



Chelonian type specimens at the Oxford University Museum

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Abstract

In the present paper, the history of the chelonian collection of the Oxford University Museum is summarized and extant type specimens are identified. Currently, there are 46 name-bearing types of 25 chelonian taxa and paralectotypes of three taxa described by Georg Baur, Thomas Bell, André Marie Constant Duméril & Gabriel Bibron, and John Edward Gray from the families Emydidae, Geoemydidae, Testudinidae, Chelidae, and Pelomedusidae. Among the name-bearing types, there are holotypes of eight taxa (*Cyclemys bellii* Gray, 1863; *Emys speciosa* var. *levigata* Gray, 1831; *Phrynops bellii* Gray, 1844; *Rhinoclemys bellii* Gray, 1863; *Sternotherus leachianus* Bell, 1825; *Sternotherus trifasciatus* Bell, 1825; *Testudo hercules* var. *truncata* Gray, 1831; *Testudo tentoria* Bell, 1828) and one lectotype is of *Pyxis arachnoides* Bell, 1827. Two additional holotypes or syntypes are of *Terrapene maculata* Bell, 1825 and *Terrapene nebulosa* Bell, 1825, and 35 syntypes represent 14 taxa (*Cyclemys orbiculata* Bell, 1834; *Emys concentrica* var. *polita* Gray, 1831; *Emys crassicollis* Gray, 1831; *Emys decussata* Gray, 1831; *Emys hamiltonii* Gray, 1831; *Emys irrigata* Duméril & Bibron, 1835; *Emys speciosa* Gray, 1831; *Emys spinosa* Gray, 1831; *Emys tectum* Gray, 1830; *Emys thurjii* Gray, 1831; *Kinixys castanea* Bell, 1827; *Kinixys homeana* Bell, 1827; *Testudo actinodes* Bell, 1828; *Testudo guntheri* Baur, 1889). Three paralectotypes are of *Emys dentata* Gray, 1831, eight paralectotypes are of *Emys vulgaris* Gray, 1831, and one paralectotype is of *Pyxis arachnoides* Bell, 1827. Except the syntype of *Testudo guntheri* Baur, 1889, originating from the college of Christ Church, Oxford, all type specimens belong to the former collection of Thomas Bell that was transferred to Oxford in 1862. *Testudo guntheri* Baur, 1889 is regarded as *nomen dubium* because it was based on specimens without locality data.

Key words: Chelonians, herpetology, Thomas Bell, type specimens

Introduction

The Oxford University Museum houses a type-rich chelonian collection. Nearly all of the type specimens are part of the former private collection of one of the most influential 19th Century scholars working on the diversity of chelonians, Thomas Bell (1792–1880). Besides type specimens of species described by Bell, this collection was mainly used by John Edward Gray (1800–1875) as source for the description of several new chelonian species, in part based on manuscript names of Bell (Gray 1830–1835, 1831a, b, 1844, 1863a, b). Also Duméril & Bibron (1835) described a terrapin species, *Emys irrigata*, based on a manuscript name by Bell, of which the original specimens were in his collection. The major part of Bell's collection arrived in the Oxford University Museum in 1862 as a present by Reverend F. W. Hope who had earlier purchased the collection from Bell. In the following, we review the history of this historically important collection and give an account of the identified type specimens present in Oxford. Besides Bell's specimens, the Oxford University Museums also received chelonian specimens from other collectors and donors as well as from the Ashmolean Museum and the Anatomical Museum of Christ Church, Oxford. Amongst the Christ Church specimens, there is a shell with an articulated skeleton of a Galapagos tortoise that served as syntype of *Testudo guntheri* Baur, 1889. It constitutes the only chelonian type in Oxford that originates not from the Bell Collection. Interestingly, Günther (1877: p. 63) claims that this specimen was “*purchased of a dealer in Paris*

for the Oxford Museum.” Additional information and many historical details on the Bell and Oxford Collections are to be found in the recent treatise by Nowak-Kemp (2009).

Thomas Bell and his collection of chelonians

Thomas Bell (Fig. 1) was born in Poole, Dorset, in 1792. In 1813, at the age of 21, he left Poole for London to study medicine. After graduating, from 1817 until 1861, Bell practised as a dental surgeon at Guy’s Hospital, where he also gave lectures in comparative anatomy. He continued to devote his spare time to the study of natural science, publishing papers on a wide range of zoological subjects, though his main interests were the crustaceans, amphibians and reptiles, and here, especially, chelonians. In 1828, he became a Fellow of the Royal Society and his extensive knowledge of the natural world made him a suitable candidate for the chair of Zoology at King’s College, which he accepted in 1836. During his lifetime he became a Fellow of the Royal College of Surgeons in 1844, President of the Linnean Society from 1853 to 1861, President of the Ray Society from 1843 to 1859, one of the secretaries of the Royal Society from 1848 to 1853, and corresponding member of the Philomathic and Natural History Societies of Paris and Academy of Sciences of Philadelphia and Boston (Cleevely 2004). As a member of the Linnean Society since 1815, Bell attended the Society’s general meeting on the 1st November 1836 where he met Charles Darwin for the first time. Darwin wrote to J. S. Henslow that “to my surprise [Mr Bell] expressed good deal of interest about my crustacea & reptiles & seems willing to work at them” (letter 318, 1st November 1836, www.darwinproject.ac.uk). Bell did indeed work on the specimens collected by Darwin but he managed to describe the reptiles only. His work *Reptiles* was published as the fifth volume of the *Zoology of the Voyage of the HMS Beagle*, in two parts (Bell 1842–1843). It was through his advice about the Galapagos tortoises that he contributed in some measure to Darwin’s theory of natural selection. Although Bell’s input into the various fields of zoological knowledge was widely acknowledged and respected by his contemporaries, today he is mostly known for two quite different things. One—that in June 1858, as the then President of the Linnean Society, he chaired the meeting when Darwin and Wallace presented their theory about the evolution of species, and later stated in his annual presidential report that nothing of significance had taken place in that particular year (Bell 1859). The other fact that has made his name familiar to zoologists ever since, was the authorship of the *Monograph of the Testudinata* (1832–1836), arguably the best illustrated work on chelonians to this day. In 1864, he retired to Selborne where he continued to work on the natural history of that area. He died there on 13th March 1880.

