

William J. Burchell's South African mammal collection, 1810–1815

By JANE PICKERING

Assistant Curator, Zoological Collections,
University Museum,
Parks Road,
Oxford OX1 3PW.

“Perhaps no country in the world can boast of possessing a variety of wild quadrupeds as Southern Africa” (Burchell, 1822: 24).

William John Burchell (1782–1863) travelled 4,500 miles in South Africa between the years 1810 and 1815.¹ He is often described as a botanist (McKay, 1941a; Mastert, 1992: 397) which had been his early training (McKay, 1941a) but he had an “energetic curiosity” in every branch of natural history (McKay, 1943). Whilst in South Africa he made meteorological and astronomical observations as well as being a prolific and painstaking draughtsman. He made substantial collections in anthropology, botany, geology and zoology, noting in the preface to Volume I of his *Travels in the Interior of Southern Africa* (Burchell, 1822) that his collections numbered 63,000 objects.

One of the most significant sections of that collection was the 120 mammal skins, comprising 80 species. It was significant for a number of reasons. Collecting mammals is expensive, time-consuming, difficult and sometimes dangerous. A large mammal collection from the early nineteenth century is a rarity; J.E. Gray of the British Museum noted that Burchell's skins were the first such South African specimens in Britain (f. 27, Gunther, A.E., 1980). The collection also includes several type specimens; Burchell discovered and named the White rhinoceros (*Ceratotherium simum* Burchell, 1817), the Sassaby (*Damaliscus lunatus* Burchell, 1823) and a small wild cat (*Felis nigripes* Burchell, 1824); he named the blue Wildebeest (*Connochaetes taurinus* Burchell, 1823) and distinguished the Zebra to which Gray later gave the name *Asinus burchelli* Gray, 1824.

Sadly, very little of this great collection survives. Specimens are found at The Natural History Museum, London (the remnants of 43 skins donated by Burchell to the Museum in 1817) and at the Oxford University Museum, which received Burchell's personal zoological collections after his death.² This paper aims to document the surviving part of this large collection of mammals, and complements those prepared by Davies and Hull on Burchell's snake and bird collections from South Africa (Davies, 1980; Davies and Hull, 1981; Davies and Hull, 1983). Burchell undertook another major collecting expedition to Brazil from 1825–1830, bringing home (he tells us) much more material overall than from South Africa but far fewer mammals.³ The surviving birds and mammals from this expedition will be the subject of another publication.

COLLECTING MAMMALS

Throughout Burchell's journey both he and his party shot large mammals for food and it was not until November 1811 that a skin of a large mammal, a quagga, was preserved. This necessitated training his servants to skin the animal, as he noted in his *Travels* (Burchell, 1822: 452–3): "This being the first large quadruped of which I had preserved the skin, it was necessary to show my Hottentots in what manner it ought to be cut, so that, if it should hereafter be stuffed, it might appear as little injured as possible, otherwise their mode of going to work would soon have made it useless for this purpose." The skins were sun-dried; subsequently Gray lamented that they were not suitable for stuffing as "the smaller ones instead of being rolled up and packed were lying about the waggon while the larger ones, as the giraffe, were stretched out on the outside of the cover of the wagon" (f. 27, Gunther A.E., 1980). Gray also mentioned that the skin of the giraffe's legs had shrunk. Shrinkage of skins was, and is, a problem; Burchell noted in his manuscript journal⁴ that he measured the skin of the Khaama (the Crescent-horned antelope, *Damaliscus lunatus* Burchell, 1823) "before it shrunk". However, as we shall see later, Burchell complained bitterly about the treatment of his skins at the British Museum so it is possible Gray exaggerated their condition.

Burchell collected most of his mammals in the latter part of his journey.⁵ This was a practical decision given that he was travelling in a small wagon with limited space. However, since Burchell's published account of his South African journey (Burchell, 1822; 1824) closes on 3 August 1812⁶ we have few specific details of his mammal collecting. Of the 43 mammals Burchell donated to the British Museum only three were collected before August 1812 (Burchell, 1825). However, he occasionally mentions his mammals in his letters and also in footnotes to his *Travels* . . . (usually associated with a complaint about the treatment of his collections at the British Museum).

DISPERSAL OF THE MAMMAL COLLECTIONS

When Burchell returned to England there was great interest in his collections.⁷ On his return Burchell was much occupied with horticulture, planting South African species around the family home, Churchfield House in Fulham, London (McKay, 1941c). However, during that time he began to sort out his collection. There is evidence from Burchell's letters to his family that he thought that he might be able to sell the mammals he had collected. He wrote to his mother early on in his trip that⁸

I do not consider myself out of the way of making money, when I think of the value of what I shall be able to obtain in my journey. I have been informed that a skin of the Camelopard which was shot in that country where I am going to, was sold in England for fifteen hundred pounds and though I cannot hope that if I bring one home it will sell for half that sum, yet should I be so fortunate as to discover the Unicorn, which has been supposed to exist in this part of Africa, I have not the least doubt of making five times that sum.

Back in England he mentioned in a letter to his friend Swainson,⁹ "I have remaining by me a collection of 17 skins of large quadrupeds, mostly antelopes, valued by Leadbeater at 80£, and if you would mention this circumstance to any person who would be likely to become a purchaser you would much oblige me".

There is no evidence to suggest Burchell ever considered disposing of any other parts of his collection, except through the exchange of duplicates. It seems that he was interested in amassing collections of birds, insects and plants but that the mammals were more of a sideline, perhaps to publicise his work and raise money. However, a letter to W.J. Hooker in 1835,¹⁰ complaining that he had very little money because of "the consumption of so much of my property by my travels and the disinterested pursuit of science all the rest of my life", suggests he was unsuccessful in the latter regard.

