullock, including some 3000 rare and often undescribed birds that took place from April 29 till June 11 (Baigent, 2004). It was also attended by William Leach of the British Museum, who bought a Great Auk and its egg for £ 16, and by other private collectors like Lord Stanley and baron Laugier de Chartrouse (see notes 22 and 26 respectively). Temminck acquired 536 birds belonging to 363 species for a staggering £ 445 (Stresemann, 1975: 121)!

22 William Townsend Aiton (1766-1849), head gardener of Kew Gardens under Joseph Banks (Mabberley, 2004a). Robert Brown (1773-1858), librarian and heir of Bank's library and collection, keeper of botany at the British Museum, president of the Linnean Society (1847-1853) and discoverer of the cell nucleus and the "Brownian movement" (Mabberley, 2004b). Augustin Pyramus de Candole (1778-1841), phytogeographer and botanist at the botanical gardens of Montpellier, Paris and Geneva (Pilet, 1971: 43). Edward Forster (1765-1849), botanist and treasurer of the Linnean Society (Boulger, 1889). Carl Dietrich Eberhard König (1774-1851), keeper of botany, zoology, geology and mineralogy at the British Museum (Thackeray, 2004). William Elford Leach (1790-1836), ornithologist and marine biologist and assistant keeper of zoology at the British Museum (Mearns & Mearns, 1988: 223-226; Gilbert, 2004). James Edward Smith (1759-1828), botanist, who bought Linnaeus' collections, library and manuscripts, and founder of the Linnean Society and its first president until his death (Boulger and Walker, 2004). Edward Smith Stanley (Lord Stanley, 13th Earl of Derby) (1775-1851), zoologist and second president of the Linnean Society (Fisher, 2004). Joseph Banks (1743-1820), naturalist with James Cook on the HMS *Endeavour* from 1768-1771, botanist and president of the Royal Society (Darlington and Reynolds, 2004).

23 According to the Julian calendar, still in use in Sweden when Linnaeus was born, the birthday of Linnaeus is on 12 May, which corresponds to 23 May of the Gregorian calendar that was introduced in the U.K well before the founding of the Linnean Society. However, as a result of assuming a correction of 12 days (instead of a proper correction of 11 days) the Linnean Society held its anniversary meeting on 24 May and as a matter of fact still does so till the present day despite the (admitted) error! A singular English tradition indeed (Gage & Stearn, 1998: 17).

24 Incidentally, in the minutes of the faculty meeting C.J. Temminck is confused with C[ornelis] J[ohannes] Themmen, medical student in Groningen since 11 November 1812, who was awarded a M.D. on 10 June, 1817 (*Album*, 1815: col. 264 and col. 623).

25 It is truly amazing how people travelled on foot in those days. Van Hasselt and Cremers walked from Hanau to Darmstadt, Heidelberg, Karlsruhe, through the Schwarzwald to Schaffhausen, then all the way across Switzerland to ascend St. Gotthard, not that far from the Italian border, and back again to Strasbourg, all within approximately a month and a half! An even more amazing feat, considering such mountainous terrain, for men from a country with hardly any elevation at all.

26 Léopold Chrétien Frédéric Dagobert, *dit* Georges, baron de Cuvier (1769-1832), professor of comparative anatomy and zoology at the national natural history museum in Paris, palaeontologist and anti-evolutionist, and ardent opponent of both Lamarck and Geoffroy Saint Hilaire (Chatelain, 1961). Jean Baptiste Pierre Antoine de Monet, Chevalier de Lamarck (1744-1829), evolutionist and professor of invertebrate zoology at the same museum (Blemont, 1997). Etienne Geoffroy Saint Hilaire (1772-1844), professor of experimental embryology, colleague of both Cuvier and Lamarck at the museum (Tétry, 1982). Pierre André Latreille (1762-1833), entomologist at the natural history museum (Dupuis, 2001). Guillaume Marie Jérome Meiffren, baron Laugier de Chartrouse (1772-1843), botanist, ornithologist and co-author, with C.J. Temminck, of the *Nouveau recueil de planches colloriées d'oiseaux* (Maureau, 2001). Jean Baptiste Louis Claude Théodore Leschenault de la Tour (1773-1826), naturalist of the expedition of the ships *Géographe* and *Naturaliste* (1800-1804) to the coast of Australia and New Guinea, during which he amassed large collections of birds and plants (Mearns & Mearns, 1988: 231-235). Friedrich Wilhelm Heinrich Alexander von Humboldt (1769-1859), geographer and explorer of South America, working in Paris from 1808-1827 on his travelogue (Beck, 1997).

27 The Order in Council (see Veth, 1879: 21-23 for the complete text) mentioned Kuhl and Van Hasselt by name as the delegates of the Commission and Gerrit van Raalten and Gerrit Laurens Keultjes as taxidermist and draughtsman respectively. When Van Hasselt was considered to accompany Kuhl is unclear, but it was probably at the request of Kuhl, after he had been informed himself in the winter of 1818/19. Van Hasselt did not travel with Kuhl to London in April 1819 and although he went with him to Paris in September 1819, he did so at his own expense (Anon., 1820c and *Almanak*, 1821: 79). So Van Swinderen and Temminck must have been lobbying in the second half of 1819 and the beginning of 1820 to secure Van Hasselt's position as companion and co-delegate of Kuhl. The Order in Council also stipulated that the specimens and items collected in the Dutch East Indies should be forwarded to "'s Rijks Museum "(= the natural history museum in Leiden), which is intriguing as the accepted date of the founding of the museum is August 9, 1820, i.e. some three month *after* the Order in Council had been dated (Holthuis, 1995: 10 and 15). The efforts of Temminck, in cooperation with

Falck, Reinwardt, Van der Capellen and Van Swinderen, appeared to come to fruition in a coordinated way. As to the exploration of the East Indies he published a summary of its economic and scientific justification (Temminck, 1820); as to the foundation of the natural history museum, as recipient of the collected material, he seems to have been politically active since 1814 and finally succeeded in 1820 (Holthuis, 1995), whereas the new Commission and Kuhl also fitted nicely in the scheme of things. For further information about the Commission's 30 year history see Fransen et al. (1977), Gijzen (1938), Sirks (1915), Stresemann (1975) and Veth (1879). For biographical information of Van Raalten see Anon. (1858: 88 – 92) and Veth (1879: 67) and of Keultjes see Scheen (1969: 593) and Scalliet (1995: 155; note 177). Incidentally, Anon. (1858: 91) referred to 17 April 1823 as the date of Van Raaltens death, but this must, of course, be 1829 (Veth, 1879: 67). Moreover, in the same sentence Heinrich Christian Macklot, another delegate of the Commission, is reported to have died in 1829, but as a matter of fact he met his violent death during a rebellion in Krawang, east of Batavia in 1832 (Veth, 1879: 72 and Fransen et al., 1997: 259-260).