Bell was a passionate collector of live and preserved chelonians that he obtained from various sources, but mainly from travellers or dealers, who in turn bought them in markets abroad. This explains why most of his specimens lack locality data. Bell was one of the most outstanding early 19th Century experts in the diversity of his two favourite animal groups, chelonians and crustaceans. His interest in chelonians resulted in several articles published from 1825 to 1828, including many descriptions of new species, and his opus magnum *Monograph of the Testudinata* that was issued to subscribers in eight parts published between 1832 and 1836. Then, the publishers were forced to abandon further instalments due to financial problems, before the work was completed. The *Monograph* covered not only the anatomy and morphology of chelonians, but crucially extended to the study of their physiology and behaviour. Early on, Bell realised that to describe and taxonomically arrange the species adequately, he had to observe the animals when they were still alive. Concentrating on the morphology of shells would not provide the taxonomist with many vital facts about the animals. Even more importantly, soon after the animal’s death, a lot of details, like colours or patterns, that are specific to a given species, tend to fade rapidly and disappear. Consequently, in order to make his account fully comprehensive for the reader who was going to subscribe to his *Monograph*, it was necessary to have illustrations made of live animals. Bell instructed James de Carle Sowerby (1787–1871) to execute the drawings, which were then lithographed by Edward Lear (1812–1888). Only where it was not possible to obtain a live animal, Bell resorted to illustrations of shells or complete preserved specimens. This undertaking had created a lot of unforeseen problems. James de Carle Sowerby was acknowledged as one of the finest illustrators of natural history subjects and as such in great demand by naturalists. The combination of the

increasing demand, and the acceptance of too many commissions, led to Sowerby being quite unable to fulfil his obligations. Many letters were exchanged as the commissioners became increasingly unhappy and frustrated. Bell was not on his own when he wrote alternating letters of admiration, frustration or even resignation, but always pleading to speed things up. To be able to carry out the observations, he was purchasing live specimens which he kept in his garden and stables. By watching their behaviour, feeding and hibernation he could give accurate descriptions of the individuals of the same species and to note the differences between them or indeed between species. The observations often lasted weeks, months or longer in cases where the turtles and tortoises survived the winter months. His anxiety can only be imagined when the delay in Sowerby's drawing of the animal caused the loss of opportunity to capture the likeness of a given specimen. In one of the letters to Sowerby, Bell writes "*It is of course, always of consequence that it should be done whilst the animal is living [...]. The colours are lost after death!*" and "*I am anxious to take the opportunity of possessing this fine specimen of *Chelonia imbricata* living, to have a drawing made of him [...] and as there is not much hope of any 'length of days' being granted him, may I request you to do what is necessary as you conveniently can [...] as the colours are lost after death*" (letter 140, undated, housed in the archives of the Natural History Museum, London). On another occasion, he wants Sowerby to figure "*the accompanying specimen of *Kinosternon tricarinatum*, [...] as it died yesterday, the soft parts had better be done quam primum*" (letter 143, undated). He even writes in another letter that he had now two valuable specimens dead that will probably be never figured (letter 139, undated). His requests were accompanied by detailed instructions of not only what side of a tortoise to figure but how to "*improve*" the illustrations by combining the characteristics of two specimens into one "*by borrowing a little from the younger one*" (*Cyclemys orbiculata*; letter 142, undated). Other times his anxiety and impatience to have the animals drawn had other reasons. On receiving a new, never before described species, he wrote to Sowerby that he wanted to publish the account "*before Gray does, as he has just got one also*" (letter 147, undated), providing evidence for a clear rivalry between Gray and Bell. Where the tortoise was the only living one received in England, he implores: "*You will I am sure oblige me by figuring the accompanying *Trionyx* immediately as it is of much consequence, being a new species, and the only living specimen of the genus, I have ever heard of in this country*" (letter 144, undated), or: "*The *Emys* which I send is *E. rugosa* of Shaw, of which no other specimen has been seen active here. It is therefore of consequence to figure it at once. Pray my dear Sir, do this for me, as I am really anxious for it*" (letter 144, undated).

When Bell could not procure representatives of given species, he had to resort to borrowing dried specimens from other collectors, like Benjamin Leadbeater, Fellow of the Linnean Society, or from the collections of the British Museum or from Dr Richard Harlan, Professor of Comparative Anatomy, Philadelphia Museum. On several occasions Bell had to resort to studying chelonians in the Gardens of the Zoological Society. Again, he pleaded with Sowerby to go to the Gardens and draw the animals before they expired: "*Testudo radiata and the *Terrapene* have also died in the [Zoological] Gardens and I fear have died un-figured*" (letter 139, undated). One cannot help but feel for him when he writes: "*[...] unless I have many more [drawings] shortly, I must give up the work, as you know no one but yourself can do them and therefore I throw myself upon your consideration. Everything depends on you.*"

Particularly poignant is one of his letters (unnumbered, dated 18th September 1833): "*I have really postponed writing to you day after day because it is one of the most painful things to me, to be obliged to you thus [...] but what I am to do? My work is standing still, it is now nearly four months since the last number appeared, and persons are hesitating about taking it lest it should continue to be irregular, or not completed at all.*

The fact is that I cannot go on, if we are to be that dilatory. I should like therefore to know, as a matter of business, how often you can furnish me with drawing, to a certainty, as anything will be better than the present state of suspense.

I have written enough for several numbers forwards, but this is of no use unless I have the figures. Pray, let me entreat you, to think of this and consider how you would feel, if you were in my situation."