The mammal collections at the British Museum

Burchell donated 43 mammal skins to the British Museum on 30 September 1817. He was extremely upset by the treatment that they received and complained frequently and bitterly in his letters and published works e.g. see Burchell (1822: 138). He wrote to Richard Salisbury in March 1822¹¹ "I am exceptionally vexed at what you tell me respecting my skins" and later on in that year, he¹²

visited the British Museum to make drawings of some of my animals and found eight of them (viz *A. lunatus*; male *A. villosa*, *Canis mesomelas*; Tigerboschkat; the new Duyker; Paala; male *A. oreotragus*; and female Duyker) condemned as unfit for being stuffed (having been left exposed till spoiled by moths) and crammed into an old packing case without any attempt to preserve them by even a bit of camphor . . . I found these skins swarming with live moths and maggots and the hair dropping off . . .

Of these specimens only the frontlet and horns of *A. lunatus* Burchell, 1823, and the skull of *A. villosa* Burchell, 1823, have survived (see Appendix 1). Burchell felt strongly that all his specimens should be displayed; it was customary at the time to display everything (Stearn, 1981: 166) although Gray later condemned this view (Stearn, 1981: 37). At least 11 specimens are known to have been eventually stuffed and displayed in the Museum but not until many years after the donation. Burchell published a list of the mammal skins he had donated to the British Museum (Burchell, 1825), to inform people of his donation and prod the authorities into doing something and this probably had the desired effect. The book *A Visit to the British Museum* (Anon., 1838: 38) mentions that both the Cape Anteater, the Ethiopian Hog and the two giraffes on the Museum staircase landing were donated by Burchell. *The Synopsis of the Contents of the British Museum* in 1838 (British Museum, 1838: 23) mentions that the Gnu (*Antilope gnu* Gmelin, 1788), two specimens of the Dauw (*Equus burchelli* Gray, 1824),¹³ the Caama (*A. bubalis* Pallas, 1767) and the Zebra (*E. zebra* Linnaeus, 1758) which were on display were donated by Burchell. In addition, looking at the surviving material the female specimen of *Antilope villosa* Burchell, 1823, the *A. grisea* Cuvier, 1816, and the *Antilope taurina* Burchell, 1823, were stuffed (see Appendix 1).

Burchell was not the only person to complain about the British Museum at that time. During the early nineteenth century the zoological collections at the British Museum were generally recognised to be in a sad state and were far less extensive than those held in Paris. Many specimens deteriorated as not enough care was taken to ensure their preservation (Miller, 1973: 225). Indeed the collections did not begin to flourish until they came under the care of Gray (Miller, 1973: 227; Stearn, 1981: 166) who joined the Museum in a temporary position in 1824 and became the Keeper of the Department of Zoology in 1840. However the condition of Burchell's mammal

skins, and in particular their suitability for mounting, is the subject of debate. Gray, some 50 years later (f. 27, Gunther A.E., 1980), wrote that "the Museum was quite as much abused for showing such bad specimens as it was for not having more stuffed by those who did not know their state". It should be remembered that Burchell may have been influenced to think particularly badly of the Museum by William Swainson, a good friend from about 1819 (McKay, 1941c) who had failed to get a post as Assistant Keeper in the Natural History Department in 1822 (Stearn, 1981: 163).

It is difficult today to ascertain the true state of the specimens when they were donated. One other published source of information on the collection is that of Griffith's edition of Cuvier's *The Animal Kingdom* (Smith, 1827); the section on "Ruminantia" was written by Charles Hamilton Smith who visited the Museum (and Burchell's private collections) to draw and study Burchell's collections soon after they were donated. He states (4: 250) that Burchell's donation to the British Museum was "magnificent" and in the species description of *Antilope burchelli* Smith, 1827, (4: 263) notes that the animal is given "the name of the traveller, to whose arduous enterprise we are indebted for this and many other subjects of the ruminating order". The work also quotes whole passages from Burchell's *Travels* . . . e.g. in the description of the armadillo and *Equus montanus* Burchell, 1822 and specifically cites that drawings of *Antilope villosa* Burchell, 1823, *A. rufescens* Smith, 1827, *A. fulvorufula* Afzelius 1815, and *A. equina* Geoffroy, 1816, were taken from Burchell's specimens at the British Museum. However, Gray argued (f. 28, Gunther A.E., 1980) that Hamilton Smith "had the habit of drawing animals as if studied from life whether he took it from a few fragments as the head, tail and limbs, from an important skin in a bad state . . . so that his figures must not be taken as representing the state of specimens when he saw them".

Whatever the case it led to an uneasy relationship between Gray and Burchell, and may well have been responsible for Burchell's name being attached to a species of zebra.

The mammal collections at the Oxford University Museum

Burchell had not left any instructions as to where his collections should go after his death¹⁴ and J.D. Hooker advised Burchell's sister, Anna, to send his collections to Oxford¹⁴ (other than botany which went to Kew). However, some Burchell material came to Oxford earlier than that. Burchell knew John and Philip Duncan (successively Keepers of the Ashmolean, 1823–26, 1826–54) very well and visited Oxford at least once or twice a year (McKay, 1941d). A letter from Burchell to John Duncan¹⁵ in 1824 discussed the leopard and Cape ichneumon (Egyptian mongoose) which Burchell was having stuffed at Bullock's and wished to donate to the Ashmolean. Both are mentioned in the 1836 catalogue of the Ashmolean collections (Duncan, 1836) and are presumably the specimens mentioned in R. Gunther (1925: 369) as being donated by Burchell in 1824. Burchell also knew other academics at Oxford including William Buckland (McKay, 1941d).