28 Kuhl's inscription (see fig. 10) reads: "Wahrheit suchen wir beide, ich aussen im Leben, du innen in dem Herzen, und so findet sie jeder gewiss. Ist das Auge gesund, so begegnet es aussen dem Schöpfer, ist es das Herz, dann gewiss spiegelt es innen die Welt! Gedenken Sie zuweilen eines jungen Deutschen, der es sich zur Ehre rechnet, in den Niederlanden den Wissenschaft leben zu dürfen und der mit so vieler Humanität von den Gelehrten dieses seines zweiten Vaterlandes aufgenommen worden ist, von denen mir Ihr Andenken ewig unvergesslich bleiben wird! Von Herzen, Ihr H. Kuhl. Amsterdam den 30 Juni 1820 (ab Sept. 1821 in Insula Java, Ind. orient.)" He added the aphorism of Seneca: "Ars longa, vita brevis"(Art is long, but life is short), not knowing how brief his life was to be, but how accomplished he nevertheless was.

29 Contrary to what Steenis-Kruseman (1950) stated in the itineraries of both Kuhl and Van Hasselt, they did not ascend the Gunung Karang and Gunung Poelasari during their brief disembarkation at the Point of Bantam. These mountains were visited by Van Hasselt in early 1823.

30 Pierre-Médard Diard (1794-1863), pupil of Cuvier (note 22) and natural history collector under Raffles (note 17) was recruited by Reinwardt to collect in Bantam, western Java. Later he became a delegate of the Commission after Macklot's death (note 27) (Fransen et al, 1997: 227).

31 The dismissive remark by Franz Wilhelm Junghuhn as to Kuhl and Van Hasselt's accomplishment is in my opinion quite unjustified and was only made to be able to claim the first ascent of the Pangrango for himself as is obvious from his formulations (Junghuhn, 1850-1853: 20; note). Kuhl and Van Hasselt were quite capable of scaling a mountain as

evidenced by Van Hasselt's journey through Switzerland and their joint ascent of the Pico Ruivo, Madeira and the Gunung Salak and Gunung Gede, Java (59 & 66). Moreover, not only were they very energetic and enterprising young men, they were also very upright and meticulous (Swinderen, 1823a and 1825). They wrote in their letter dated August 8, 1821: "We just returned from an arduous mountain trip and, after all failed attempts, we finally succeeded to reach the peak of the Pangerango…at 9400 ft. a.s.l.." (48: 370, 56: 103; 57: 475 & 59: 152). Subsequently it was stated: "I write you only about what is new concerning the class of Amphibia…". So Junghuhn's remark that they could not have reached the top of the Pangrango because they did not comment on its remarkable flora is not only unjustified in view of Kuhl and Van Hasselt's positive statement, but also unjustified in view of their deliberate restriction of their remarks concerning their observations. Junghuhn (1853-1854: 22; note) argued even more specifically against Kuhl and Van Hasselt by claiming that they could not have climbed the Pangrango and missed to observe and comment on the botanical rarity and endemic *Primula imperialis*. This species flowers in April, when Junghuhn made his ascend (Junghuhn, 1850-1853 and 1840: 300), in moist and cool conditions, whereas at the end of July, the time Kuhl and Van Hasselt made their ascend, the flowering period had passed and the conditions were dry with frost at night (Junghuhn, 1853-1854). Moreover, *Primula imperialis* appeared to occur locally, as rare plants often do, so Kuhl and Van Hasselt could have missed it easily. Therefore, I think, there is no reason to doubt the truthfulness of Kuhl and Van Hasselt's account and that they were indeed the first Europeans to reach the top of the Pangrango (see also 5). Ironically, to add insult to injury, Carl Ludwig Blume in his clash with Junghuhn renamed *Primula imperialis*, described by Junghuhn in 1840, as *P. kuhlii*, claiming that Kuhl had found it first and thus had priority for an eponymous name (Steenis, 1989: 17)! However, this remark may have been vindictive and what is more, it was not nomenclaturally warranted. As to Blume's own problems with Kuhl and Van Hasselt's legacy see note 40. For further information about the idiosyncratic and controversional figure of F.W. Junghuhn, who served on the Commission as well, see Sirks (1915 & 1918c) and Rijnberg (1992).

32 As to the convoluted nomenclatural history of these and other genera as well as species, see Brongersma (1942), Dubois (1982 & 1992), ICZN (1994), Klaver (2007), McDiarmid et al. (1999), Mees (1987) and Wermuth (1965).

33 Patrick Russell (1726-1805) Scottish physician, naturalist of the East India Company and author of the renowned *An account of Indian serpents collected on the coast of Coromandel* (1796) and its sequel *An account of Indian serpents* (1801-07) (Hawgood, 1994). The fact that Kuhl and Van Hasselt's primary observation was already shown to be wrong in the French translation of their letter by H. Boie distracts nothing from their perceptive inference (45: 82; note 1 and 46: 206; note 1).

34 In Kuhl (1824a) the last part of this sentence is even translated as "l'histoire géologique de Java"

35 The title of Anon. (1822i) refers to the "Groninger Zeitung nr. 17, dem 26sten Febr. 1822", which concerns the obituary notice of Keultjes (Anon., 1822 e). The text of Anon. (1822i) actually relates to the translation of the obituary notice of Kuhl by Van Hasselt that was published in the Bataviasche Courant (3).

36 Antoine Auguste Joseph Payen (1792-1853), architect, landscape-painter and naturalist, who was on assignment in the Dutch East Indies from 1817-1826 to record the scenery of the land. He worked together with Reinwardt and the Bik brothers (notes 17 and 3 respectively) on an expedition in 1819 through the Priangan, south-east of Buitenzorg. He travelled widely on his own, i.e. apart from his servants and porters, for some six years through central and eastern Java. In 1824 he joined Van der Capellen on an inspection tour to the Moluccas and Celebes (Sulawesi). Ironically, Payen did not only design the sepulchral monument of Kuhl and Van Hasselt, but Van der Capellen, after having discovered on the island Ambon that the cenotaph from 1720 commemorating Rhumphius (note 17) had been destroyed, commissioned Payen to design and supervise the execution of a new cenotaph dedicated to the "blind seer of Ambon" (Scalliet et al., 1999: 47-57 and Scalliet, 1995). As a naturalist Payen collected mainly birds and insects and had species named after him, e.g. *Meandrusa payeni* Boisduval, 1836 (Papilionidae).