In the end, although his magnum opus was abandoned before being complete, Bell had assembled a very large number of chelonians; many species were represented by more than one specimen and a considerable

number had more than five, stuffed, dried or shell specimens. Already Gray (1831a: p. v) acknowledged in his *Synopsis Reptilium (Cataphracta)* that Bells' collection far exceeded that of any museum in the whole of Europe. In this and other works by Gray, his admiration of Bell is obvious. Gray dedicated not only his *Synopsis Reptilium (Cataphracta)* to Bell "as a mark of respect and esteem", he also named many new chelonian taxa after him: *Testudo bellii* Gray, 1828 = *Chersina angulata* (Schweigger, 1812); *Emys bellii* Gray, 1831 = *Chrysemys picta bellii* (Gray, 1831); *Testudo (Kinixys) belliana* Gray, 1831 = *Kinixys belliana* (Gray, 1831); *Phrynops bellii* Gray, 1844 = *Myuchelys bellii* (Gray, 1844); *Cyclemys bellii* Gray, 1863 = *Cyclemys dentata* (Gray, 1831); *Rhinoclemys bellii* Gray, 1863 = *Rhinoclemmys punctularia* (Daudin, 1802); *Bellia* Gray, 1869 = *Siebenrockiella* Lindholm, 1929; *Trionyx bellii* Gray, 1872 = *Nilssonina hurum* (Gray, 1831). Later on, however, the friendship of both men seemed to have cooled down to a more or less friendly rivalry, at least from Bell's side. Perhaps this development was triggered by the fact that Gray's exuberant productivity, fuelled by the rapidly growing collection of the British Museum being constantly fed by the colonies, soon outperformed the slightly older Bell. In 1864, Bell retired to his house in Selborne, which he purchased in 1844. Presumably faced with his retirement and an imminent house move he had decided to sell his collection of tortoises and turtles. The buyer was not the British Museum, but the Reverend Frederick William Hope (1797–1862; Fig. 2). Interestingly, Gray was obviously not aware of the sale (see below).



FIGURE 1. Thomas Bell (1792–1880), painted by Henry William Pickersgill (1782–1875). Portrait presented to Linnean Society, London, by subscribers, 23rd May 1857. Reproduced with permission of the Linnean Society, London.

The Bell Collection in Oxford

Reverend F. W. Hope, former undergraduate of Christ Church of the Oxford University, had already presented his own *Hopean Museum* to that University in 1849. His gift consisting of a large number of insects, crustaceans, and various other invertebrate and numerous vertebrate animals, books and portraits, helped to persuade the University to build a museum in which the natural history specimens could be housed.



FIGURE 2. Reverend Frederick William Hope (1797–1862), painted by Lowes Dickinson (1819–1908). Portrait presented to Oxford University by Mrs Hope in 1864.

The University Museum was opened in 1860 and Hope continued to send specimens, which he either collected or purchased at auctions or directly from individual collectors. On 21st October 1861, the University’s ruling body, the Hebdomadal Council, was informed that Hope had presented a very valuable collection of reptiles, and in 1862 it was recorded that:

“Presented by the Rev^d F. W. Hope: The Bell Collection of Reptiles, Tortoises dry & in spirits – Note The Estimate of the Value of the Collection, made by Mr S Stevens, [...] Tortoises ——— 250 specimens ——— = £90” (Fig. 3).

A little later, all of the chelonians were exhibited in the Main Court of the Museum in two large display cases, with the big specimen of *Aldabrachelys gigantea* placed on the top of one of them (Acland 1867).

By the 1870s, the remaining plates of Sowerby’s illustrations together with the previously published ones were bought by the publisher Sotheran with the intention of reissuing them as one, complete volume. Bell was approached to write the text to accompany the outstanding plates, but decided not to do it. The publishers then asked J. E. Gray to supply the text and in 1872 the book *Tortoises, Terrapins, and Turtles drawn from Life* by James de Carle Sowerby and Edward Lear was ready for sale with 61 plates and 16 pages of introduction by Gray. In Gray’s (1872a: p. iv) preface of that work and in the advertising notices in the *Annals and Magazine of Natural History*, it was asserted that many of the figured specimens and the rest of Bell’s collection were to be found in the Anatomical and Zoological Museum at Cambridge, showing that Bell’s relationship to Gray must have reached such a point that he did not even inform Gray of the whereabouts of his former collection. The claim that the Bell Collection was now housed in Cambridge elicited a robust denial written by John Obadiah Westwood (1872), the keeper of Hope’s Collection in Oxford, who wrote in October of the same year that: *“Professor Bell’s collection of reptiles (both in dry condition and in spirit) was purchased by the late Rev^d F. W. Hope, and was by him presented to the University Museum in Oxford.”* The editors asked Gray for

comment and he stated that Westwood was “*entirely erroneous*” and that he, Gray himself examined some of the chelonians in Cambridge (Gray 1872b). He added that he never heard that Bell had another collection. Following Gray’s comment, John Willis Clark (1872), the Superintendent of the Cambridge Anatomical Museum, wrote to *Annals* that his late father, Professor William Clark, had bought Bell’s collection in 1856 and noted in the Museum’s osteological catalogue that amongst the specimens “*is that valuable collection he [Bell] formed for the illustration of his work on the Testudinata.*” Even further, Clark was convinced that Bell expressly stated that he was selling his entire collection to him. He added that as Cambridge possessed 33 skeletons and parts of skeletons it was obvious that “*whatever Mr. Hope may have purchased and given to the Oxford Museum, it could not have been the Bell Collection of Reptiles.*” Unfortunately for Cambridge, but fortunately for Oxford, the last word belonged to Thomas Bell himself. In a letter of 22nd of November 1872 he wrote that in 1861 he sold his large collection of Reptilia to Hope, including the specimens figured in his work *A Monograph of the Testudinata*. He knew that Hope was going to donate the collection to the University Museum in Oxford. He also stated that in 1856 he did give a small number of specimens to his old friend Clark at Cambridge but they were just duplicates common in any collection (Bell 1872). In this context, we have to point out that several other specimens from Bell’s collection were donated to or exchanged with the British Museum, as is obvious from Gray (1831a, 1844). This could explain why type specimens of some species described by Bell are missing from the Oxford collection, like the types of *Terrapene bicolor* Bell, 1825 or *Testudo pardalis* Bell, 1828.