Given Burchell's many friends in Oxford and the fact that the University awarded him an honorary D.C.L. in 1834 (the only award given to Burchell whilst he was

alive), it is not surprising that both Hooker and Anna Burchell felt Oxford was a suitable home for the collections. However, the donation did not proceed without a hitch. There seems to have been some delay in accepting the collection, leading Hooker to write confidentially to Westwood¹⁶ on 6 May 1865¹⁷ that Miss Burchell was upset by Oxford's lack of response to her offer. On 13 May John Phillips (the Keeper of the University Museum) wrote to Westwood asking him to look at the distribution of Burchell's collection and the expense of it.¹⁸ This may hint as to why Oxford was procrastinating! Most of the Burchell collection left to Oxford came from his Brazilian expedition but two-thirds of the mammalian material was from South Africa.

SURVIVAL OF THE MAMMAL COLLECTION

The surviving mammal collections in The Natural History Museum and Oxford University Museum are listed in Appendix 1 and 2. More specific details about particular specimens follow.

The White Rhinoceros (*Ceratotherium simum* Burchell, 1817)

Burchell first encountered the white rhinoceros at Chue Springs in Bechuanaland on 16 October 1812. Its formal description was published 5 years later (Burchell, 1817). Details of the type locality and the surviving Burchell material of this species were given by Cave (1947; 1962). No skull or skeleton of the white rhinoceros was brought out of Africa, perhaps because of transport problems; the material consisted of teeth, some horns and the horn-bearing epinasal skin. Although two teeth and four horns were donated by Burchell to the Royal College of Surgeons Museum (see Flower, 1884; Cave, 1962), these were destroyed by the bombing of the Museum on the night of 10–11 May 1941. Of the other Burchell rhinoceros material, held in the University Museum, Cave (1962) identified eight molar teeth as the only extant syntypical material and designated a right maxillary second molar tooth (Reference No. 8221) as the lectotype.

Zebras (*Equus* spp.)

The first living zebras were brought to Europe by the Dutch trekkers from southern Africa in the early eighteenth century; the first living quaggas arrived in the 1780s (Rory Browne, Harvard University, pers. comm). They had, by then, been established as a separate species from Linnaeus's *Equus zebra* Linnaeus, 1758. Burchell was the first person to realise that there were in fact two species of zebra under Linnaeus's name, which Burchell termed the "plains zebra" and called *Equus zebra* Linnaeus, 1758, and a new species he called *Equus montanus* Burchell, 1822, the "mountain zebra". Unfortunately for Burchell Linnaeus's name was attached to Burchell's *Equus montanus* Burchell, 1822, as Gray (1825) found after studying Linnaeus's original description of the zebra, causing Gray to remark in the introduction to his revision of the family Equidae, "Having occasion lately to examine most of the species of this family, and being struck with the confusion that exists in the names of the species,

part of which was introduced by Mr Burchell, in his very interesting travels". Gray introduced the genus "*Asinus*" for the asses and zebras, as opposed to *Equus* for the true horses, and renamed Burchell's plains zebra "Burchell's zebra", "*Asinus burchelli*" Gray, 1824,¹⁹ whilst reattaching Linnaeus's *Asinus zebra* Linnaeus, 1758, to Burchell's "mountain zebra". The type of *Asinus burchelli* Gray, 1824, was specimen number 13 (Burchell, 1825), donated by Burchell under the name *Equus zebra* Linnaeus, 1758. This specimen was destroyed or given away (Lyddeker, 1916 5: 22). The only surviving Burchell zebra material at The Natural History Museum is a skin of *E. zebra* Linnaeus, 1758, number 14 (Burchell, 1825), which is the type of *E. montanus* Burchell, 1822. The OUM has two skulls of *E. burchelli* Gray, 1824,²⁰ as well as some hooves and associated phalanges.

There is still controversy as to whether Burchell's zebra and the quagga are separate species, with some authors regarding them as *Equus burchelli* Gray, 1824, and *E. quagga* Boddaert, 1785, (e.g. Bennett, 1980; Grubb, 1993) whilst others consider the two are subspecies of *E. quagga* Boddaert, 1785, (i.e. *E. quagga burchelli* and *E.q.quagga* e.g. Groves, 1985).

The Giraffe (*Giraffa camelopardalis* Linnaeus, 1758)

The giraffe was an animal which inspired such a passionate interest in Europeans that a quotation from Griffith's *Animal Kingdom* is typical (Smith, 1827: 150); "an animal of so extraordinary a form and lofty stature, that even the stuffed spoils, the almost shapeless representative of the living creature, produce upon the eye of the beholder a mixed effect of awe and astonishment". Burchell was not immune to this attitude, noting in his *Travels* . . . (2: 248) that "No person who has read, even the most popular books of natural history, could, I think, behold for the first time, the ground over which he is walking, imprinted with the recent footsteps of a *camelopardalis*, without feeling some strange and peculiar interest at the sight."

Burchell was particularly concerned to collect specimens of the giraffe, possibly from financial motives, as mentioned before. In Burchell's only surviving journal⁴ he notes in his entry for 7 August 1812, "In order to encourage Speelman in being diligent to shoot birds for my collection I have promised him a rix dollar for every dozen skins I preserve: And to whoever shall bring down a *camelopardalis*, any thing of my bartering goods he may choose".

Burchell donated two skins of a giraffe, a male and a female to the British Museum. These two skins were stuffed and displayed on the upper landing of Montagu House and can be seen in the well-known drawing by G. Scharf of the great staircase of Montagu House in 1845. The third, smaller specimen in the picture was presented in 1835. Burchell's male specimen was the largest stuffed specimen which Hamilton-Smith saw whilst preparing Griffith's *Animal Kingdom*, being 17 feet and 6 inches tall. Both skins were eventually destroyed and now only the two skulls are left (see Appendix 1). The OUM has a frontlet and horns of a giraffe specimen as well (see Appendix 2).