37 Why Backer (1936: 255 & 308) chose to call the sepulchral monument "…een onoogelijk monumentje…" (an ugly little monument) is unclear to me and, besides, what else did he expect, a mausoleum? Although the painting of the monument is unsigned I wonder if comparative studies of this painting and the signed works of Payen (note 36) might reveal Payen to be the artist. Interestingly, only a short distance from the grave of Kuhl and Van Hasselt there is a small white temple with a marble stone inside that reads: "Sacred to the memory of Oliva Mariamne, wife of Thomas Stamford Raffles, Lieutenant Governor of Java and its dependencies, who died at Buitenzorg on the 26 November 1814. Oh thou whom neer [sic] my constant heart one moment hath forgot The fate severe hath bit us part yet still forget me not". During his tenure in Java from 1811 till 1815 Raffles (see note 17) lost his first wife when living himself in the residency of the Governor-General at Buitenzorg (Rijnberg, 1992: fig. 152 and Bloys van Treslong Prins, 1934: 175-176).

38 Unfortunately in this translation the last sentence of the original text of page 317 was erroneously allocated at the end of page 329 of the original text.

39 Under the species heading *Pangio oblongus* Roberts (1993: 26) lists *Acantophthalmus javanicus* as a nomen nudum and attributes it to Van Hasselt in Kuhl & Van Hasselt, 1823. The proper source is, however, Hasselt, 1823 (ref. 8).

40 Despite their heavy reliance on Kuhl and Van Hasselt's sketches and notes and even adopting several names of new species supplied by them, Cuvier and Valenciennes (1828-1849) were very economical in acknowledging this (Roberts, 1993). They were not exceptional in this respect. Carl Ludwig Blume, successor of Reinwardt as director of the botanical garden in Buitenzorg in 1822, even got himself into a controversy about his supposedly unacknowledged reliance on Kuhl and Van Hasselt's botanical collections and notes. Steenis (1989: 11 & 37) defended Blume of what he considered to be unjust accusations and pointed out that Kuhl and Van Hasselt's botanical collections were only put at his disposal in 1828 when he was back in Leiden. That may have been the case, but Blume did publish before that time two papers, viz. Blume (1825-27 and 1827-28), in which he *did* acknowledge Kuhl and Van Hasselt, one time even in the title. So Blume must have had access to and relied on Kuhl and Van Hasselt's botanical collections and notes while in Buitenzorg, as was indeed indicated by Van Raalten and, surprisingly, by Steenis himself. Thus the accusations may have been unjust, but Steenis argumentation as to Blume's access to the collections as well as notes is ambiguous to say the least (see also Steenis, 1979: 60).

41 Van Swinderen did not publish any great works, his interests were too diverse and, as a consequence, too shallow (Botke, 1990:69). Useful publications in the field of natural history are his catalogue of the collection of the natural history museum in Groningen (Swinderen, 1822c) and the various issues of his inventory of the fauna of the province Groningen (Swinderen, 1825-36).

42 Considering myself fortunate to have found, thanks to the cooperation of Dr. Kai Torsten Kanz, three unpublished letters by Kuhl (note 15) I was taken aback by what I found with the help of the Kalliope Portal, an autograph information system (http://Kalliope.staatsbibliothek-berlin.de). No less than 83 letters relating to Kuhl, Van Hasselt, Heinrich and Friedrich Boie, Van Swinderen, Van der Capellen, Van Ewyck, De Haan etc were found to be present at the Schleswig-Holsteinischen Landesbibliothek in Kiel, Germany, originating from the estate of Friedrich Boie. Only the letter of Bowdich to Kuhl (note 12) and the reminiscence of Schlemmer (see at the end of the main text) have been used for the present paper. The others remain to be studied and might be the subject of a future paper by me. If this find is an indication, who knows what may turn up as a result of future research, hopefully inspired by the present book. In the Artis Library, Amsterdam I found, moreover, two original letters by Van Hasselt, both addressed to W. de Haan, curator at the Leiden natural history museum from 1823-1846 (Holthuis, 1995: 32), originating from the estate of De Haan (Scheffer, 1939: 157). Abstracts of one of these were published by Van Hasselt (14). Finally, in the archives of the Nationaal Natuurhistorisch Museum in Leiden I discovered a copy of the testament of Van Hasselt.

43 Alexander Philipp Maximilian, prinz zu Wied-Neuwied (1782-1867) renowned explorer/naturalist of South and North America (Adler, 1989: 22), George Cuvier (see note 26), Achille Valenciennes (1794-1865), co-author of Cuvier of the *Histoire naturelle des poissons* and from 1836 professor in ichthyology at the natural history museum in Paris, Thomas Edward Bowdich (see note 12), Charles Lucien Jules Laurent Bonaparte (1803-1857), nephew of Napoleon and one of the best zoologists of his days (Adler, 1989: 29), Nicholas Aylward Vigors (1785-1840), zoologist of Irish descent, co-founder with Thomas Raffles (note 17) o.a. of the Zoological Society of London and author of numerous ornithological papers (Desmond, 2004), Hermann Schlegel (1804-1884), zoologist of German extraction and successor of Temminck as director of the natural history museum in Leiden (Adler, 1989: 30; Holthuis, 1995: 41), Pieter Bleeker (1819-1878), surgeon and dean of Indonesian ichthyology (Fransen et al, 1997: 212), Leonhard Stejneger (1851-1943), zoologist of Norwegian extraction who became curator at the U.S. National Museum in 1911. As a proponent for nomenclatural rules he made important contributions to this field (Adler, 1989: 62; Noble Shor, 1976), Johann Jacob von Tschudi (1818-1889), Swiss born naturalist, explorer and diplomat, who published on ethnography, herpetology, geography, meteorology and medicine, travelled in South America and eventually became Swiss ambassador in Brasil and later in Austria (Adler, 1989: 36), John Edward Gray (1800-1875), zoologist and founder of the zoological collections at the British Museum (Adler, 1989: 34), William Elford Leach (see note 22).

