

# Has one of Captain Cook's possums landed in Leiden? The possible holotype of *Pseudocheirus peregrinus* (Boddaert, 1785)

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The identity of an old female specimen of *Pseudocheirus peregrinus* (Boddaert, 1785) in the National Museum of Natural History, Leiden, is discussed and the early descriptions and nomenclatural history of the species are reviewed. The assumption by Temminck (1824) and Jentink (1888) that the animal originated from one of Cook's expeditions is extensively considered, since in that case it would be the holotype of *Didelphis peregrinus* Boddaert, 1785 and of some objective synonyms. The documentation of the specimen is insufficient to draw a definitive conclusion. However, the damage to the facial skin of the animal collected at Endeavour River in 1770 mentioned by Pennant (1781) would agree with the state of the Leiden specimen, which must have been badly damaged in the face, with the repairs clearly visible though well concealed. Therefore, the animals may indeed be identical.

## Introduction

The fate of some specimens in old collections is that they are forgotten by many researchers, and old catalogues tend to be overlooked. In the late 19th century, the mammal collection of the National Museum of Natural History (Rijksmuseum van Natuurlijke Historie: RMNH) in Leiden was painstakingly catalogued by F.A. Jentink (1844-1913). Jentink had obtained his doctoral thesis on a malacological theme in 1875, but in the same year was appointed curator of vertebrates of the Leiden Museum, under the directorate of Hermann Schlegel (1804-1884), whom he succeeded as the museum's director in 1884. Through his zeal and perseverance (see his courageous plea in 1892!), a new building for the collections, offices and laboratories was erected, though unfortunately, his plans for an exhibition wing (see Jentink, 1905) never materialized. For further details on Jentink's career and particularly his achievements during his directorate, see Gijzen (1938) and Holthuis (1995), both books published in Dutch.

Jentink's three catalogues of the Leiden mammal collection appeared in 1887, 1888 and 1892. The first volume contains the skeletal material, the other two the skins. Although Jentink's system of registration, with the complicated use of letters instead of catalogue numbers, has proved extremely impractical, his documentation on the whole is accurate and his catalogues are an invaluable source of information for those who want to consult the museum's 19th-century mammal collection. One of their great values is the fact that type specimens are clearly indicated as such. However, despite Jentink's careful work, several types were overlooked, whereas other specimens were erroneously classified as such.

### An enigmatic possum in Leiden

Previous to his catalogues, Jentink (1884, 1885) had published two papers on Australasian possums or “phalangers”, among which some representatives of the genus *Pseudocheirus* Ogilby, 1837 (in those days generally spelled *Pseudochirus*), now placed in the family Pseudocheiridae. In his 1884 publication, Jentink synonymized *Pseudoch(e)irus viverrina* (Ogilby, 1837) from Van Diemen's Land (the present Tasmania) and *Ps. laniginosus* Gould, 1863 (spelled *lanuginosus* and in fact, already published in 1858) from the mainland with *Ps. cookii* (Desmarest, 1818), also described from Van Diemen's Land. In his 1885 paper, he discussed this species further under the name *Pseudochirus caudivolvulus* (Kerr, 1792) and enumerated the specimens then present in the Leiden Museum. His no. 9 is of particular interest. In Jentink's 1888 catalogue, it is specified on p. 239 as *Pseudochirus caudivolvulus* Kerr specimen *i*, with the following details: “Femelle adulte montée. Australie, Endeavour-river. Du voyage de M. [= Monsieur] Cook, 1770. Jentink, N° 9.” The skull is not extracted. Its present catalogue number is RMNH 33660; see figs 1-3.

Is this really the possum collected during Cook's first expedition? If so, it would be of considerable interest. In the following, we will try and reconstruct the history of this specimen, as far as possible. To start with, it bears four sets of annotations; see figs 4-6:



Fig. 1. The Leiden possum *Pseudocheirus peregrinus* RMNH 33660 (Jentink's catalogue *i*), assumed to have been collected by Joseph Banks at Endeavour River, Australia, on 26 July 1770, and therewith the possible holotype of *Didelphis peregrinus* Boddaert, 1785.



Fig. 2. Detail of the head, left side.



Fig. 3. Detail of the head, right side, showing the repairs.



- (1) The oldest inscription on the pedestal of the mounted skin is in Temminck's handwriting (fig. 4):  
 "Phalangista Cookii ♀ Cuvier  
 Temm Monog p 7 individu type  
 Le Banksii d'Ogilby et le Cookii de Gray  
 Australie méridionale"
- (2) In addition, there is a label, written in another hand but in Temminck's days and copying the above data, though leaving out the words "individu type" (fig. 5):  
 "Phalangista Cookii Cuv  
 Temm monog. pl. [sic] 7.  
 Phalangista Bankii [sic] Ogilby  
 " Cookii Gray.  
 Fem.  
 Australie Merid:"  
 In pencil, the name "lanuginosa [sic] Gould" has been added, probably by Jentink.
- (3) The pedestal also bears a later inscription in Jentink's handwriting, written in between Temminck's lines (fig. 4):  
 "Pseudochirus cookii  
 Cat. N<sup>o</sup>. 9.  
 Janvier 1877? [sic]  
 Voyage du Captn. Cook.  
 Zuidpunt van [= Southern tip of; this is a later addition in smaller handwriting, probably also by Jentink] v. Diemensland"