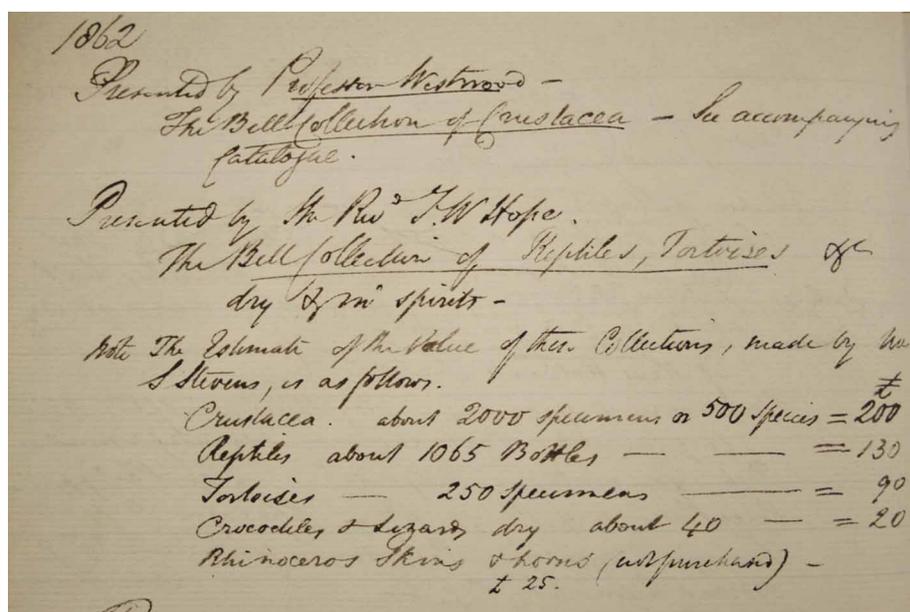


FIGURE 3. Westwood’s journal, showing the donation of the Bell Collection in 1862.

Catalogues of Testudinata at Oxford

In the 19th Century, the Bell Collection was displayed together with other chelonians in the Main Court of the Oxford University Museum with an accompanying catalogue. There are four surviving catalogues of Testudinata that were compiled at different times in the latter part of the 19th Century, and each of which obviously replaced the preceding one. The first three catalogues were written by G. A. Rowell, the Under-keeper of the Ashmolean Museum who, on the transfer of the natural collections from the old Ashmolean to the new University Museum in 1862, divided his time between the two institutions. All of the four catalogues were written before 1895, because in this year the displays were re-organized under the direction of Professor Lankester, and most of the tortoises were removed to stores. The first catalogue was written most probably before the 1870s, and the last two after 1884. The final catalogue announces that it is written “*with the hope*

that it may increase the interest in the collection to the general observer, and not from any idea that it can have a scientific value". Individual specimens belonging to a given species were identified in the final catalogue by lower case letters: a, b, c, d, and so on. There were new annotations in pencil giving the position of each specimen in the display cases. In 1955, when all the specimens were entered in the Zoological Collection's general Reference Catalogue receiving their present OUM numbers, their individual reference accession number was inked alongside their letter identifiers. This catalogue was written by Alfred Robinson, but majority of its text is identical with the previous catalogues.

The number of specimens belonging to Bell's collection differs between the catalogues. The smallest number is recorded in the first catalogue (171) and the largest (204) in the last two. At first glance this seems surprising, but when one follows the history of the zoological specimens in the University Museum at that time, one does not wonder at the discrepancies. Rowell continued to work in the Ashmolean Museum on the archaeological and other collections as well as acting as a guide to the members of the University and casual visitors. This was in addition to his main means of earning his living as a paper hanger for the good citizens of Oxford. So, his part-time work with the zoological collections at the University Museum could not possibly afford him sufficient time to deal with every aspect of the curation and conservation of the specimens. Bells' collection was kept and displayed together with tortoises presented by Lady Harvey, specimens collected by William Burchill in Africa and Brazil, specimens from the old Ashmolean and, of course, specimens continuously forwarded by Hope. Additionally, there were a few tortoises from other sources.

Closer inspection of the catalogues indicates that great care was being bestowed on the collection. By comparing the entries in different catalogues it becomes clear that the specimens were measured and re-measured for each new edition of catalogue. Sometimes the specimens of each species were arranged according to their size, with the largest being listed first, and sometimes according to the collector or donor. The information was expanded or contracted not only about the species, families and genera but also of the individual specimens. The taxonomic arrangement also changed with every edition. The work seemed to be of a piecemeal nature—some of the species were treated to very detailed descriptions with extensive extracts from Gray's (1831a) *Synopsis Reptilium (Cataphracta)* or quotes from Thomas Bell himself, whereas others were given just names and measurements of the specimens.

Interestingly, there are chelonians that were never listed in the catalogues. Besides a few dry specimens, these are some specimens preserved in spirit and as such they were never kept together with the dry material or even listed together. We know that the total number of tortoises received from Bell in 1862, both dry and in spirit, was 250. Out of that number there are presently 204 dry and 17 Bell specimens in spirit. In 1903, eight of the dry ones were destroyed as deemed too damaged to keep in the collection (*Testudo graeca* – 3, *T. radiata* – 1, *Chersina angulata* – 2, *Homopus areolatus* – 1, *Emys concentrica* – 1). That makes altogether 229 specimens, and it means that 21 are missing. Among these 229 specimens are many surviving type specimens of taxa mainly described by Thomas Bell and John Edward Gray. However, only Bell types were identified as such in the collection, while most types of taxa described by Gray remained undiscovered until we reviewed the collection for potential type specimens in 2008.