44 Dr. Heinemann of the Wetterauische Gesellschaft für die gesamte Naturkunde in Hanau informed me that a G.F.C. Schlemmer, Hofrath in Hanau, became honorary member of the Gesellschaft on 2 September 1816, but he could not supply further information (Heinemann, in litt. 28-6-2006). Heinrich Christian Friedrich Schlemmer, the author of the reminiscence and Hofrath as well, was probably a relative, who knew Kuhl from his youth in Hanau. Surely, a Hofrath would have been known to Kuhl's father, who was, after all, president of the Landesgericht (Court of justice) in Hanau. Possibly he was another notable visitor to Kuhl's parental home (note 4). According to Mrs. Rademacher of the Stadtarchiv in Hanau, H.C.F. Schlemmer died on March 25, 1839 at the age of 80, so he was Kuhl's senior by 38 years.

45 The original Latin text reads:
In effigiem
HENRICI KUHLII. Hanoviensis,
Perscrutatoris naturae acutissimi ac curiosissimi
In terras orientalis studii naturae promovendi causa
publice legati
ibique

in detrimentum reipublicae literariae
omnibus ingeneus lugentibus
morte immature
praerepti.

pauce haec dolente animo scripsit
H.C.F. Schlemmer
Cons.aul.
Hanoviae, medio m. Jun. MDCCCXXV.

Nil non mortale tenemus,
Pectoris exceptis ingeniique bonis. Ov[idius].

Interna naturae penetrans velamine rapto
Isidis invidia victima causa Deae
Kuhlius heu cecidit! Naturae castus alumnus,
Olim Pontificis dignus honore sui,
Eximii juvenis sin tristia fata tulissent,
Quem praemature nunc rapuere nimis.
Deplorant obitum filii Pater optimus omni
Cum patria Europae totaque docta phalanx;
Belgia praecipue – Rex augustissimus Ipse,
Indoluit valdemorte viri juvenis,
Quem Speculatorum naturae solis ad ortum
Miserat occubuit victima mortis ubi.
Nunc denudatam natura per astra Meanti
Ostendit faciem divitiasque suas.
Noscendi causas rerum insatiata cupido
Haurit in exhausto fonte alimenta sui.

Impendens studiis vitam qui perdidit, hujus
Gloria saeclorum millia pervolitat;
Omnis enim populus genium veneratur, ab illo
Gloriaque inpopulum dimidiata redit.
Vos studiis dediti Iuvenis reverenter adeste
Et madidos oculos figite in effigem,

Umbram defuncti! fuerit quis? quisque futurus?
Vita sua et radians fronte monent genius.
Exemplar vitae studiique ac mortis honestae
In speculo tanquam nobile proposuit.
Qui cupit, alta petens, cum fama extendere vitam,
Vivere sic discat digniter atque mori!
Quoque die infesto, rapuit quo morbus eundem,
Manibus atque suis immolet inferias!

Bibliography of Kuhl and Van Hasselt

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Appendix A: Index of zoological scientific names by Kuhl and Van Hasselt and commemorative names

Scientific names of genera, species and subspecies of animals proposed by Kuhl, by Kuhl and Van Hasselt and by Van Hasselt that are still valid today. The presence of parentheses enclosing the authors name and year of publication indicates that the species-group name is combined with a generic name other than the original one (article 51.3 of the International Code of Zoological Nomenclature, 1999). The indication ref. followed by a number refers to the relevant title in the Bibliography.

MAMMALIA (Wilson & Reeder, 2005).

Family Aotidae
Aotes azarae infulatus (Kuhl, 1820: 38; ref. 38)

Family Atelidae
Ateles geoffroyi Kuhl, 1820: 26 (ref. 38)
Brachyteles hypoxanthus (Kuhl, 1820: 25; ref. 38)

Family Castoridae
Castor canadensis Kuhl, 1820: 64 (ref. 38)

Family Cebidae
Cebus nigritus robustus Kuhl, 1820: 35 (ref. 38)
Leontopithecus chrysomelas (Kuhl, 1820: 51; ref. 38)

Family Cercopithecidae
Piliocolobus badius temminckii (Kuhl, 1820: 7; ref. 38)

Family Sciuridae
Funisciurus congicus (Kuhl, 1820: 66; ref. 38)

Family Vespertilionidae
Miniopterus schreibersii (Kuhl, 1817: 41; ref. 33)
Myotis bechsteinii (Kuhl, 1817: 22; ref. 33)
Myotis daubentonii (Kuhl, 1817: 51; ref. 33)
Myotis mystacinus (Kuhl, 1817: 58; ref 33)
Myotis nattereri (Kuhl, 1817: 25; ref. 33)
Nyctalus leisleri (Kuhl, 1817: 38; ref. 33)
Pipistrellus kuhlii (Kuhl, 1817: 55; ref. 33)

AVES (Dickinson, 2003; Hoyo et al., 1992, 1994, 1997 & 2001)

Family Alcedinidae
Halcyon smyrnensis gularis (Kuhl, 1820: 4; ref. 39)

Family Cacatuidae
Cacatua tenuirostris (Kuhl, 1820: 88; ref. 40)
Probosciger Kuhl, 1820: 12 (ref. 40)
Probosciger aterrimus goliath (Kuhl, 1820: 92; ref 40)

Family Hydrobatidae
Oceanites oceanicus (Kuhl, 1820: 136; ref 38) Also known by the vernacular name "Wilson's storm-petrel" in the Anglo-Saxon world, because Charles Lucien Bonaparte, ornithologist and nephew of the dictator, described this species as *Procellaria wilsonii* in 1824. However, Kuhl's name has according to the principle of priority precedence over Bonaparte's name. Alexander Wilson, incidentally, was a leading American ornithologist of Scottish extraction, who lived from 1766 – 1813 (Stresemann, 1975: 154).