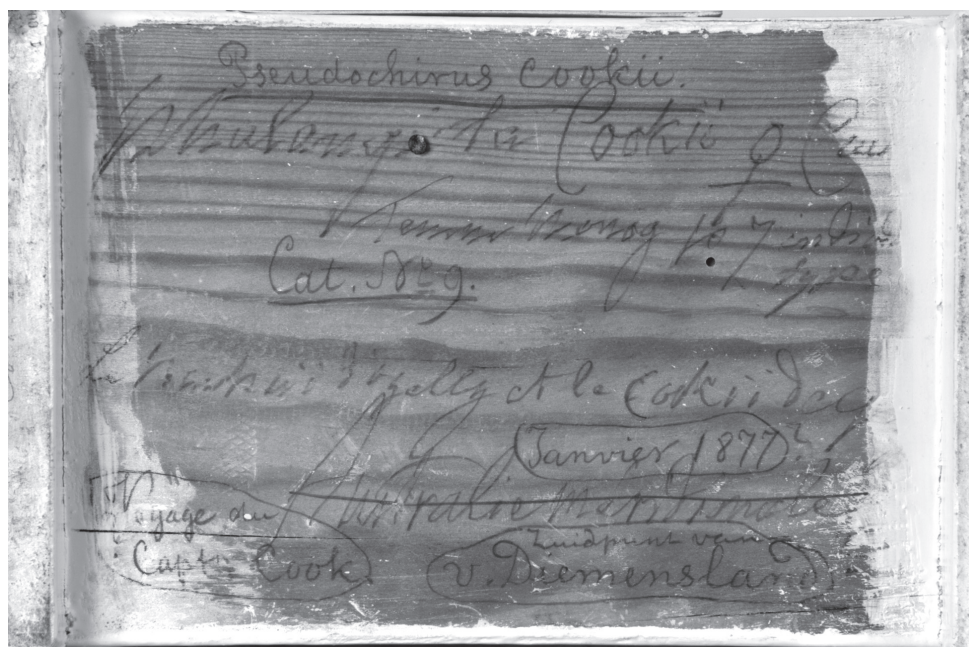


Fig. 4. The inscriptions on the pedestal of the specimen, in Temminck's and Jentink's handwritings.

- (4) Finally, there is a later label, also written in Jentink's days (but not in his handwriting), which expresses doubt (fig. 6):
- "Pseudochirus cookii
- ♀
- Cat. N<sup>o</sup>. 9. [In the upper left corner, Jentink's catalogue letter i is written in pencil.]
- Australie?
- Van Diemen's Land?"

In his rough inscription on the pedestal, and on the neatly but inaccurately written older label, Temminck refers to three publications. The relevant chapter in his own *Monographies de Mammalogie* was published in 1824, the papers by Ogilby and Gray in 1838. The inscription therefore cannot have been written before that year. Temminck interchanged the authors to whom he referred: the name *Phalangista banksii* was given by Gray, *Ph. cookii* in the concept meant here, was extensively discussed by Ogilby; see below.

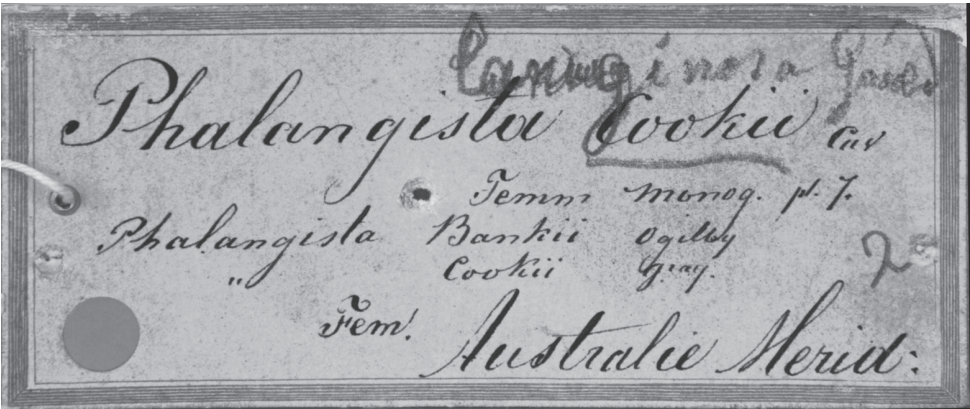


Fig. 5. The label from Temminck's days, written in or after 1838.

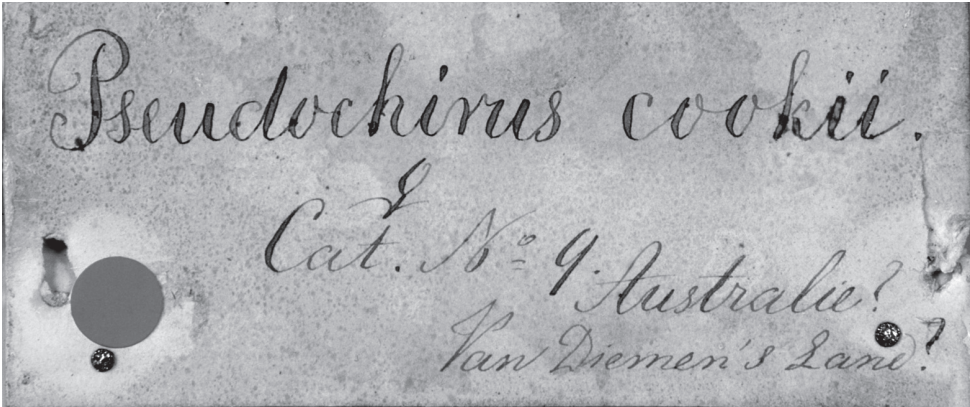


Fig. 6. The label from Jentink's days.

### The possums found during Cook's voyages

Before we discuss the possible origin of this specimen, the details on the possums collected and seen during Cook's expeditions will be given, quoted from the published travel accounts.