Gray (1831a: p. v) mentions in his *Synopsis Reptilium (Cataphracta)* as well as in the *Synopsis* in Griffith & Pidgeon (Gray 1831b: footnote on p. 1) that he used Bell's collection for both of these works, in which many new species were described. Both *Synopses* are slightly predated by some parts of the *Illustrations of Indian Zoology* by Gray, published from 1830 to 1835 (Sawyer 1953; Zhao & Adler 1993). Consequently, the authorship of some of the species has to be credited to Gray in his *Illustrations of Indian Zoology*, although it seems that rather the nearly simultaneously published *Synopses* were intended as the place for the original descriptions. Nevertheless, it may be inferred that also for the *Illustrations* specimens from Bell's collection have to be regarded as types, since Gray knew them.

In some cases, there is direct evidence for type status, like the identification of a specimen with a figured turtle or tortoise, or its agreement with measurements given in any of these works. But in other cases direct evidence is absent. According to Article 72.4.1.1 (ICZN 1999), we infer type status then, when Gray (1830–1835, 1831a, b) explicitly mentioned specimens from Bell's collection. It is possible that some type specimens remained unidentified. For instance, we cannot exclude that Bell's specimen of *Batagur baska* was present in

the collection and known to Gray (1830–1835) when he coined the name *Emys baska* in *Illustrations of Indian Zoology*. However, since the figured specimens are, according to the captions, from drawings from the collection of Major-General Buchanan-Hamilton, there is no evidence that Bell's *Batagur* was known to Gray in the early 1830s. Rather, Bell's *Batagur* is mentioned first by Gray (1844: p. 44), suggesting that this turtle was obtained only after the description of *Emys baska*. Moreover, sometimes specimens clearly disagree with descriptions, figures or measurements, and such specimens we do not regard as types, although they might have been present in Bell's collection at the time of the description of a given taxon. This is, for instance, the case with all of the five specimens of *Cuora amboinensis* of the Bell Collection (OUM 8514, shell of 17.6 cm; OUM 8515, shell of 13.8 cm; OUM 8516, shell of 18.5 cm; OUM 8781, two alcoholic specimens of 6.0 and 7.0 cm). None of these turtles can be identified with the figured specimen or the measurements in the original description of *Terrapene bicolor* (Bell 1825a). It is a possibility that this type specimen is today in the Natural History Museum, London, because Gray (1844: p. 31) mentions a *Cuora amboinensis* presented by Bell.

Systematic account of chelonian type specimens

Nomenclature and synonymy below follows Fritz & Havaš (2007), but see Turtle Taxonomy Working Group (2009) for an alternative interpretation of publication dates and authorships of some names. Currently there are in the collection of the Oxford University Museum 46 name-bearing types of 25 chelonian taxa and paralectotypes of three taxa described by Georg Baur, Thomas Bell, André Marie Constant Duméril & Gabriel Bibron, and John Edward Gray. The taxa represent the families Emydidae, Geoemydidae, Testudinidae, Chelidae, and Pelomedusidae.

Abbreviations: BMNH—The Natural History Museum, London (formerly British Museum of Natural History), OUM—Oxford University Museum, SCL—straight-line carapace length

Cryptodira

Emydidae Rafinesque, 1815

Emys concentrica var. *polita* Gray in Griffith & Pidgeon, 1831: p. 11

Current name: *Malaclemys terrapin terrapin* (Schoepff, 1793)

Syntype (1 specimen): **OUM 8475** (Bell Collection, Catalogue of Testudinata No. 32i; shell, SCL 10.6 cm, bears small label with number “160”).

Remarks: Among Bell's specimens of *Malaclemys terrapin*, only OUM 8575 agrees with the description of the variety *polita* in Gray (1831a, b) in having a black carapace with “*polished appearance*”. Also the other characters (upwards curled marginal scutes, sculptured scutes with smooth surface, yellow plastron with big black spots) agree well with the description in Gray (1831a: p. 27). Therefore, we identify this specimen with a type of *Emys concentrica* var. *polita*. Gray (*loc. cit.*) explicitly mentions that he has studied specimens of this variety from Bell's collection and from the collection of the College of Surgeons, London. Consequently, OUM 8475 has syntype status.

Another variety of *Emys concentrica* described by Gray (1831a: p. 27), *Emys concentrica* var. *livida*, was credited to a manuscript name by Bell (*Emys livida*). Gray further points out that of the variety *livida* only material from Bell's collection was known to him, suggesting that the name-bearing type(s) should be in Oxford. However, none of the nine extant Bell specimens of *Malaclemys terrapin* agrees with the rather superficial description in Gray (1831a, translated from Latin: “*shell bluish with obscured growth rings*”), and we conclude that the original material has been lost. Perhaps the specimen of ‘*Emys concentrica*’ destroyed in 1903 due to bad preservation has to be identified with the holotype of *Emys concentrica* var. *livida*.

***Emys decussata* Gray in Griffith & Pidgeon, 1831: p. 11**

Current name: *Trachemys decussata* (Gray, 1831)

Syntypes (7 specimens): **OUM 8452** (Bell Collection, Catalogue of Testudinata No. 35a; whole, stuffed specimen, SCL 23.2 cm); **OUM 8453** (Bell Collection, Catalogue of Testudinata No. 35b; shell, female, SCL 18.8 cm); **OUM 8454** (Bell Collection, Catalogue of Testudinata No. 35c; shell, female, with dried head, tail, all four limbs, pectoral and pelvic girdles, SCL 17.7 cm); **OUM 8455** (Bell Collection, Catalogue of Testudinata No. 35d; shell, juvenile, SCL 14.6 cm); **OUM 8456** (Bell Collection, Catalogue of Testudinata No. 35e; whole, dry specimen, juvenile, SCL 11.2 cm); **OUM 8457** (Bell Collection, Catalogue of Testudinata No. 35f; shell, juvenile, SCL 11.2 cm); **OUM 8458** (Bell Collection, Catalogue of Testudinata No. 35g; whole, dry specimen, juvenile, SCL 6.1 cm).