Family Procellariidae
Pachyptila turtur Kuhl, 1820: 143 (ref. 38)
Pterodroma hasitata (Kuhl, 1820: 142; ref. 38)

Family Psittacidae
Agapornis swindernianus (Kuhl, 1820: 62; ref. 40)
Amazona vinacea (Kuhl, 1820: 77; ref. 40)
Aratinga auricapillus (Kuhl, 1820: 20; ref. 40)
Aratinga cactorum (Kuhl, 1820: 82; ref. 40)
Cyanorhamphus auriceps (Kuhl, 1820c: 46)

Graydidascalus brachyurus (Kuhl, 1820: 72; ref. 40)
Neophema chrysostoma (Kuhl, 1820: 50; ref. 40)
Pionites leucogaster (Kuhl, 1820: 70; ref. 40)
Pionus maximiliani (Kuhl, 1820: 72; ref. 40)
Pionopsitta barrabandi (Kuhl, 1820: 61; ref. 40)
Pionopsitta vulturina (Kuhl, 1820: 62; ref. 40)
Platycercus caledonicus brownii (Kuhl, 1820: 56; ref. 40)
Platycercus icterotis (Kuhl, 1820: 54; ref. 40)
Platycercus venustus (Kuhl, 1820: 52; ref. 40)
Poicephalus robustus fuscicollis (Kuhl, 1820: 93; ref. 40)
Purpureicephalus spurius (Kuhl, 1820: 52; ref. 40)
Pyrrhura leucotis (Kuhl; 1820: 21; ref. 40)
Touit surdus (Kuhl, 1820: 59; ref. 40)
Trichoglossus chlorolepidotus (Kuhl, 1820: 48; ref. 40)
Vini ultramarina (Kuhl, 1820: 49; ref. 40)

Family Ptilonorhynchidae
Ptilonorhynchus Kuhl, 1820: 150 (ref. 38)

REPTILIA (Diong & Lim, 1998; Klaver & Böhme, 1997; McDiarmid, 1999; Mertens, 1963; Musters, 1983; Wermuth, 1965; Wermuth & Mertens, 1976; Williams & Wallach, 1989)

Family Agamidae
Bronchocela cristatella (Kuhl, 1820: 108; ref. 38)
Draco fimbriatus Kuhl, 1820: 101 (ref. 38)
Draco volans timorensis Kuhl, 1820: 103 (ref. 38)

Family Boidae
Python molurus bivittatus Kuhl, 1820: 94 (ref. 38)

Family Chamaeleonidae
Brookesia superciliaris (Kuhl, 1820: 103; ref. 38)
Calumma tigris (Kuhl, 1820: 104; ref. 38)

Family Colubridae
Brachyorrhos Kuhl *in* Schlegel, 1826: 236
Homalopsis Kuhl & Hasselt, 1822: 101 (ref. 56)

Family Gekkonidae
Ptychozoon Kuhl, 1824: 82 (ref. 45)

Family Scincidae
Mabuya multifaciata (Kuhl, 1820: 126; ref. 38)

Family Testudinidae
Psammobates oculifera (Kuhl, 1820: 77; ref. 38)

Family Varannidae
Varanus salvator bivittatus (Kuhl, 1820: 125; ref. 38)

Family Viperidae
Calloselasma rhodostoma (Kuhl, 1824: 80, note 4; ref. 45)
Trimeresurus puniceus (Kuhl, 1824: 80, note 3; ref. 45)

AMPHIBIA (Dubois, 1982 & 1992 and International Commission on Zoological Nomenclature, 1994)

Family Megophryidae
Megophrys Kuhl & Hasselt, 1822: 102 (ref. 56)
Megophrys montana Kuhl & Hasselt, 1822: 102 (ref. 56)

Family Ranidae
Occidozyga Kuhl & Hasselt, 1822: 103 (ref. 56)

Family Rhacophoridae
Rhacophorus Kuhl & Hasselt, 1822: 104 (ref. 56)

PISCES (http://www.itis.usda.gov.; Kottelat, 1987; Nelson, 2006; Parin, 1966; Roberts, 1993)

Family Balitoridae
Homaloptera Hasselt, 1823: 133 (ref. 8)

Family Belonidae
Strongylura Hasselt, 1824: 374 (ref. 19)
Strongylura strongylura (Hasselt, 1823: 374; ref. 8)

Family Cobitidae
Acantopsis Hasselt, 1823: 133 (ref. 8)
Acantopsis dialuzona Hasselt, 1823: 133 (ref. 8)

Family Cyprinidae
Crossocheilus Kuhl & Hasselt *in* Hasselt, 1823: 132 (ref. 8)
Crossocheilus oblongus Kuhl & Hasselt *in* Hasselt, 1823: 132 (ref. 8)
Hampala Kuhl & Hasselt *in* Hasselt, 1823: 132 (ref. 8)
Hampala macrolepidota Kuhl & Hasselt *in* Hasselt, 1823: 132 (ref. 8)
Labiobarbus Hasselt, 1823: 132 (ref. 8)
Oxygaster Hasselt, 1823: 133 (ref. 8)
Oxygaster anomalura Hasselt, 1823: 133 (ref. 8)

Family Dasyatidae
Gymnura Hasselt, 1823: 316 (ref. 6)

Family Eugraulidae
Stolephorus indicus (Hasselt, 1823: 329; ref. 6)

Family Hemiramphidae
Dermogenys Kuhl & Hasselt *in* Hasselt, 1823: 131 (ref. 8)
Dermogenys pusilla Kuhl & Hasselt *in* Hasselt, 1823: 131 (ref. 8)
Euleptorhamphus viridis (Hasselt, 1824: 374; ref. 20)

Family Myliobatidae
Aetobatus ocellatus (Kuhl *in* Hasselt, 1823: 316: ref. 6)

CEPHALOPODA (http://data.acnatsci.org)

Family Sepiidae
Sepia inermis Hasselt, 1835 *in* Férussac and D'Orbigny, 1834-1848: 286
Sepiella (Acanthosepion) aculeata (Hasselt, 1835) *in* Férussac and D'Orbigny, 1834-1848: 287)

GASTROPODA

Family Aeolidiidae
Aeolidia macrabranchia Hasselt, 1824: 24 (ref. 13)

Family Arminidae
Dermatobranchus Hasselt, 1824: 37 (ref. 13)
Dermatobranchus gonatophorus Hasselt, 1824: 38 (ref. 13)
Dermatobranchus pustulosus Hasselt, 1824: 38 (ref. 13)
Dermatobranchus striatus Hasselt, 1824: 38 (ref. 13)

Family Chromodorididae
Ceratosoma sinuata (Hasselt, 1824: 23; ref. 13)
Chromodoris lineolata (Hasselt, 1824: 22; ref. 13)

Family Discodorididae
Asteronotus cespitosus (Hasselt, 1824: 22; ref. 13)

Family Dorididae
Doris alba Hasselt, 1824: 22 (ref. 13)
Doris javanica Hasselt, 1824: 21 (ref. 13)
Doris lineolata Hasselt, 1824: 22 (ref. 13)
Doris punctulata Hasselt, 1824: 22 (ref. 13)
Doris radiata Hasselt, 1824: 21 (ref. 13)