Cook's first voyage, with the "Endeavour", lasted from August 1768 to June 1771. An extensive narrative of this expedition was published by Hawkesworth in 1773. In June 1770, the "Endeavour" hit a reef (since called Endeavour Reef) off the present Queensland in NE Australia. After a very narrow escape she was pulled ashore for repairs on 14 June, at the mouth of a river named Endeavour river by Cook, where the present Cooktown is situated. From here, the expedition departed again on 3 August. In the meantime, the countryside was explored and collections were made by the botanists Joseph Banks and Daniel Solander. In vol. III (p. 182) of Hawkesworth's account, it says (italics by the editor): "Thursday 26. [July 1770]: "As Mr. Banks was again gleaning the country for his Natural History on the 26th, he had the good fortune to take an animal of the *Opossum* tribe: it was a female, and with it he took two young ones: it was found much to resemble the remarkable animal of the kind, which Mons. de Buffon has described in his Natural History by the name of *Phalanger*, but it was not the same. Mons. Buffon supposes this tribe to be peculiar to America, but in this he is certainly mistaken; and probably, as Pallas has observed in his Zoology, the *Phalanger* itself is a native of the East Indies, as the animal which was caught by Mr Banks resembled it in the extraordinary conformation of the feet, in which it differs from animals of every other tribe."

Cook's second expedition, with the "Resolution" and the "Adventure", lasted from July 1772 to July 1775. The two vessels became separated in February 1773 southwest of New Zealand; they rejoined in May in Queen Charlotte Strait (the present Cook Strait), between North and South Island of New Zealand. The "Adventure", under Captain Tobias Furneaux, had strayed to the northwest and passed Van Diemen's Land in March. Here she anchored for five days in what is since called Adventure Bay (see the map in pl. 11 of the travel account), at the SE coast of the island, then thought to be the SE part of the Australian mainland. During this time, the coast was explored. Furneaux's observations are included in the first part of the narrative of this expedition, written by Cook & Forster (the naturalist on board the "Resolution") and published in 1777. On p. 111, Furneaux is quoted (italics by the editor): "As for beasts, we saw but one, which was an *opossum*; but we observed the dung of some, which we judged to be of the deer kind" [probably of large kangaroos]. Apparently, no specimens were collected.

Cook's third and last expedition, with the "Resolution" and the "Discovery", lasted from July 1776 to October 1780. During this voyage, Cook was killed on Hawaii on 14 February 1779, so his journal of the part of the expedition led by him was published posthumously, in 1784. The ships anchored in Adventure Bay in SE Van Diemen's Land from 26 to 30 January 1777, the place where the "Adventure" had been in 1773 (see the map in pl. 5 of the journal). The natural history of the coast was explored by the surgeon and naturalist William Anderson. He is quoted by Cook in the first volume of the narrative on p. 109 (italics by the editor): "1777. January. The only animal of the quadruped kind we got, was a sort of *opossum*, about twice the size of a large rat; and is, most probably, the male of that *species* found at Endeavour River, as mentioned in

Hawkesworth's [sic] Collection of Voyages\*. It is of a dusky colour above, tinged with a brown or rusty cast, and whitish below. About a third of the tail, towards its tip, is white, and bare underneath; by which it probably hangs on the branches of trees, as it climbs these, and lives on berries. Mr Webber's drawing will give a better idea of it than any description." This drawing is published as an engraving (pl. 8 of the journal); the footnote (\*) reads: "Vol. iii. p. 586." [This reference does not correspond with the account by Hawkesworth (1773: 182) quoted above; I have been unable to trace this "Collection of Voyages", which probably is a different edition of Hawkesworth's earlier book].

No details are given on whether or how the two possums were preserved, and into which collection they were eventually deposited.

### The nomenclatural history of Cook's possums

The synonymy and nomenclatural history of the Australian Common Ring-tailed Possum has been treated extensively by McKay (1988: 95-97; 1989: 666-667), in his reviews of Australian Petauridae, in which family the species was arranged at the time. In the following, the history of the names specifically referring to Cook's animals will be discussed in more detail.

#### *Didelphis peregrinus* Boddaert, 1785: Endeavour River

##### *Pennant (1781) and Boddaert (1785)*

The first description of the possum collected during Cook's first expedition in 1770 is by Pennant (1781) who, however, does not use scientific names. On p. 310-311, the species is described under nr 188 (italics by Pennant):

"188. New Holland.

O. [= Opossum] with the upper part of the head, and the back and sides, covered with long, soft, glossy hairs, of a dark cinereous color at the bottoms, and of a rusty brown towards the ends: belly of a dirty white.

Tail taper, covered with short brown hairs, except for four inches and a half of the end, which was white, and naked underneath: toes like the former [= the "Cayenne Opossum"].

The skin I examined had lost part of the face: the length from the head to the tail was thirteen inches: the tail the same.

This was found near *Endeavour* river, on the eastern coast of *New Holland*, with two young ones\*. It lodges in the grass, but is not common."

The footnote (\*) refers to "Cook's voy. iii. 586." [i.e., to Hawkesworth's "Collection of Voyages", see above, not seen; not to Cook's third voyage, during which the animal in Van Diemen's Land was caught, see under *D. cookii* below].

McKay (1988, 1989) erroneously dates Pennant's book from 1783, and states (1989) that this author also figured the animal. However, the opossum in Pennant's pl. XXXIV is of his species nr 181, the Virginian Opossum *Didelphis virginiana* Kerr, 1792.