Remarks: According to Gray (1831a: p. 28), further syntypes are in the collection of the Natural History Museum, London; the description obviously was also based on live specimens kept in Gray's garden ("*Hort. nost.*" = Hortus noster, our garden). King & Burke (1989: p. 60) erroneously state that BMNH 1947.3.4.79 from the Natural History Museum, London, is the holotype of *Emys decussata*.

***Emys irrigata* Duméril & Bibron, 1835: p. 276**

Current name: *Pseudemys rubriventris* (Le Conte, 1830)

Syntypes (2 specimens): **OUM 8441** (Bell Collection, Catalogue of Testudinata No. 37c; whole, stuffed specimen, SCL 30 cm, bears small label with number "157"); **OUM 8442** (Bell Collection, Catalogue of Testudinata No. 37d; whole, stuffed specimen, SCL 26.5 cm, bears small label with number "156").

Remarks: Duméril & Bibron (1835: p. 276) credit the name *Emys irrigata* to an unpublished manuscript by Bell. Since *Emys irrigata* is considered a junior synonym of *Testudo rubriventris* Le Conte, 1830, we conclude that the only two specimens of *Pseudemys rubriventris* (Le Conte, 1830) present in Bell's collection should be treated as syntypes of *Emys irrigata*.

***Emys speciosa* Gray in Griffith & Pidgeon, 1831: p. 10**

Current name: *Glyptemys insculpta* (Le Conte, 1830)

Syntypes (3 specimens): **OUM 8489** (Bell Collection, Catalogue of Testudinata No. 27a; shell, SCL 18.9 cm, bears small label with number "175"; also holotype of *Emys speciosa* var. *levigata* Gray, 1831); **OUM 8490** (Bell Collection, Catalogue of Testudinata No. 27b; whole, stuffed male, SCL 16.6 cm, bears red oval label, label with number "368" and another label with "Zool. Soc."); **OUM 8491** (Bell Collection, Catalogue of Testudinata No. 27c; whole, stuffed juvenile, SCL 11.3 cm).

Remarks: According to Gray (1831a: p. 26), further syntypes are in the Muséum National d'Histoire naturelle, Paris.

***Emys speciosa* var. *levigata* Gray, 1831: p. 26**

Current name: *Glyptemys insculpta* (Le Conte, 1830)

Holotype: **OUM 8489** (Bell Collection, Catalogue of Testudinata No. 27a; shell, SCL 18.9 cm, bears small label with number "175"; also syntype of *Emys speciosa* Gray, 1831).

Remarks: Gray (1831a: p. 26) is explicit in mentioning that he has seen his variety *levigata* only in Bell's collection. We assume that OUM 8489 is the only specimen on which the description was based. It has been regarded as the type of *Emys speciosa* var. *levigata* at least since 1955.

***Terrapene maculata* Bell, 1825: p. 309**

Current name: *Terrapene carolina* (Linnaeus, 1758)

Syntype or holotype: OUM 8503 (Bell Collection, Catalogue of Testudinata No. 20c; shell, SCL 12 cm, bears small label with number “93” and a historical label “TYPE of *Terrapene maculata* Bell, 1825”).

Remarks: Bell (1825b) based his description of *Terrapene maculata* exclusively on material from his collection (“*Mus. Nost.*” = Museum Nostrum, p. 309–310). It is unclear how many specimens were used for the description. Bell (*loc. cit.*) distinguished between the three species *Terrapene carolina*, *Terrapene maculata*, and *Terrapene nebulosa*, all actually representing *Terrapene carolina*. We prefer to treat only OUM 8503 as syntype or holotype of *Terrapene maculata*, because this specimen bears a historical label specifying its type status, but cannot exclude that any of the other six specimens of *Terrapene carolina* (OUM 8501-8502, 8504-8505, 8507-8508) in the Bell Collection bears syntype status as well.

***Terrapene nebulosa* Bell, 1825: p. 310**

Current name: *Terrapene carolina* (Linnaeus, 1758)

Syntype or holotype: OUM 8506 (Bell Collection, Catalogue of Testudinata No. 20f; shell, SCL 13.3 cm, bears small label with number “92” and a historical label “TYPE of *Terrapene nebulosa* Bell, 1825”).

Remarks: Bell (1825b) based his description of *Terrapene nebulosa* exclusively on material from his collection (“*Mus. Nost.*” = Museum Nostrum, p. 310). We treat OUM 8506 for the same reasons as with *Terrapene maculata* as syntype or holotype of *Terrapene nebulosa*.

Geoemydidae Theobald, 1868

***Cyclemys bellii* Gray, 1863: p. 179**

Current name: *Cyclemys dentata* (Gray, 1831)

Holotype: OUM 8513 (Bell Collection, Catalogue of Testudinata No. 24b; shell, SCL 19.1 cm, bears small label with number “111”; also syntype of *Cyclemys orbiculata* Bell, 1834 and of *Emys dhor* = *Emys dentata* Gray, 1831).

Remarks: Gray (1863a: p. 179) based his description of *Cyclemys bellii* on the specimen shown in the upper figure of plate 3 of part 8 of Bell’s (1832–1836) *Monograph of the Testudinata* (reproduced as plate XXV in Sowerby & Lear 1872). The depicted turtle is clearly to be identified with OUM 8513.

Using mitochondrial DNA sequences (partial cytochrome *b* gene) of the holotype of *Cyclemys bellii*, Stuart & Fritz (2007) confirmed the previous assessment of Fritz *et al.* (1997) that *Cyclemys bellii* Gray, 1863 is a junior synonym of *Emys dentata* Gray, 1831.

***Cyclemys orbiculata* Bell, 1834: p. 17**

Current name: *Cyclemys dentata* (Gray, 1831)

Syntypes (3 specimens): OUM 8512 (Bell Collection, Catalogue of Testudinata No. 24a; shell, SCL 19.9 cm, bears small label with number “110”; also syntype of *Emys dhor* = *Emys dentata* Gray, 1831); OUM 8513 (Bell Collection, Catalogue of Testudinata No. 24b; shell, SCL 19.1 cm, bears small label with number “111”; also holotype of *Cyclemys bellii* Gray, 1863 and syntype of *Emys dhor* = *Emys dentata* Gray, 1831); OUM 8867 (Bell Collection, not listed in the Catalogue of Testudinata; shell, SCL 5.6 cm; also syntype of *Emys dhor* = *Emys dentata* Gray, 1831).