CONCLUSION

Burchell was a generalist; he laments to W.J. Hooker that he cannot give up any branch of natural history "although I know it is wrong and can never lead to perfection in any way".²¹ His large collections came to Britain at a time when the ability to collect material had overtaken the ability of scientists to describe the collections (Hugh Torrens, Keele University, pers. comm.). This, coupled with his reluctance to part with any material as he wished to describe it himself,²² meant that the collections were never studied or used to their fullest extent. As Gray noted after a visit to Burchell in the mid-1830s to look at the bird collections (f. 30, Gunther A. E., 1980), "the remains [of the collection] showed that Burchell had collected in the early part of the century many species which were described . . . half a century later".

There seems little doubt that Burchell was not primarily interested in mammals. Unusually for him, he seemed keen to disperse his South African mammal collection and he did not collect many mammals on his trip to South America. He may have been influenced by the general trends of the time; in the early nineteenth century there was a huge interest in collecting and displaying birds and insects (Allen, 1994: 89). Mammals, perhaps because of their relatively drab colours, their comparative rarity in Britain and the inherent difficulties in collecting them, never enjoyed such popular appeal. It is therefore ironic that, for most naturalists, Burchell is remembered primarily for his involvement with two mammal species, the White rhinoceros and Burchell's zebra.

ACKNOWLEDGEMENTS

I would particularly like to thank Paula Jenkins, Richard Sabin and others in the Mammal Section at The Natural History Museum for all their help and allowing access to the specimens in their care. Also my thanks to Gina Douglas, Linnean Society Library, Cheryl Piggott, Kew Archives, and particularly Stella Brecknell, Hope Library for all their help. Finally I would like to thank John Clark and Chris Norris for helpful discussions.

NOTES

¹ For more details of his itinerary see McKay, 1941b; 1943.

² Odd mammal specimens were given to other institutions e.g. the Muséum National d'Histoire Naturelle, Paris, and the Hunterian Museum, Royal College of Surgeons, London.

³ Letters from Burchell to W.J. Hooker dated 25 April 1828, Director's Correspondence Vol. 66 no. 17, and 18 April 1830, Director's Correspondence Vol. 1, No. 19, Kew Archives.

⁴ Friday 10 July 1812, Manuscript Journal, 24 May 1812 to 2 September 1812, Hope Library, Oxford University Museum (OUM).

⁵ See letters e.g. letter to his father dated 27 July 1812, Hope Library, OUM, also Burchell, 1822: 550.

⁶ A journal in the Hope Library continues until 2 September 1812, see note 4.

⁷ Letter from A.B. Lambert to William Swainson, 11 January 1816, Swainson archive, Linnean Society.

⁸ Letter dated 29 May 1811, Hope Library, OUM.

⁹ Letter dated 27 September 1819, Swainson archive, Linnean Society.

¹⁰ Letter dated 25 June 1835, Director's Correspondence Vol. 58, No. 17, Kew Archives. Also see letter to Hooker dated 4 October 1830, Vol. 66, No. 18, Kew Archives for similar sentiment.

¹¹ Letter dated 7 March 1822, No. 10, Salisbury Correspondence, Linnean Society.

¹² According to a note, dated 27 July 1822, pasted into the inside of his Insect Catalogue, Hope Archives, OUM.

¹³ Both Burchell (1825) and Gray (1825) state that Burchell only donated one specimen of *Equus burchelli* Gray, 1824, so the author may have confused the donor of one of these two specimens.

¹⁴ Letter from J.D. Hooker to Professor Poulton (Hope Professor, OUM, 1893–1933, and an authority on Burchell) dated 4 April 1903, Hope Archive, OUM.

¹⁵ Letter from Burchell to Duncan dated 9 April 1824, Ashmolean Library, AMS 15, f.4.

¹⁶ John Obadiah Westwood was the Hope Professor of Entomology at the University Museum 1861–1893.

¹⁷ Letter from J.D. Hooker to Westwood 6 May 1865 in Hope Library, OUM.

¹⁸ Letter from John Phillips to Westwood 13 May 1865 in Hope Library, OUM.

¹⁹ This unfortunate Latin name has been thought by many authors (e.g. Poulton, 1905) to have been an attempt by Gray to irritate Burchell.

²⁰ One of these specimens may be eligible for designation as the neotype of *Asinus burchelli* Gray, 1824.

²¹ Letter dated 1 November 1830, Director's Correspondence Vol. 66, No. 19, Kew Archives.

²² e.g. see letter from Burchell to W.J. Hooker dated 25 June 1835, Director's Correspondence Vol. 58, No. 17, Kew Archives.

²³ Burchell was at Soutar's Post, east of Riebeeck East (McKay, 1943).

²⁴ Burchell letter dated Algoa Bay 15 Dec 1813 to Messrs Ranken & Scott, Merchants, Cape Town mentions "fourteen various packages belonging to me & marked WJB No. 1 to 14".

²⁵ In May 1814 Burchell was in the vicinity of Melkhout Kraal (McKay, 1943).

²⁶ Burchell was at Kurukuru River, near Grahamstown (McKay, 1943).

²⁷ Burchell was at Melkhout Kraal in June 1814 (McKay, 1943).

²⁸ All three of these specimens, from their size, are probably juveniles. This added to the lack of locality data, means it is not possible to identify these specimens to species level.

REFERENCES

- ALLEN, D.E., 1994 *The naturalist in Britain*. 2nd edn. Princeton University Press. Pp 270.
- ANON, 1838 *A visit to the British Museum (containing a familiar description of every object of interest in the various departments of that establishment)*. British Museum, London. Pp 304.
- BENNETT, D.K., 1980 Stripes do not a zebra make, part 1: a cladistic analysis of *Equus*. *Systematic Zoology* **29**: 272–287.
- BRITISH MUSEUM, 1838 *Synopsis of the contents of the British Museum*. British Museum, London.
- BURCHELL, W.J., 1817 Note sur une nouvelle espèce de Rhinocéros. *Bulletin de la Société Philomathique de Paris* (June), 96.
- BURCHELL, W.J., 1822, 1824 *Travels in the interior of southern Africa*. London. Vol. 1 Pp 582, Vol. 2 Pp 648. (Second volume is dated 1824 but was published in 1823).
- BURCHELL, W.J., 1825 *List of quadrupeds brought by Mr Burchell from southern Africa and presented by him to the British Museum*. London. Pp 8.
- CAVE, A.J.E., 1947 Burchell's rhinocerotine drawings. *Proceedings Linnean Society London* **159**(2): 141–46.
- CAVE, A.J.E., 1962 Burchell's original specimens of *Rhinoceros sinus*. *Proceedings Zoological Society* **139**: 691–700.
- DAVIES, K.C., 1980 Burchell's serpents. *Journal of the Society for the Bibliography of Natural History* **9**: 455–475.