Family Elysiidae
Placobranchus Hasselt, 1824: 34 (ref. 13)
Placobranchus ocellatus Hasselt, 1824: 35 (ref. 13)

Family Phyllidiidae
Phyllidiella nigra (Hasselt, 1824: 54; ref. 13)

Family *incertae cedis*
Abranchus Hasselt, 1824: 36 (ref. 15)
Abranchus glaucoleucus Hasselt, 1824: 37 (ref. 15)

Family *incertae cedis*
Eolidia alba Hasselt, 1824: 23 (ref. 13)
Eolidia leuconotus Hasselt, 1823: 231 (ref. 9)

Numerous animal taxa were named in honour of Kuhl and Van Hasselt as listed below, although the list should not presumed to be exhaustive. As to eponymous plant names the most endearing has to be mentioned here, viz. *Kuhlhasseltia* J.J.Smith, 1910, that unites the inseparable friends in the name of a genus of Orchidaceae. It must be noted that not all taxa found in literature bearing the name *hasseltii* were named in commemoration of Johan Conrad van Hasselt. A distant relative of the Groningen branch of the Van Hasselt family, viz. Arent Ludolf van Hasselt (1848-1909) was also active in the Dutch East Indies, viz. leading the Central Sumatra Expedition from 1877 till 1879 and collecting zoological and botanical specimens (Wijnaendts van Resandt, 1963; Fransen et al, 1997: 239 and 262). A species named after him is, e.g. *Rafflesia hasseltii* Suringar (Backer, 1936: 255) and there may be others. To complicate matters further a second, unrelated namesake has to be mentioned. Alexander Willem Michiel van Hasselt (1814-1902), a toxicologist, who eventually became a major-general and head of the Royal Army Medical Corps, was also an ardent araneologist and president of the Dutch Entomological Society from 1880-1889. In this capacity he published more than 100 articles on spiders, including, curiously, his study of the spiders collected during the Central Sumatra Expedition (Sirks, 1915; Kreek, 2000). A spider named after him is, e.g. *Lastrodectus hasseltii* Thorell, 1870.

MAMMALIA

Family Cebidae
Callithrix kuhlii Coimbra-Filho, 1985

Family Cervidae
Axis kuhlii (Temminck, 1836)

Family Sciuridae
Sciurillus pusillus kuhlii (Gray, 1867)

Family Vespertilionidae
Myotis hasseltii (Temminck, 1840)
Pipistrellus kuhlii (Kuhl, 1817: 55; ref. 33) Ironically Kuhl himself has to be regarded the author of the first eponymous name, although it was unintentional.
Scotophilus kuhlii Leach, 1821

AVES

Family Accipitridae
Leucopternis kuhli Bonaparte, 1850

Family Cacatuidae
Eolophus roseicapillus kuhli (Mathews, 1912)

Family Procellariidae
Calonectris diomedea (Scopoli, 1769), no eponymous Latin name; however, this species is known by the vernacular name "Kuhl's pijlstormvogel" in The Netherlands, "Kuhl's Skrape" in Danmark and "Kuhl's Lira" in Sweden, but as "Cory's shearwater" in the rest of the world (Eigenhuis, 2004 and Mearns & Mearns, 1992: 155-159). The reason for this is that the North American millionaire and ornithologist Charles B. Cory (Mearns & Mearns, 1988: 119 – 123) described the still valid subspecies *Calonectris diomeda borealis* in 1881, whereas Friedrich Boie, brother of Heinrich Boie (note 16) described a species in 1835 as *Puffinus kuhli*, that proved to be a synonym of *C. diomedea*. The vernacular name stuck, however, just as it did in case of Wilson's storm-petrel. Apparently unaware of the ornithological activities if not the very existence of Friederich Boie, Eigenhuis (2004: 313) re-allocated the date of publication of the name *Puffinus kuhli* to accommodate it to the lifetime of Heinrich!

Family Psittacidae
Vini kuhlii (Vigors, 1824)

REPTILIA

Family Agamidae
Gonocephalus kuhlii (Schlegel, 1848)

Family Gekkonidae
Ptychozoon kuhli Stejneger, 1902 (fig. 15)

Figure 15. Ptychozoon kuhli, *Kuhl's flying gecko, in flight. Note the extended patagia on both sides of the body as well as the extended webbed feet to provide lift.*

Figure 16. Leptobrachium hasseltii, *Hasselt's Litter frog, an eerie-looking Litter frog from the East Indies*.

AMPHIBIA

Family Megophryidae
Leptobrachium hasseltii Tschudi, 1838 (fig. 16)

Family Ranidae
Limnonectes kuhlii (Tschudi, 1838)

PISCES

Family Belontiidae
Belontia hasselti (Cuvier in Cuvier & Valenciennes, 1831)

Family Cobitidae
Lepidocephalichthys hasselti (Valenciennes in Cuvier & Valenciennes, 1846)
Pangio kuhlii (Valenciennes in Cuvier & Valenciennes, 1846)

Family Cyprinidae
Osteochilus hasseltii (Valenciennes in Cuvier & Valenciennes, 1842)

Family Dasyatidae
Dasyatis kuhlii (Müller & Henle, 1841)

Family Gobiidae
Callogobius hasseltii (Bleeker, 1851)
Gobius kuhlii Bleeker, 1851
Sicyopteris hasseltii Bleeker, 1851

Family Haemulidae
Parakuhlia Pellegrin, 1913

Family Hemiscylliidae
Chiloscyllium hasseltii Bleeker, 1852

Family Kuhliidae
Kuhlia Gill, 1861

Family Mobulidae
Mobula kuhlii (Müller & Henle, 1841)

Family Scorpaenidae
Pontinus kuhlii (T.E. Bowdich, 1825)

Family Siluridae
Silurichthys hasseltii Bleeker, 1858

ARACHNIDA

Family Araneidae
Gasteracantha hasseltii Koch, 1838
Gasteracantha kuhlii (Koch, 1838)

CTENOPHORA

Family Euramphaeidae
*Euramphaea kuhlii (*Eschscholtz, 1829)

Appendix B: Synopsis of the nomenclatural status of the herpetological names created by Heinrich Kuhl and Johan Conrad van Hasselt in the published letters from Java

This list includes all new generic and specific names proposed by Kuhl and Van Hasselt (either alone or together) in the nine published letters concerning amphibians and reptiles of Java (numbers 7, 9, 17, 18, 19, 45, 48, 56 and 57 of the Bibliography). The names are presented in alphabetical order, valid names are in bold type, invalid names (nomina nuda, errors, unjustified emendations etc) or junior synonyms in normal type. Each name is followed by the author(s) (or in case of an erroneous spelling by the person to whom it can be attributed), date of publication, number of publication in the Bibliography in parentheses, the page number of its description or occurrence, and subsequent references. Valid generic names are, moreover, followed by the current family placement in parentheses, the type species indication and relevant references. Valid specific names are followed by the current genus placement in parentheses, the type indication and relevant references. Invalid names (or junior synonym) are followed by the valid name (or senior synonym) in parentheses. Erroneous spellings (lapsi, incorrect spelling, unjustified emendation) are followed by the correct spelling.