Remarks: It is clear from the original description of *Cyclemys orbiculata* that several shells served for the description. Consequently, we treat all shells of *Cyclemys dentata* present in the Bell Collection as syntypes of

Cyclemys orbiculata. Furthermore, Bell (1834: p. 17) mentions that the hatchlings listed by Gray (1831a) under the name *Emys dhor* represent the same species. Therefore, these specimens from the Natural History Museum, London, have syntype status for *Cyclemys orbiculata* as well. The two syntypes OUM 8512-8513 were figured in Bell's (1832–1836) *Monograph of the Testudinata* (part 8, plates 2 and 3, reproduced as plates XXIV and XXV by Sowerby & Lear 1872).

Using mitochondrial DNA sequences (partial cytochrome *b* gene) of two *Cyclemys orbiculata* syntypes (OUM 8512-8513), Stuart & Fritz (2007) confirmed the previous assessment of Fritz *et al.* (1997) that *Cyclemys orbiculata* Bell, 1834 is a junior synonym of *Emys dentata* Gray, 1831.

***Emys crassicollis* Gray in Griffith & Pidgeon, 1831: p. 8**

Current name: *Siebenrockiella crassicollis* (Gray, 1831)

Syntypes (3 specimens): **OUM 8479** (Bell Collection, Catalogue of Testudinata No. 33a; whole, stuffed female, SCL 17.7 cm, bears small label with number “186”); **OUM 8480** (Bell Collection, Catalogue of Testudinata No. 33b; whole, stuffed specimen, SCL 16.6 cm, bears small label with number “188”); **OUM 8481** (Bell Collection; shell, juvenile, SCL 12.2 cm, bears small label with number “187”).

Remarks: Gray (1831a: p. 21) mentions that he has studied specimens of *Emys crassicollis* from Bell's collection and from the Natural History Museum, London. King & Burke (1989) erroneously claim that BMNH 1947.3.5.36 is the holotype of *Siebenrockiella crassicollis*. OUM 8480 is figured in plate 76 (fig. 2) of Gray's *Illustrations of Indian Zoology*.

***Emys dhor* Gray in Griffith & Pidgeon, 1831: p. 8 = *Emys dentata* Gray, 1831: Errata**

Current name: *Cyclemys dentata* (Gray, 1831)

Paralectotypes (3 specimens): **OUM 8512** (Bell Collection, Catalogue of Testudinata No. 24a; shell, SCL 19.9 cm, bears small label with number “110”, also syntype of *Cyclemys orbiculata* Bell, 1834); **OUM 8513** (Bell Collection, Catalogue of Testudinata No. 24b; shell, SCL 19.1 cm, bears small label with number “111”; also holotype of *Cyclemys bellii* Gray, 1863 and syntype of *Cyclemys orbiculata* Bell, 1834); **OUM 8867** (Bell Collection; shell, SCL 5.6 cm; also syntype of *Cyclemys orbiculata* Bell, 1834).

Remarks: The name of *Emys dhor* was corrected by Gray (1831a) in the *Errata* of his *Synopsis Reptilium* (*Cataphracta*) to *Emys dentata* and this was accepted by most later authors, so that *Emys dhor* should be regarded as *nomen oblitum*. Fritz *et al.* (1997) designated BMNH 1946.1.22.62 as lectotype of *Emys dentata*. From Gray (1831a: p. 20) it may be concluded that several specimens from Bell's collection served for the description of this species. Consequently, we regard the three specimens still present in the original Bell Collection as paralectotypes. Further paralectotypes are in the Natural History Museum, London, and in the Nationaal Natuurhistorisch Museum Naturalis in Leiden (formerly Rijksmuseum van Natuurlijke Historie; see also Hoogmoed *et al.* 2010).

***Emys hamiltonii* Gray in Griffith & Pidgeon, 1831: p. 9**

Current name: *Geoclemys hamiltonii* (Gray, 1831)

Syntype (1 specimen): **OUM 8477** (Bell Collection, Catalogue of Testudinata No. 34a; whole, dried specimen, SCL 7.1 cm).

Remarks: King & Burke (1989) list BMNH 1947.3.4.41 as holotype; however, this specimen should rather be regarded as syntype since it is clear that Gray (1831a: p. 72) had studied specimens from the collections of the “*British Museum [= the Natural History Museum, London] and Mr. Bell's*”. The dimensions of OUM 8477 agree with the ones given in Gray's (*loc. cit.*) description.

***Emys spinosae* Gray, 1830: plate 77, figs 1–2 = *Emys spinosa* Gray, 1831**

Current name: *Heosemys spinosa* (Gray, 1830)

Syntype (1 specimen): **OUM 8517** (Bell Collection, Catalogue of Testudinata No. 25b; shell, juvenile, SCL 9.4 cm; shell bears small label with number “208”).

Remarks: The name of this species was misspelled as *Emys spinosae* in plate 77 of the *Illustrations of Indian Zoology* (Gray 1830–1835), constituting the original description of the species, but later corrected by Gray (1831a) to *Emys spinosa* in the *Directions for Arranging the Plates* of his *Synopsis Reptilium (Cataphracta)*. According to Gray (1831a: p. 20), the species was planned to be described by Bell and the species name was taken from Bell’s manuscript. This is in agreement with the caption of table 77 in Gray (1830) and Bell (1832–1836), where the name is credited to the latter author (Fig. 4). Bell (1832–1836) explains that his manuscript was based on a dried juvenile specimen from Mr. Leadbeater that was also figured under the name *Emys spinosa* in his *Monograph of the Testudinata*. Gray (1831a: p. 20) mentions only two juvenile specimens from “*Mus. Nost.*” [Museum Nostrum = our museum] and the figure in Gray’s (1830–1835) *Illustrations of Indian Zoology*, showing the shell of a juvenile from Penang, suggesting that three specimens should bear syntype status. However, as Bell (1832–1836: p. 67) explains, Gray donated the figured specimen (Fig. 5), now OUM 8517, later to him, so that it may be concluded that this turtle is identical with one of the two mentioned juveniles and that there were only two syntypes. The second syntype is supposedly in the collection of the Natural History Museum, London.