- DAVIES, K.C. and HULL, J., 1981 William Burchell's South African bird collection, 1810–1815. *History in the Service of Systematics*. Society for the Bibliography of Natural History, London. Pp 95–99.
- DAVIES, K.C. and HULL, J., 1983 Burchell's South African bird collections (1810–1815). *Archives of Natural History* **11**(2): 317–42.
- DUNCAN, P.B., 1836 *A catalogue of the Ashmolean Museum*. Oxford. Pp 188.
- FLOWER, W.H., 1884 in *Museum of the Royal College of Surgeons: Catalogue of osteological specimens*. W.H. Flower & J.G. Garson. London: 425.
- GRAY, J.E., 1825 A revision of the family Equidae. *Zoological Journal* **1**: 241–248.
- GRAY, J.E., 1843 *List of the specimens of Mammalia in the collection of the British Museum*. London.
- GRAY, J.E., 1862 *Catalogue of Osteological Specimens. Class Mammalia*. British Museum, London.
- GROVES, C.P., 1985 Was the quagga a species or sub-species? *African Wildlife* **39**: 106–7.
- GRUBB, P., 1993 Order Perissodactyla in *Mammal species of the world, a taxonomic and geographic reference*: 369–72. In Wilson, D.E. & Reeder, D.M., Smithsonian Institution Press, Washington.
- GUNTHER, A.E., 1980 The miscellaneous autobiographical manuscripts of John Edward Gray (1800–1875). *Bulletin British Museum (Natural History) (Historical Series)* **6**(6): 199–244.
- GUNTHER, R.T., 1925 *Early Science in Oxford*. Vol. III. Oxford. Pp 564.
- LYDDEKER, R., 1913–16 *Catalogue of the ungulate mammals in the British Museum*. 5 vols. London.
- McKAY, H.M., 1941a William John Burchell, botanist: Part I: Introduction and Burchell in St. Helena. *Journal South African Botany* **7**: 1–18.
- McKAY, H.M., 1941b William John Burchell, botanist: Part II: Burchell in South Africa. *Journal South African Botany* **7**: 61–76.
- McKAY, H.M., 1941c William John Burchell, botanist: Part III: Burchell in England and Brazil. *Journal South African Botany* **7**: 115–30.
- McKAY, H.M., 1941d William John Burchell, botanist: Part IV: Botanical interests from 1830–1865. *Journal South African Botany* **7**: 173–86.
- McKAY, H.M., 1943 Sketch map of Burchell's trek. *Journal of South African Botany* **9**: 27–66.
- MILLER, E., 1973 *That noble cabinet. A history of the British Museum*. Andre Deutsch, London. Pp 400.
- MOSTERT, N., 1992 *Frontiers. The epic of South Africa's creation and the tragedy of the Xhosa people*. Jonathan Cape, London. Pp 1355.
- POULTON, E.B., 1905 William John Burchell. *Report of the British and South African Association*, **111**: 57–110. (Reprinted ed. 1907. London Pp 56.)
- SMITH, C.H., 1827 *Griffith's Cuvier's Animal Kingdom* **5**. London.
- STEARNS, W.T., 1981 *The Natural History Museum at South Kensington*. British Museum (Natural History) & Heinemann, London. Pp 414.
- WILSON, D.E. and REEDER, D.M. 1993 *Mammal species of the world, a taxonomic and geographic reference*. Smithsonian Institution Press, Washington. Pp 1206.

APPENDIX 1

Burchell's South African mammals at The Natural History Museum

The following is a list of the surviving material from the 43 skins given by Burchell to the British Museum in 1817 as detailed in Burchell (1825). They were found by checking through the collection itself. Use was made of the various catalogues of the collection including Gray's catalogues (1843, 1862) (both the published versions and the manuscript copies held in the Museum) and Lydekker (1913–16).

To summarise the fate of the collection: 20 specimens survive in some form; of the 23 which do not survive, 12 specimens are not mentioned in any catalogues other than Burchell's original list and 11 are found only in Gray's catalogues (1843, 1862).

The reason for the disappearance of the material is not recorded, although it is likely to be due to decay through pest attack; the exception to this is the aardvark which, it is noted in the catalogue, was destroyed in 1940 when the ungulate gallery was bombed.

The specimens are listed here in the order of Burchell (1825), with the numbers and original descriptions from that work italicised. Each entry is annotated with the details of the surviving material, its nature, catalogue number, details of its condition and current name. None of the specimens has any original Burchell labels.

4. *Felis leopardus* (4.) *The Tiger of the Cape Colonists. Shot at the Nysna, on the 22d June, 1814.*

Surviving material: skull and lower jaw; **115d**; skull has incisors and two right pre-molars missing and back of skull damaged; lower jaw has one left premolar missing. (*Panthera pardus* Linnaeus, 1758).

5. *Felis jubata* (3.) *Called Luipard (Leopard) by the Dutch colonists. See "Travels in the Interior of Southern Africa", vol ii, p. 326. Killed at Zwartwater Poort, on the 8th August, 1813.*

Surviving material: skull and lower jaw; **81.742**; skull has damage to canines; lower jaw has right front portion with incisors and canine missing and part of left ramus missing. (*Acinonyx jubatus* Schreber, 1775).