Amphibia

Hyla aurifasciata Kuhl & Van Hasselt, 1822 (56): 104; 1822 (57): 475; Kuhl, 1824 (48): 371. – Nomen nudum.

Hyla chalconotos Kuhl & Van Hasselt, 1822 (57): 476; Kuhl, 1824 (48): 371 – Error of *Hyla chaleonotus* Kuhl & Van Hasselt, 1822 (56): 104.

Hyla chaleonotus Kuhl & Van Hasselt, 1822 (56): 104. – Nomen nudum; Brongersma, 1942: 342; note indicated that *chaleonotus* is a misprint for *chalconotus*. This may very well be the case, but *chaleonotus* was published first and has priority.

Megophrys Kuhl & Van Hasselt, 1822 (56): 102, 104; 1822 (57): 475; Kuhl, 1824 (45): 83; 1824 (48): 371. – (Megophryidae). Type species (by monotypy): *Megophrys montana* Kuhl & Van Hasselt, 1822. See Dubois, 1982: 267; 1992: 213 and ICZN, 1994: 84 (Opinion 1763).

Mogophrys (recte ***Megophrys***) ***montana*** Kuhl & Van Hasselt, 1822 (56): 102; Kuhl, 1824 (45): 83; Kuhl, 1824 (48): 371. – The name *montana* was selected by Gravenhorst (1829:

47), the first reviser, as the valid one. Syntypes: RMNH, Leiden 2212 (4 syntypes). Type locality: Java, Indonesia. See Dubois, 1982: 268; 1992: 213 and ICZN, 1994: 84 (Opinion 1763).

Megophrys monticola Kuhl & Van Hasselt, 1822 (56): 104; 1822 (57): 475. – Incorrect original spelling of *Megophrys montana* Kuhl & Van Hasselt, 1822; see Dubois, 1982: 265; 1992: 213 and ICZN,1994: 84 (Opinion 1763).

Mogophrys Kuhl & Van Hasselt, 1822 (56): 102. – Error of *Megophrys* Kuhl & Van Hasselt, 1822; see Dubois, 1982: 264 & 1992: 213.

Occidozyga Kuhl & Van Hasselt, 1822 (56): 103; Kuhl, 1824 (45): 83. – (Ranidae). Type species: *Rana lima* Gravenhorst, 1829 (= *Occidozyga lima*), by subsequent designation of Stejneger (1925: 33); see Dubois, 1982: 270.

Ooeidozyga Kuhl & Van Hasselt, 1822 (48): 475. – Incorrect subsequent spelling for *Occidozyga* Kuhl & Van Hasselt, 1822; see Dubois, 1982: 269.

Rana cruentata Kuhl, 1824 (48): 371. – Nomen nudum.

Rhacophorus Kuhl & Van Hasselt, 1822 (56): 104; 1822 (57); 476; Kuhl 1824 (48): 371. – (Rhacophoridae). Type species (by monotypy): *Rhacophorus moschatus* Kuhl & Van Hasselt, 1822 (Nomen oblitum, fide Ohler & Dubois, 2006: 125) = *Hyla reinwardtii* Schlegel, 1840 = *Rhacophorus reinwardtii* (Nomen protectum, fide Ohler & Dubois, 2006); see Dubois, 1982; Brongersma (1942).

Rhacophorus reinwardti Kuhl & Van Hasselt, 1822 (56): 104. – Nomen nudum.

Rhacophorus reinwardtii Kuhl, 1824 (48): 371. – Error of *R. reinwardti* Kuhl & Van Hasselt, 1822 (56): 104.

Rhacophorus rheinwarti Kuhl & Van Hasselt, 1822 (57): 476. – Error of *R. reinwardti* Kuhl & Van Hasselt, 1822 (56): 104.

Rhacophorus moschata Kuhl & Van Hasselt, 1822 (56): 104; 1822 (57): 476; Kuhl, 1824 (48): 371. – Nomen oblitum, fide Ohler & Dubois, 2006: 125. Types: not indicated; = *Rhacophorus reinwardtii* Schlegel, 1844: 105; nomen protectum, fide Ohler & Dubois, 2006: 125; syn.: Brongersma, 1942). Lectotype: RMNH 6517A. Type locality: Java, Indonesia.

Reptilia

Amphicephalus Van Hasselt, 1824 (17): 371. – Error or emendation of *Amplycephalus* Kuhl & Van Hasselt, 1822; see Williams & Wallach, 1989: 7.

Amplycephalus Kuhl & Van Hasselt, 1822 (56): 101; Kuhl & Van Hasselt, 1822 (57): 474; Kuhl & Van Hasselt *in* Hasselt, 1823 (7): 360; Kuhl, 1824 (45): 81. – (*Pareas*) Type species: *Amplycephalus carinatus* (Schlegel, 1837) by subsequent designation, see Amaral, 1923: 95. Rejected/invalid name, Smith, 1968, ICZN,1971; Opinion 963; Williams & Wallach, 1989: 8.

Brachyura Kuhl & Van Hasselt, 1822 (56): 101; 1822 (57): 473; Kuhl, 1824 (45): 81. (*Atractus*). – Type species: *Coluber brachyurus* Kuhl, 1820: 89 (= *Atractus trilineatus* Wagler, 1828) by original designation; see Hoogmoed, 1982: 135 and Williams & Wallach, 1989: 21. Incidentally Williams & Wallach (1989: 21) also indicate: "*Brachyra* (error = *Brachyura*), Kuhl and van Hasselt, 1822 (56):101". I could not find this error on the page indicated, so this reference constitutes an error itself.

Bungarus ferrumequinum Kuhl & Van Hasselt, 1822 (56): 100; Kuhl, 1824 (45): 80. – Nomen nudum.