The first author to give the Australian species a scientific name is Boddaert (1785), who on p. 78, in his paragraph on *Didelphis*, describes it under nr 12 (italics by Boddaert):

"†Peregrinus. 12. D. [= *Didelphis*] cauda longa pilosa, apice nuda corpore supra ferrugineo, subtus albo. Filandre du sud. *New Holland opossum* Penn. *quadr.* 311. n. 188.

Habitat ad *flumen Endeavour*."



From this, it is clear that the name *Didelphis peregrinus* Boddaert, 1785 is based on the female collected by Joseph Banks on 26 July 1770 at Endeavour River, NE Australia, during Cook's first expedition, with Boddaert giving a very brief Latin summary of Pennant's English description, and with both authors emphasizing the white end of the tail. Consequently, that specimen is the holotype of *D. peregrinus*; apparently, the two young were not preserved. Unfortunately, Pennant does not say where he had seen the animal and how it was preserved, except that the skin of its head was damaged (further discussed below).

McKay (1988: 95) remarks on the animal collected by Banks: "Type data: status unknown, whereabouts unknown, from Endeavour River, Qld". In the following year (1989: 666) he expresses his doubts about the provenance of the skin seen by Pennant, stating: "The colour of the animal described by Pennant (1783) [= 1781], however, does not match that of more recent specimens from north Queensland. Rather, his account gives an accurate description of the colour of specimens from around Sydney, New South Wales." And: "Subsequent collections have failed to find any *P. peregrinus* closer than 200 km to Cooktown. The only large phalanger in the immediate vicinity of Endeavour River is *Trichosurus vulpecula*." Be this as it may, it seems virtually impossible that in 1781 Pennant could have seen any Australian possums originating from other sources; and his description, however brief, is undoubtedly of *Pseudocheirus peregrinus*. Naturally, the Leiden specimen will have become bleached with time.

#### *Kerr (1792)*

The next author to describe Cook's possum is Kerr (1792), who essentially gives a translation of Gmelin's "Systema Naturæ", with additions. One of those concerns the present species, which on p. 196 is entered as nr 392 (under *Didelphis* nr 11):

"11. New-Holland Opossum. – *Didelphis caudivolvula*. The tail is taper, hairy and prehensile at the end. Penn. hist. of quad. n. 188. Cook's voy. iii. 586.

Inhabits New-Holland, near Endeavour River. – The head and body are about thirteen inches long, being covered on the upper part and the sides with long, soft, glossy hairs, of a dark cinereous colour at the roots, and rusty brown at the ends; the tail is taper, and of the same length with the head and body; two-thirds of its length is covered with short brown hair, the extremity being white, and naked underneath; the paws are furnished with thumbs having flat nails [incorrect!], and the toes have short claws: This species lodges among the long grass, but is little known."

In addition, Kerr quotes a "description of this animal, or one very nearly allied to it" by Governor Phillip (published in 1789), relating to a live animal brought from New South Wales and in the possession of John Hunter in London. This, however, is clearly of a different and larger species, possibly *Trichosurus vulpecula*, described by Kerr as *Didelphis vulpecula* further in the same work (p. 198, nr 398, *Didelphis* nr 17). Since Kerr himself expressed doubt about the identity of Hunter's animal, Cook's specimen from Endeavour River is also the holotype of *Didelphis caudivolvula* Kerr, 1792.

Kerr's description is largely based on Pennant but is more detailed, so Kerr may have seen the animal himself, though the description of the flat nail on the thumbs is incorrect. Moreover, he does not mention the damaged face, which by then might have been repaired; he too, does not say where the skin was housed. Apparently, Kerr, and later Jentink, had overlooked Boddaert's name, hence Jentink's use of the name *Pseudocheirus caudivolvulus*.



*Bechstein (1800)*

Bechstein (1800) published a German translation of Pennant's work with remarks and additions. On p. 348 he enters the species as nr 223 (*italics by Bechstein*):

"223. Das Neuholländische Beutelthier. (New-Holland O.) *p*)

Der Oberkopf, der Rücken und die Seiten sind mit langen, sanften, glänzenden, im Grunde dunkelaschgrauen und gegen das Ende zu mit rostbraunen Haaren bedeckt; der Bauch ist schmutzig weiß. Der Schwanz ist zugespitzt, mit kurzen braunen Haaren bedeckt, außer vier und einen halben Zoll vor dem Ende, welches weiß und untenher nackt ist; die Zehen sind wie bey dem vorhergehenden, die Haut, welche ich untersuchte, hatte ein Stück vom Gesicht verloren; die Länge vom Kopfe bis zum Schwanze war dreyzehn Zoll; der Schwanz eben so lang <sup>9)</sup>.

Dieß Thier ward nahe bey dem Endeavour-Strom an der westlichen [sic] Küste von Neuholland mit zwey Jungen angetroffen <sup>1)</sup>. Es hält sich im Grase auf, ist aber nicht gemein."

The footnote (*p*) gives the scientific name "*Didelphis Novae Hollandiae*" coined by Bechstein, (*q*) says: "Vielleicht: An other animal of the Opossum kind. *Philipp* [sic] Bot. Bay. 148. – Meyers Zool. Entdeck. S. 14. Nr. 2. B. [= Bechstein]", and (*r*) again: "*Cook's* Voy. III. 586."

Apart from the first two footnotes, this is a literal translation of Pennant's text. Bechstein too, must have overlooked or ignored Boddaert's and Kerr's names. Thus, Cook's specimen from Endeavour River (wrongly located by Bechstein) is also the holotype of *Didelphis novaehollandiae* Bechstein, 1800.

In his review of mammal species on p. 685, Bechstein mentions the species once more under a different number:

"247. Das Neuholländische Beutelthier. D. Novae Hollandiae.