10. *Phacochoerus aethiopicus*. (1.) *The Vlake-cark of the Colonists. Shot in the Cigaripine, at "Wild-Boar Station", on the banks of the Nugariep, or Black River.*

Surviving material: skull and lower jaw; **719t**; cranium badly damaged; lower jaw in three pieces and other old breaks have been glued. Label indicates "from an old stuffed specimen". (*Phacochoerus aethiopicus* Pallas, 1766).

14. *Equus montanus* B. (2.) *Vide "Travels", vol I, p. 139. Shot on Wagenpadsberg, beyond the Snow Mountains, on the 27th March, 1813. This is the Daww of the Hottentots, the Wilde Paard (wild horse) of the Dutch Colonists and the Zebra of the later writers.*

Surviving material: skin; **no number** label indicates "This may be one of Burchell's skins and therefore a type". Good condition. (*Equus zebra* Linnaeus, 1758).

15. *Camelopardalis* . . . (5.) *A male. Shot in the Transgariepine, on 26th December, 1812, at the Koraqua Klip-Fontein. The skin was accompanied by a complete skull. This animal was nearly 18 feet in height. The Camelopardalis is called Tüklua by the Bachapins; and Kameelpaard or Kameel by the Dutch colonists.*

Surviving material: skull with horns sawn off; **671a**; skull has damage to palate. (*Giraffa camelopardalis* Linnaeus, 1758).

16. *Camelopardalis* . . . *A female. Shot at the Chue Spring, by the Maadji Mountains, on the 13th October, 1812. This skin has also its entire skull.*

Surviving material: Bisected skull; **671b**; skull with palate missing. (*Giraffa camelopardalis* Linnaeus, 1758).

17. *Antilope euchore*. (49) *The Springbok of the Colonists, and the Tsépi of the Bachapins. This animal was found drowned at Amaryllis Station," on the Nugariep, or Black river.*

Surviving material: pair of horns mounted on plaque; **618c**. (*Antidorcas marsupialis* Zimmermann, 1780).

18. *Antilope melampus*. (20.) *Shot at Litäkun, where it is called Pääla by the Bachapins and Roodebok by the Hottentots of Klaarwater. Vide "Travels", vol. ii, p. 300.*

Surviving material: pair of horns and frontlet; **619a**. (*Aepyceros melampus* Lichtenstein, 1812).

19. *Antilope pygarga*. (1.) *Antilope albifrons of "trav." vol. ii., p. 335. The Blesbok of the Colonists, and sometimes Bontebok. Shot near Zwelendam, on the 17th January 1815, and the species is now become very scarce.*

Surviving material: single horn; **644a**. (*Damaliscus pygargus* Pallas, 1767).

20. *Antilope lunata* B. (1.) *"Crescent-horned Antelope" Vide "Travels," vol. ii. p. 334. Shot at the Makkwárin River, in the Transgariépine, 10th July, 1812. A very rare species.*

Surviving material: frontlet & horns; **642a**; **Type specimen**; Good condition. (*Damaliscus lunatus* Burchell, 1823).

21. *Antilope villosa* B. (7.) *"Trav." vol. ii. p. 302. Ant. Capreolus Licht. It is called Pëeli, in the Sichuána language; and is the Vaal Reebok of the Colonists. A male, with horns exceeding the ordinary length; and shot at Zoetemelks River, in the district of Zwelendam, 19th November, 1814.*

Surviving material: skull; **629a**; Right tooth row & palate missing, in very poor condition. (*Pelea capreolus* Forster, 1790).

22. *Antilope villosa*. A female. *Shot at Mossel Bay, on the 24th October, 1814.*

Surviving material: skin (formerly mounted); **44a**; syntype of *A villosa* (Smith) in good condition. (*Pelea capreolus* Forster, 1790).

24. *Antilope grisea*. A female. *Shot at Kromme River, 5th March 1814.*

Surviving material: mounted skin; **81.2648**; in good condition except for badly damaged ears and some cracking around the muzzle. (*Raphiceros melanotis* Thunberg, 1811).

26. *Antilope eleotragus* Licht. (4.) *Antilope arundinacea*. A male. *Shot at Riet Fontein, near the Kowi river, 7th October, 1813. Called Rietbok by the Dutch Colonists.*

Surviving material: skull and one ramus of lower jaw; **630c**; skull has right auditory bulla and left two premolars missing. Label indicates "from a decayed skin". (*Redunca arundinum* Boddaert, 1785).

27. *Antilope eleotragus*. A female. *Shot at the mouth of the Kowi, 23rd September, 1813.*

Surviving material: skin with skull inside; immature; **60b**; skin shows no sign of pest damage, has 2 holes near the ventral split and shows loss of hair due to abrasion around ears, eyes and some leg joints, otherwise in good condition. Label indicates "not to be stuffed". (*Redunca arundinum* Boddaert, 1785).

28. *Antilope* . . . (6.) *Ant. Eleotragi varietas* Licht. A male. Shot on the 4th May, 1813, at Graaffreinet: where it was called Roodde Reebok.

Surviving material: skull and lower jaw; **630d**; skull has horns and some damage to palate; lower jaw has front portion with incisors missing. Label indicates "from a decayed skin". (*Redunca fulvorufula* Afzelius, 1815).

31. *Antilope pygmaea*. (1.) *The Númitji or Blaauwbokje, or Kleine Blaauwbok*. Shot at Galgebosch, in the district of Uitenhage, in February, 1814.

Surviving material: skin, skull and lower jaw; **48a**; Type of *Antilope coerulea* (Smith, 1827); skin in fair condition except some damage to ears; lower jaw broken at symphysis on right side. (*Cephalophus monticola* Thunberg, 1789).