Craspedocephalus Kuhl & Van Hasselt, 1822 (56): 100; Kuhl & Van Hasselt, 1822 (57): 473; Kuhl, 1824 (45): 80. – (*Trimeresurus*) Type species: "*Trigonocephalus puniceus* Reinw." (= *Trimeresurus puniceus* Kuhl, 1824) by original designation, see Kuhl, 1824 (45): 80, note 3; McDiarmid et al., 1999: 328; Williams & Wallach, 1989: 38.

Gonodactyles Kuhl, 1824 (45): 82. – Error of *Gonydactylus* Kuhl & Van Hasselt, 1822.

Gonydactylus Kuhl & Van Hasselt, 1822 (56): 102; 1822 (57): 475. – Nomen nudum; see Mees, 1987.

Homalopsis Kuhl & Van Hasselt, 1822 (56): 101; Kuhl & Van Hasselt, 1822 (57): 474; Kuhl, 1824 (45): 81. – (Colubridae). Type species (by original designation): *Coluber horridus* Daudin (= *Coluber buccatus* Linnaeus = *Homalopsis buccata*); see Williams & Wallach, 1989: 73.

Psychozoon Van Hasselt, 1824 (17): 372. – Error or unjustified emendation of *Ptychozoon* Kuhl, 1824 (45): 82; see Klaver, 2007.

Psyxotoon Van Hasselt, 1823 (7): 361. – Nomen nudum; see Klaver, 2007.

Ptychozoon Kuhl & Van Hasselt, 1822 (57): 475. – Nomen nudum; see Klaver, 2007.

Ptychozoon Kuhl, 1824 (45): 82. – (Gekkonidae). Type species (by original designation): *Lacerta homalocephala* Creveld, 1809 = *Ptychozoon kuhli* Stejneger, 1902; see Klaver, 2007.

Ptyxozoon Kuhl & Van Hasselt, 1822 (56): 102. – Nomen nudum; see Klaver, 2007.

Topinctus Kuhl & Van Hasselt *in* Hasselt, 1823 (7): 360. – Nomen nudum.

Trigonocephalus puniceus Kuhl, 1824 (45): 80, note 3 (*Trimeresurus puniceus*); Types: not indicated. Type locality: Java, Indonesia;see McDiarmid et al., 1999: 342.

Trigonocephalus rhodostoma Kuhl, 1824 (45): 80, note 4 (*Calloselasma rhodostoma*); Holotype: RMNH 1510. Type locality: Java, Indonesia; see McDiarmid et al., 1999: 273.

Tropinotus Kuhl & Van Hasselt, 1822 (56): 100; Kuhl & Van Hasselt, 1822 (57): 473; Hasselt, 1824 (17): 371; Kuhl, 1824 (45): 81; Kuhl, 1824 (48): 371. – Nomen nudum.

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Correction

1 Stefan Radt (see Acknowledgement, page 96) kindly drew my attention to a blunder on my part. It concerns the legend of figure 10 (page 18) and note 28, lines 8-10 (page 49). I read in agreement with the German text: “ab Sept. 1821 in Insula Java, Ind. Orient.” and translated it to “from Sept. 1821 in the island Java, East Indies”. Stefan explained to me not only the parenthesis and the aphorism to be in a different handwriting, presumably that of Willmet, but that “ab” in fact reads “ob” for “obiit” meaning “has died” in Latin. Apart from my lack of knowledge of Latin I knew Kuhl died September 1821 (see note 3, page 35) yet I still failed to appreciate the relevance of this date.

Additional references

1. An English version of reference 41 of the Bibliography (page 60) was published as: Kuhl, H., 1826 On the vegetable production of the island of Madeira. – *The Edinburgh journal of science* **IV**: 119-124.

2 A short obituary notice was published by:
Lesson, R.P., 1827 Notice nécrologique sur Henri Kuhl – *Bulletin des sciences naturelles et de geologie* **12**: 301-302.

3 Cuvier noted the involvement of the Dutch government to stimulate the scientific research in Java and the posting of Kuhl and Van Hasselt there (page 359). He also noted the demise of Kuhl (page 356):
Cuvier, G. 1828 Discourse sur l’état de l’histoire naturelle, et sur ses accroissement. - *Histoire de progres des sciences naturelle* **4**: 347-372.

.4 Van Swinderen’s (1823b) Vita Henrici Kuhlii (page 76) was also published in an English version in Scotland and the U.S.A.
Anonymous, 1826 Biographical memoir of the late Henry Kühl [sic] M.D. Doctor of Natural History, etc, etc. – *The Edinburgh new philosophical journal* **1**: 1-22. and
Anonymous, 1826 Biographical memoir of the late Henry Kühl [sic], Doctor of Natural History. – *The Boston journal of philosophy and arts* **3**: 501-520.

5 Three recently published articles in German are:
Hildenhagen, T., 2010 Das kurze Leben des Dr.h.c.Heinrich Kuhl (1797-1821) und seine herpetologischen Beiträge – *Sekretär* **10**: 40-59.
Hildenhagen, T. & J. Hallermann, 2010 Die von Kuhl (1797-1821) beschriebenen und nach ihm benennten Amphibien- und Reptilien-Taxa. – *Sekretär* **10**: 59-62.
Hildenhagen, T., 2013 Heinrich Kuhl. – Das Leben eines fast vergessenen Naturforscher aus Hanau. – *Neues Magazin für Hanauische Geschichte* **2013**: 110-214.

Heinrich Kuhl (1797-1821) and Johan Conrad van Hasselt (1797-1823) studied natural history and medicine respectively at the University of Groningen, The Netherlands from 1816 till 1820. During their studies they travelled widely through Europe, and met with famous scientists of the day in Germany, England and France. Due to their extraordinary qualities they were, in 1820, appointed by the Dutch government as the first delegates of the newly founded Commission for the Study of the Natural Sciences of the Netherlands East Indies to study the natural history of that region. Unfortunately their promising lives were cut short by their premature death.

This biography describes their lives, their considerable accomplishments in Europe and the Dutch East Indies, and their place in the scientific community at the time, especially in zoological systematics. The results of their systematic studies are shown to be still relevant to present-day science.

Charles Klaver studied biology and library management at the University of Amsterdam and graduated in 1976. He published on herpetological subjects, especially on the systematics of chameleons. Since 1981 he is employed by the University of Groningen as assistant to the Librarian.

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