Der Schwanz ist so lang als der Leib, an der weißen Spitze untenher nackt; die Zehen der Vorderfüße und der Daumen der Hinterfüße haben platte Nägel. S. 348."

This final addition seems to have been modified after Kerr with an even worse description of the flat nails, though Bechstein does not adopt the latter's scientific name.

***Phalangista cookii* Desmarest, 1818: Van Diemen's Land (Tasmania),  
and the confusion between Cook's two possums**

*Shaw (1800)*

The first reference in the zoological literature to the animal from Van Diemen's Land caught during Cook's third expedition in 1777, appears to be by Shaw (1800) who, however, on p. 504 merges Pennant's (1781) and Anderson's (in Cook, 1784) descriptions of Cook's two animals, as follows (*italics by Shaw*):

"White-tailed opossum.

New Holland O. *Pennant Quadr.* 2. p. 25.

Opossum. *Hawskew.* [sic] *voy.* 3. p. 586. *Cook's last voy.* 1. p. 108. [sic] *pl.* 4." [sic].

This is described as about twice the size of a rat; and of a rusty brown colour above, whitish beneath: the hair soft and glossy; the tail taper, and nearly the length of the body; it is covered with brown hair to within about four inches and a half at the end, where it is white, bare, and prehensile; the ears are short and rounded, and the face rather long. This species is a native of New Holland, and is described, but not very distinctly, in the voyages above referred to."

Shaw may have quoted an edition of Pennant's work with different pagination. He does not give the species a scientific name.

*Cuvier (1817) and Desmarest (1818, 1820)*

The same applies to Cuvier (1817), who briefly describes the animal from Van Diemen's Land in his chapter on "Phalangers. (*Phalangista*. Cuv.)", paragraph "Les Phalangers (1) proprement dits. (*Balantia*. Illig.)". The footnote (1) refers to the origin of the name *phalanger* and to other names used by various authors. On p. 179, there is a brief entry (italics by Cuvier):

"Le *Phalanger de Cook*. (Cook, dern. Voy., pl. VIII.)

Moindre qu'un chat, gris-roussâtre, blanc dessous, roux aux flancs, un intervalle blanc vers le bout de la queue."

Desmarest (dated 1817, but published 1818) is the author of the scientific name. In his entry on "Phalanger", he writes on p. 476 (italics by Desmarest):

"*Quatrième Espèce*. – Phalanger de Cook, *Phalangista Cookii*, Geoff.; Cook, *Troisième Voyage*, pl. 8.

Cet animal a été d'abord annoncé et figuré par le capitaine Cook, dans son troisième Voyage, comme appartenant à la terre de Van Diémen; les auteurs récents n'en parlent point, à l'exception de M. Cuvier, et de M. Geoffroy, qui le distinguent des autres phalangers."

The reference to Geoffroy probably concerns a manuscript name. Apart from the animal figured in Cook's narrative, Desmarest describes two specimens in the Paris Museum:

"Péron et Lesueur ont rapporté de leur voyage aux Terres australes, deux individus mâles de cette espèce, qui sont conservés dans la collection du Muséum d'Histoire naturelle."

On p. 477 he repeats:

"Le phalanger de Cook paroît particulier à la terre de Van Diémen".

Only one of Lesueur's specimens, collected in 1801, appears still to be present in the Paris Museum. It is mentioned in the type catalogue by De Beaufort (1966: 532-533) and thereby has become the lectotype of *Phalangista cookii* Desmarest, 1818. It is labelled "Australie" and, according to McKay (1988: 95; 1989: 666-667), originates from the surroundings of Sydney (though at the time, Van Diemen's Land was assumed to be part of the Australian mainland). The animal figured in Cook's pl. 8 has thus become a paralectotype of *Ph. cookii*.

In the same chapter, on p. 475, Desmarest wrongly synonymizes *Didelphis peregrinus* Boddaert with the much larger "Phalanger renard, *Phalangista vulpina*, Nob." [= *Didelphis vulpecula* Kerr, 1792]; he does not refer to Kerr's description.

A concise account of *Ph. cookii* is given in Desmarest's later work Mammalogie (1820: 268, species nr 414).

*Schinz (1821)*

Confusion of Cook's two animals really starts with the German edition of Cuvier's work from 1817, amended and extended by Schinz (1821). On p. 258-259, in the paragraph "Eigentliche Phalanger. *Phalangista*. Cuv. *Balantia*. Illig.", two Australian possums are described (italics by Schinz):

"3. Phalanger von Cook. *Phalang. Cookii*.

Kleiner als eine Katze, grauröthlicht, unten weiß, gegen das Ende des Schwanzes weiß, der übrige Theil braun. Ein Fleck hinter dem Ohr weiß, sehr lange schwarze Bartborsten. Die Ohren abgerundet. An der Nordküste von Neuholland.

4. Rollender Phalanger. *Phal. Convolutor*. Schnauze spitzig, lange Schnurrbärte, das Haar lang, dicht, weich, oben grau und braun, unten weiß. So groß als eine Katze, rollt sich im Schläfe in eine Kugel zusammen, beym Fressen aber sitzt es aufrecht. Lebt blos von Pflanzen.

In Neuholland bey der Adventure Bay. Ob hieher gehörig?"

Schinz's description of *Ph. Cookii* clearly constitutes a translation of Cuvier's text, extended with elements from Desmarest's (1818) description of the Paris specimens. He mistakenly situates the type locality on the north coast of New Holland, but McKay's (1988: 95) conclusion that Schinz's name is "*non P. cookii* Desmarest, 1818" is incorrect, as Cuvier's only reference is to Cook's pl. 8, of the animal from Adventure Bay, Van Diemen's Land. His second species, *Phalangista Convolutor*, is enigmatic; according to McKay (1988: 95), this name is based on Oken (1816; not seen, a work that is nomenclaturally unavailable). The description seems to be a mixture of characters of Desmarest's *Ph. cookii* based on the two Paris specimens, and of the larger *Ph. vulpina*. It has nothing to do with Cook's animal from Adventure Bay.