32. *Antilope mergens*. (3.) *The Duyker*. A male. Shot at Zwartwater Poort, near the borders of Caffrariia.

Surviving material: skull; **626b**; Type of *Cephalophus burchelli* (Smith, 1827). Skull has one left premolar missing. (*Sylvicapra grimmia* Linnaeus, 1758).

40. *Antilope taurina* B. (5.) "Travels," vol. ii, p. 277. Shot on the 8th October, 1812, at the Chue Spring, by the Maadji Mountains, in latitude 26° 18' 11" south. It is called Kokoong by the Bachapins, and Bastard Wildebeest by the Hottentots of Klaarwater.

Surviving material: skin and skull; **138b**; **Type specimen**. Skull has damage to left zygomatic arch. Skin has been dismantled, possibly by Gerrards whose label is attached to specimen. (*Connochaetes taurina* Burchell, 1823).

42. *Antilope equina*. (3.) *Called Takhetsé in the Sichuána language and Bastard Eland by the Hottentots of Klaarwater*. A male. Shot at Little Klibbolikhonni Fountain, in the Transgariepine, on 8th December, 1812.

Surviving material: one horn and half of frontlet; **636a**. (*Hippotragus equinus* Desmarest, 1804).

APPENDIX 2

Burchell's South African Mammals at the Oxford University Museum

The collection comprises over 70 numbered specimens, two-thirds of which are skeletal specimens. The skeletal material is, in general, in good condition. The skins are flat and sun-dried, unless otherwise noted. Burchell's specimens are primarily identified by the small printed labels which were glued to the specimens after their donation to Oxford. In addition some have printed orange tie-on labels, again added after their donation to Oxford. Occasionally some skeletal material was identified using its "Osteological Catalogue" number. The Osteological Series was set up by Henry Acland for the Anatomy Museum in Christ Church. When the material was transferred to the University Museum other specimens were added to the series until 1891

when the last set of catalogues was written. A number of Burchell specimens were added to the Series. A few of the specimens have original paper labels written by Burchell and/or metal tags which he added. These are noted in the entries. For details of Burchell's numbering system see Davies and Hull (1983).

Abbreviations:

L=small printed label *Burchell Collection*

O.C.=*Osteological Catalogue*

O.O.C.=*Old Osteological Catalogue*

The taxonomic names follow Wilson and Reeder (1993) and are arranged within Orders.

Insectivora

Chrysochloris asiatica Linnaeus, 1758

- 18926 Skin. Skull still in skin, all distal limb bones. 22.2 11/2 inked by Burchell onto underside of skin. L.
 18927 Skin. Skull still in skin, only left forefoot and right hindfoot present. L.
 18928 Skin. Skull still in skin, all feet present. L.

Primates

Cercopithecus sp.

- 17564 Skull and jaw. Juvenile. Tie-on orange label. Most of brain case missing, left ramus of lower jaw broken.

Papio hamadryas Linnaeus, 1758

- 17075 Skull and jaw. Juvenile. O.C. 2011f. L. Two molars missing from jaw.

Carnivora

Caracal caracal Schreber, 1776

- 14242 Skull and jaw. L. O.C. 1866.

Panthera leo Linnaeus, 1758

- 14178 Skull and jaw. Female. L. O.C. 1845. L. Teeth very worn and have many dental cavities. Two incisors missing.
 14179 Skull and jaw. O.C. 1846. L. One incisor missing and right canine broken.
 14197 Skull and lower jaw. Juvenile. Bones of the feet and claws. Back of skull missing. L, with A.28.7.13 inked onto it.²³ Wrapping paper has following written in Burchell's handwriting: "*L. leo-teeth (incisors) claws, bones (metacarpels) sic belonging to the skins and 2 skulls of male and female lion, claws 28.?2.12*".

Panthera pardus Linnaeus, 1758

- 18959 Skin, mounted. Stand labelled *Africa Burchell 1835*. Possibly Ash. Cat. No. 56, p. 6. "The Leopard" "Killed in Africa".

Herpestes ichneumon Linnaeus, 1758

- 18754 Skin. Skull still in skin. Distal limb bones present. L.
 18755 Skin. Skull still in skin. Distal limb bones present. L. Tie-on paper label *Package no. 1*.²⁴

Genetta genetta Linnaeus, 1758

- 14257 Skin. Skull still in skin. Distal limb and tail bones present. Collected May 1814.²⁵ L. Paper label, in Burchell's handwriting *Felis "Muskliatkat" Juba spinalis engibilis. May 1814. Animal mutissimum etiam ilum ileatur. Fossula subanalis et supe testaculos moschifera.*

Proboscidea

Loxodonta africana Blumenbach, 1797

- 10115 Tooth. Right upper molar. L. Inked *611g 1631*. O.C. 1631 O.O.C. 611g.
 10116 Tooth. Upper molar, much worn. L. O.C. 1632 O.O.C. 611h.
 10117 Six terminal portions of tusks. L. O.C. 1633 O.O.C. 611i.
 10118 Pair of tusks, 45 inches long. O.C. 1634 O.O.C. 611j.
 10120 Pair of tusks, 19 inches long. L.
 10121 Tusk, 17 inches long.

Perissodactyla

Equus burchelli Gray, 1824

- 8152 Skull only. XIX scratched on top of skull. L. O.C. 1599.
 8153 Skull with lower jaw. Two front incisors missing on lower jaw. Young adult. L. O.C. 1600.
 10569 Three hooves. L.