#### Temminck (1824)

Temminck (1824) has added to the confusion. In the first part of his *Monographies de Mammalogie*, he discusses "le genre Phalanger. – *Phalangista*. (Geoff.) (1)"; the footnote (1) refers to the generic name. On p. 7-8 he deals with the "Phalanger de Cook. – *Phalangista cookii*." After the description of that species, he gives the following details (italics by Temminck):

"*Synonymie*. Cette espèce a été découverte par le capitaine Cook, et on la trouve figurée dans le *Troisième voyage de ce navigateur*, pl. 8. C'est le Phalanger de Cook. Cuv. *Reg. anim.*, vol. I, p. 179. *Nouv. Dict. d'hist. nat.*, vol. 25, p. 476. *Encyclop. mam.*, p. 268, esp. 414.

*Patrie*. Elle vit à la Terre-Van-Diemen, pointe méridionale de la Nouvelle-Hollande; elle a aussi été trouvé, par les naturalistes de l'expédition du capitaine Freycinet, dans l'île de Rauwak... On voit dans les galeries du musée des Pays-Bas un sujet adulte, provenant du voyage du capitaine Cook; deux adultes et un jeune font partie du musée de Paris. Les sujets adultes proviennent du voyage de Labillardière; le jeune a été trouvé à l'île de Rauwak par le capitaine Freycinet. Le squelette de l'adulte fait partie du cabinet d'anatomie du Jardin du Roi, à Paris."

Temminck's references are to Cuvier (1817) and Desmarest (1818, 1820), respectively. Strangely, he does not mention the Paris specimens collected by Péron and Lesueur; La Billardière also worked in Van Diemen's Land, and one may wonder whether Temminck might have confounded collectors. The young animal from "Rauwak" (Lawak), a small island off the north coast of Waigeo west of New Guinea where De Freycinet's expedition had anchored, must have been a cuscus *Phalanger* sp.

#### Gray (1838) and Ogilby (1838a, b)

Gray (1838), in a paper on a zoological collection from Van Diemen's Land, separates Cook's two animals nomenclaturally, writing on p. 107:

"... there are two different species confounded under the name of *P.* [= *Phalangista*] *Cookii*, one coming from Van Diemen's Land, which must be called the real *P. Cookii*, as it is the opossum of Van Diemen's Land described by Cook, last Voyage, i. 108, t. 1; from this arises the Phalanger de Cook, Cuv. *Rég. Anim.*, i. 179; *Phalangista Cookii*, Temm. *Monog.*, i. 7. The other, which was found near the Endeavour River, New Holland, may be called *Phalangista Banksii*; it is the New Holland opossum of Pennant (*Quad.*, ii. 25., the Opossum of Hawkesby [sic], *Voy.*, ii. [sic] 586, and probably the *Balan-tia Cookii* of Kuhl. (*Beitr.* 63.) Capt. Cook thought that the Van Diemen's Land animal might be the male of the one discovered by Sir J. Banks in New Holland. Dr. Shaw, in his white-tailed opossum, has partly combined Pennant and Cook's descriptions. Cuvier refers to Cook's plate; and Temminck says that he described a specimen brought home in Capt. Cook's expedition which is now in the Leyden Museum."

Seemingly, Gray quoted from Shaw (1800), giving the latter's pagination for Pennant (25) and Cook (108), but otherwise displaying some sloppiness. (It is noteworthy that the name Hawkesworth has caused trouble to all later authors.) Kuhl's (1820) publication will be discussed below. Gray too, had obviously overlooked Boddaert's and Kerr's names for the animal from Endeavour River, and possibly adopted the name *Balantia banksii* given by Oken (1816; not seen), which is nomenclaturally unavailable; see McKay (1987: 96). The specimen collected by Banks is thus also the holotype of *Phalangista banksii* Gray, 1838.

The subsequent publications by Ogilby (1838a: 131; 1838b: 218-219), who severely attacked Gray and who named the specimens from Van Diemen's Land *Phalanger Viverina*, will not be discussed here in detail, as they hardly apply to the Leiden specimen, except that Temminck has confounded Gray and Ogilby in his notes on its pedestal and label. On incorrect grounds, Ogilby transferred the name *Phalangista cookii* to the animals from mainland Australia without, however, referring to Desmarest (1818, 1820), stating only: "The *P. Cookii* of all writers refers to the continental species, of which there are specimens at Paris, Leyden, Frankfort, &c.;...". See also the remarks by McKay (1988, 1989) referred to above, about the perhaps mixed provenance of Desmarest's type material.

### The possible origin of the Leiden specimen

We now return to the question posed at the beginning of this paper: could the Leiden specimen, the present RMNH 33660, be the animal collected by Banks in 1770 at Endeavour River and thus the holotype of *Didelphis peregrinus* Boddaert, 1785 and its objective synonyms? As we have seen, Pennant (1781) nor any of the other authors indicated where the specimen was housed.

#### *The sale of Bullock's Museum*

Our search starts with 1819. In April-June of that year, the collections of the London Museum of Natural History (the private museum of William Bullock) were publicly auctioned, see the printed sales catalogues of this remarkable event, which lasted 26 days. The museum contained many objects that originated from Cook's expeditions, see Bullock's (1814) "companion" to this museum. Among the potential buyers attending (part of) the auction were C.J. Temminck (1778-1858), then still a private collector, who in 1820 became one of the founders and the first director of 's Rijks Museum van Natuurlijke Historie (RMNH: later spelled "Rijksmuseum") in Leiden. Temminck was accompanied by his assistant H. Kuhl (1797-1821) from Hanau in Germany, who in 1820 went to Java on the first collecting expedition to the Netherlands East Indies; he sadly died there in 1821.

Temminck's copy of the sales catalogue is now in the archives of the Leiden Museum, to where it came by a circuitous way. It was presented to Otto Finsch, then the curator of birds at the museum, by the ornithologist Alfred Newton in Cambridge. In his accompanying letter of 29 March 1899, Newton wrote: "I should therefore be greatly obliged to you if you present this book with my compliments to Dr. Jentink to be preserved for ever among the archives of the Museum, and I told myself fortunate in being



able, by a piece of good luck, to do what I trust may be taken as an acceptable act, and one that I am sure would have been approved by my late good friend J.H. Gurney (senior) who gave me the copy, which he obtained by mere chance at the sale of Temminck's library – finding it in a parcel of miscellaneous papers bought by his Commissioner." (Temminck's private library was not bequeathed to the Museum, but publicly auctioned: see Brill & Van der Hoek, 1858). In his copy of Bullock's catalogue, Temminck had marked the items he bought with a thick line and a T, and noted the price he paid. Two of the entries thus marked are nr 132 and 134 on p. 71, auctioned on 14 May. Nr 132 consisted of a "Common Opossum, and the Murine Opossum" (bought at £ 4.-), nr 134 of a "Murine Opossum, the Brush-tailed ditto, and another" (bought at £ 2-12); to the latter, Temminck has added in the margin: "*Balantia* zzg" [= "zeer goed" (very good?)].

Unfortunately, neither the catalogue nor Bullock's 1814 companion gives a clue to the origin of these possums. Only on p. 126 of the companion, in the paragraph "Opossums (*Didelphis*).", there is an entry (italics by Bullock): "3. *New Holland Opossum*. (D. *Caudivolva*). Has been brought alive to this country, and is a pleasing, cleanly animal." It cannot be deduced to which specimen in the sales catalogue this applied.

During the viewing days, Kuhl studied several mammal specimens that were on display. His descriptions were published the following year, in a paper that included marsupials (Kuhl, 1820). On p. 63 he writes: "Im Bullok'schen [sic] Museum sah ich die 4 bekannten *Phalangisten*." One of these specimens he gives as "*Balantia Cookii* Geoff. Cook dern voy tab. VIII.", followed by a Latin description that matches the Leiden specimen very well (italics by Kuhl): "*Latere superiori cinereobrunescenti, inferiori albido. Extremitatum latere externo et regione oculari rufis; cauda tertia parte apicali alba, pilosa, parte reliqua basali brunescenti magis villosa, apice attenuata. Macula postauriculari albida. Vibrissis longissimis, nigris. Cauda 12 poll., corpore ejusdem longitudinis. Auriculis rotundatis*." Judging from this description and from Temminck's indication "*Balantia*" in the margin of his catalogue, it may be inferred that the third specimen ("another") of lot nr 134 is the present RMNH 33660, though there is no absolute proof.

Unfortunately, Kuhl does not record the animal's sex. His specification "Geoff. Cook dern voy tab. VIII." is clearly a quotation from Desmarest's (1818) naming of the species, not an indication of the provenance of Bullock's specimen. Finally, Kuhl does not state that this particular animal was indeed bought by Temminck.

#### *Temminck's and Jentink's attribution of the Leiden possum*

As we have seen, Temminck (1824: 8) writes: "On voit dans les galeries du musée des Pays-Bas un sujet adulte, provenant du voyage du capitaine Cook;..." Since there was only one specimen of his *Ph. cookii* in the Leiden Museum at the time, this can only be the *female* discussed here, assumed to be the skin described by Kuhl (1820) from Bullock's Museum and acquired by Temminck at the sale. Temminck's notes on its provenance constitute the only source that connects this animal with Cook's expeditions and the collecting locality in southern Australia / Van Diemen's Land. His indication "individu type" on the pedestal - written only in or after 1838 - obviously refers to the name *Pahalangista cookii* (Desmarest, 1818), which is in part based on the *male* figured in Cook's pl. 8 from Van Diemen's Land.

Jentink (1885) had already stumbled over this incongruence of sexes. In his enumeration of the Leiden specimens of *Pseudochirus caudivolvulus* (Kerr, 1792), he therefore expresses his doubts about the provenance of the animal (No. 9), where he writes on p. 23 (italics by Jentink): "9. Adult female, described by Temminck (Mammalogie. I. p. 7). According to the named author this specimen is one from Cook's voyage. Now I find that in Cook's account there is only question of two individuals, viz: a female from Endeavour River (1770) and a male from Van Diemensland (1777). Temminck says that the *female*-specimen in the Leyden Museum is from van Diemensland and from Cook's voyage, meanwhile Cook's *male*-specimen from Van Diemensland was "the only animal of the Quadruped kind they got" [quotation marks by Jentink]. My conclusion therefore is that Temminck's specimen either is from Endeavour River or is not one of the two specimens of Cook's voyage. It is colored like No. 4 [from "Australia", acquired in 1845], except the circle round the eyes which is darker."