Ceratotherium simum Burchell, 1817

- 8218 Tooth. First true molar, left side. **Type Animal A** (Cave, 1962). L. O.C. 1564.
 8219 Tooth. Second true molar, left side. **Type Animal A** (Cave, 1962) L. O.C. 1565.
 8220 Tooth. Third upper premolar, left side. **Type Animal A** (Cave, 1962) L. O.C. 1567.
 8221 Tooth, Second true molar, right side. **Type Animal A** (Cave, 1962). L. O.C. 1568.
 8222 Tooth. Third upper premolar, right side. **Type Animal B** (Cave, 1962). L. O.C. 1566.
 8223 Tooth. Third lower true molar, right side. **Type Animal B** (Cave, 1962). L. O.C. 1569.
 8224 Tooth. First lower true molar, right side. **Type Animal B** (Cave, 1962). L. O.C. 1570.
 8225 Tooth. First lower true molar, left side. **Type Animal B**. (Cave, 1962). L. O.C. 1571.
 10570 Integument and snout, dorsal portion of nasal bones with overlying skin. L. O.C. 1562.
 10571 Integument and snout, dorsal portion of nasal bones with overlying skin. L. O.C. 1563.
 10572 Horn. 7 inches high. L. O.C. 1573.
 10573 Horn. 7 inches high. L. O.C. 1573.
 13216 ?Rhinocerotidae, portion of skin, 1 foot by 9 inches.

Hyracoidea

Procavia capensis Pallas, 1766

- 19706 Lower jaw. L. O.C. 1579.

Artiodactyla

Hippopotamus amphibius Linnaeus, 1758

- 13824 Skull with jaw. L. O.C. 1524.
 19173 Two lower incisors, right and left. L. O.O.C. 607q.
 19174 Left lower canine O.C. 1539.
 19175 Right lower canine. L. O.C. 1541.
 19204 Right lower incisor. O.O.C. 607s.
 19345 Two lower incisors, right & left. L. O.O.C. 607p.

Giraffa camelopardalis Linnaeus, 1758

- 19706 Pair of horns with skin attached. Orange tie-on label.

Connochaetes gnou Zimmermann, 1780

- 9044 Right horn. L. Orange tie-on label.

Connochaetes taurinus Burchell, 1823

- 19551 Frontlet and horns. L. Old handwritten label *Catoblephas tauri*. O.C. 1389.
 19827 Footbones. Blue label in box with "VI Gnu hoofs Cateblesas taurina". L.

Synceros caffer Sparrman, 1779

- 19593 Left horn, with frontlet, on wooden base. L.
 19594 Right horn on wooden base. L.
 19597 Left horn on wooden base. L.
 19599 Left & right horns on wooden base. L.

Tragelaphus strepticerus Pallas, 1766

- 5463 Skull only. Male. Tie-on label. O.C. 1405. 31 inked onto skull.

Cephalophus monticola Thunberg, 1789

- 18853 Skin. Skull still attached to skin. L. Inked on skin in Burchell's handwriting *Box 21*.
 18854 Skin. Front incisors still attached. Skin has not been incised ventrally but across between back legs and presumably was intended for mounting. L.

Hippotragus equinus Desmarest, 1804

- 9022 Skull only. Male. L. Burchell tie-on label. O.C. 1418. 32 inked on little printed label.
 9023 Skull with lower jaw. Two incisors missing. Female. XXXVIV scratched onto lower jaw. L. O.C. 1417, 37 inked on little printed label.

Oryx gazella Linnaeus, 1758

- 9116 Pair of horns, 39.5" in length. O.C. 1414.

Redunca fulvorufula Afzelius, 1815

- 9001 Skull with jaw. Male. All but two incisors missing. O.C. 1424. Tie-on Burchell label.
 19355 Skull only. XXXV scratched onto top of skull. L. 35 inked onto label. O.C. 1425.

Rodentia

Aethomys namaquensis Smith, 1834

- 18855 Skin. Skull still in skin. All feet present. Skin stuffed loosely with dried moss/lichen. Little packet with tip of tail, made up by Burchell and tied to feet, labelled in Burchell's handwriting *longicaudus* [added afterwards] *Tip*

of the tail of *Mus*. L. Also little paper label in Burchell's handwriting *Mus longicaudus* WJB.

Rhodomys pumilio Sparrman, 1784

- 18857 Skin. Skull still in skin. Left forefoot missing. L. Paper label attached to specimen, in Burchell's handwriting *Mus sp.* 21.8.12.²⁶ Skin in poor condition with much hair loss on the back.

Pedetes capensis Forster, 1778

- 18600 Skin. All foot bones. L.
18601 Skin. All foot bones. L.
18858 Skull. Tie-on orange Burchell label states associated with a skin.

Graphiurus murinus Desmarest, 1822

- 18856 Skin. Skull still in skin. All feet present. Inked on skin twice in Burchell's handwriting *No 1*. L.

Georchus capensis Pallas, 1778

- 18706 Skin. Skull still in skin. Very young. Right forefoot missing. L.
18707 Skin. Skull still in skin. All feet present. Right incisor broken near root. Skin has not been incised ventrally but across between back legs and presumably was intended for mounting. L.
18806 Skin. Skull still in skin. Right incisor broken near tip. Skin showing severe cracking so much that three feet and a ventral strip of skin have broken off. Tie-on paper label in Burchell's handwriting *Myotalpa capensis* 10.6.14 Box 23.²⁷

Thryonomys swinderianus Temminck, 1827

- 20162 Skin. All feet present L. 8 inked onto skin in Burchell's handwriting. Paper label with *f8* in Burchell's handwriting.
20163 Skin. Juvenile. All feet present. Paper label with *6* in Burchell's handwriting.

Lagomorpha

*Pronolagus sp.*²⁸

- 18809 Skin. All four feet present. L. Inked on skin in Burchell's handwriting 26. Metal tag with XXVI 26 scratched on attached to leg.
18810 Skin. All four feet present. L. Inked on skin in Burchell's handwriting 24. Metal tag with XXIV 24 scratched on attached to leg.
18811 Skin. All four feet present. L. Inked on skin in Burchell's handwriting 54. Metal tag with XXV 25 scratched on attached to leg.

(Accepted 24 October 1996.)