However, in his 1888 catalogue of mammals in the Leiden Museum, Jentink appears to have accepted Temminck's attribution to Cook's voyages. But in order to make things match, he had to shift the locality from Van Diemen's Land to Endeavour River, 1770. Despite this, Jentink did not enter this emendation onto the label, which still gives Temminck's supposed provenance from Van Diemen's Land, though adorned with question marks. To make matters worse, the collection date on the pedestal is written as "Janvier 1877?", also with question mark, obviously a lapsus for 1777.

### The Leiden animal's damaged face

There is one final, but very important, point to consider. Pennant (1781: 310), who first described the specimen from Endeavour River, writes: "The skin I examined had lost part of the face:..." At first glance, this would not seem to match the Leiden animal, though the lower lips have shrunk considerably and are far drawn back, exposing the full length of the incisors and part of the gums; and the right corner of the mouth is damaged. But, though superficially the facial skin seems intact, a closer look reveals that the right side of the face must once have been badly damaged, with a piece of the skin missing and the remaining parts sewn together. As a result, the right cheek appears shortened, with the whitish cheek-spot greatly reduced, the vibrissae behind the eye missing, and the fur not lying smooth (figs 2, 3). The skin shows a - well concealed - scar from about the upper insertion of the ear to the lower cheek, and from there forward to about the corner of the mouth. This scar has left a line of irregularly shaped fur, which can even be felt with a finger. It is not known when and where these repairs were made.

### Conclusions

Having considered all this, there can be no definitive answer to our question regarding the origin of the Leiden possum. Documentation is inadequate and the evidence inconclusive. It may be summarized as follows:

Pennant (1781) attributed the animal described by him to Cook's sojourn at Endeavour River. He records that the specimen had lost part of its face. This very well matches the Leiden specimen in which the facial skin has been repaired, though this cannot be

taken as absolute proof of its identity. McKay (1989) casts doubt on the northern origin of Pennant's animal, but it is inconceivable that Pennant could have had before him any other possum than one of the animals brought by Cook.

Bullock's museum companion (1814) and sales catalogue (1819) do not accurately specify or document their specimens and do not refer any of them to Cook's voyages. On the contrary, in 1814 Bullock states that the "New Holland Opossum" in his museum had been brought to England alive, so it seems virtually impossible that this has been one of the two animals from Cook's expeditions.

In this connection, it should be emphasized that many, if not most, early specimens in the Leiden Museum are insufficiently documented. There are at least three birds in the Leiden collection which can be reliably traced to Cook's voyages, and which were obtained at Bullock's auction. However, only two are labelled "Cook" and two "Bullock", with only one giving both provenances.

Kuhl (1820) identifies the animal seen in Bullock's Museum with *Balantia cookii* under reference to pl. 8 (the male) in the account of Cook's last voyage, but does not mention the specimen's sex and does not say that it had been collected during one of Cook's expeditions. Although his description matches the Leiden animal, Kuhl does not state that Temminck had acquired it at the auction. There is no mention of a damaged facial skin.

Temminck (1824) gives the origin of the Leiden specimen as Van Diemen's Land and attributes it to one of Cook's voyages. However, he does not specify its sex, does not mention that he had acquired it at Bullock's sale, nor that it is the animal that Kuhl had seen there and described. His - later - annotations on the pedestal and label do not refer to Cook's voyages either, though the indication "individu type" (of *Ph. cookii*) is in line with his published specification.

Jentink (1885) emphasizes the discrepancy in Temminck's attribution, pointing out that Cook's male possum from Van Diemen's Land could not be the Leiden female. The question marks in his annotations on the pedestal and additional label express his uncertainty. However, in 1888 Jentink apparently had accepted Temminck's (1824) statement that the animal originated from one of Cook's voyages, but in order to make sexes match, had to shift the locality to Endeavour River. He overlooked the fact that in that case it would be the type of *Ph. caudivolvula*, the name used by him.

McKay (1989), while doubting the origin of the animal described by Pennant (1781), see above, writes of the Leiden skin: "A specimen of *P. peregrinus* in the Rijksmuseum van Natuurlijke Historie in Leiden, said by Temminck to be a Cook specimen (Jentink, 1884) [= 1885] and matching Pennant's description (including the damage to the skull [= facial skin], is almost certainly from the Sydney area." This identification needs further corroboration.

Pending further research that would provide additional evidence pro or contra, the possibility that the Leiden specimen RMNH 33660 is indeed the animal from Endeavour River collected by Joseph Banks on 26 July 1770, and hence the holotype of *Pseudocheirus peregrinus* (Boddaert, 1785), is insufficiently documented, but cannot be altogether rejected. The strongest evidence in favour of this would seem the damage to the face of the animal mentioned by Pennant, with such damage so clearly traceable in the Leiden specimen. This coincidence is very remarkable to say the least and, though not forming absolute proof, lends strong support to the assumption that both skins are identical, and that RMNH 33660 is indeed Cook's possum.

### Dedication and acknowledgements

This paper is dedicated to my colleague Dr A.C. (Dolf) van Bruggen, a malacologist who, like Jentink, has always displayed a vivid interest in mammals, though unlike Jentink, he never abandoned his original profession. When I, many years ago, casually told him that the Leiden Museum might have one of Cook's possums, he immediately reacted: "You *must* publish that!" (He may not recall.) Well, it has taken more trouble, time and thinking than I thought there and then, but here it is. Although the paper may seem disappointingly inconclusive, I venture to offer it as a small present on the occasion of Dolf's 80th birthday, relieved to have exhausted the subject as much as I could. This time not something new from ancient Africa, but something old from New Holland.

I like to thank Mr Hein van Grouw, at the time collection manager of birds and mammals in the Leiden Museum, for discussing the well-repaired damage to the animal's face and for checking Cook's birds in the Leiden collection. The photographs were taken by Mr Ronald Pouwer.

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