***Emys tectum* Gray, 1830: plate 72**

Current name: *Pangshura tecta* (Gray, 1830)

Syntypes (2 specimens): **OUM 8430** (Bell Collection, Catalogue of Testudinata No. 41a; whole, dry specimen, SCL 9.8 cm); **OUM 8431** (Bell Collection, Catalogue of Testudinata No. 41b; whole, stuffed specimen, SCL 8.0 cm).

Remarks: Gray (1831a: p. 23) is explicit that he has seen this species in Bell’s collection, which is why we treat the two specimens as syntypes. Bell (1832–1836) explains that he possessed six or eight dried specimens and two living ones, some of which may exist until today in other collections.

***Emys thuryi* Gray in Griffith & Pidgeon, 1831: p. 8 = *Emys thurjii* Gray, 1831: p. 22**

Current name: *Hardella thurjii* (Gray, 1831)

Syntypes (2 specimens): **OUM 8433** (Bell Collection, Catalogue of Testudinata No. 38a; shell with stuffed head, tail and all four limbs attached, SCL 35 cm); **OUM 8434** (Bell Collection, Catalogue of Testudinata No. 38b; whole, dried specimen, SCL 10.3 cm).

Remarks: The dimensions of both specimens agree with those on p. 73 in Gray (1831a). Further syntypes are, according to Gray (*loc. cit.*), in the Natural History Museum, London.

***Emys vulgaris* Gray in Griffith & Pidgeon, 1831: p. 9**

Current name: *Mauremys leprosa* (Schweigger, 1812)

Paralectotypes (8 specimens): **OUM 8482** (Bell Collection, Catalogue of Testudinata No. 31a; whole, dried male, SCL 15 cm, bears small label with number “206”); **OUM 8483** (Bell Collection, Catalogue of Testudinata No. 31b; shell, SCL 13.8 cm, bears small label with number “139”); **OUM 8484** (Bell Collection, Catalogue of Testudinata No. 31c; whole, dried male, SCL 9.5 cm, bears small label with number “137”); **OUM 8485** (Bell Collection, Catalogue of Testudinata No. 31d; shell, SCL 8.6 cm, bears small label with number “135”); **OUM 8486** (Bell Collection, Catalogue of Testudinata No. 31e; shell, SCL 7.9 cm, bears

small label with number “140”); **OUM 8487** (Bell Collection, Catalogue of Testudinata No. 31f; shell, SCL 7.9 cm, bears small label with number “136”); **OUM 8488** (Bell Collection, Catalogue of Testudinata No. 31g; shell, SCL 7.8 cm); **OUM 8762** (Bell Collection; whole, young specimen in spirit, SCL 5 cm).



FIGURE 4. Reproduction of plate 77 from Gray’s (1830) *Illustrations of Indian Zoology*, showing ‘*Emys spinosae*’ together with ‘*Cistuda amboinensis*’. The name *Emys spinosae* is credited to Bell.

Remarks: We regard all specimens from the Bell Collection, originally identified as *Emys lutaria* and later as “*Clemmys caspica leprosa*” = *Mauremys leprosa* as paralectotypes of *Emys vulgaris*. Bell himself assigned these specimens to *Emys lutaria* as evident from small old labels glued to the shells. In his

Monograph of the Testudinata, Bell (1832–1836) placed Gray’s *Emys vulgaris* into the synonymy of *Emys lutaria* and the two depicted specimens are clearly to be identified with *Mauremys leprosa*. However, the taxonomic history of *Emys vulgaris* is rather confusing. Although traditionally regarded as a junior synonym of *Emys leprosa* Schweigger, 1812, this taxon was originally composed of several species (Fritz & Wischuf 1997), as evident from the figured turtles in plate 4 of Gray (1831a). To avoid nomenclatural upheaval, Fritz & Wischuf (1997) designated the figured *Mauremys leprosa* as lectotype, rendering the now rediscovered, surviving types from the Bell Collection to paralectotypes. OUM 8482, 8484, 8488, and 8762 are *Mauremys leprosa*, OUM 8483, 8485, and 8487 are *M. rivulata*, and OUM 8486 is a *M. mutica*. According to Gray (1831a: p. 24), further paralectotypes are in the Natural History Museum, London, and the Nationaal Natuurhistorisch Museum Naturalis in Leiden (formerly Rijksmuseum van Natuurlijke Historie; see also Hoogmoed *et al.* 2010). Gray (*loc. cit.*) mentions, moreover, that he has seen “more than twenty living” of his *Emys vulgaris*.



FIGURE 5. Syntype of *Emys spinosa* Gray, 1830 figured in the *Illustrations of Indian Zoology* (Gray 1830–1835), now OUM 8517.

***Rhinoclemys bellii* Gray, 1863: p. 183**

Current name: *Rhinoclemmys punctularia* (Daudin, 1801)

Holotype: OUM 8510 (Bell Collection, Catalogue of Testudinata No. 28a; whole, stuffed specimen, SCL 17.3 cm, bears small, hardly legible label with number “6” or “8”).

Remarks: Gray (1863b: p. 183) based his description on the specimen figured in Bell’s (1832–1836) *Monograph of the Testudinata* as *Emys scabra*. This turtle is now catalogued as OUM 8510.

***Sternothaerus trifasciatus* Bell, 1825: p. 305, plate 14**

Current name: *Cuora trifasciata* (Bell, 1825)

Holotype: OUM 8557 (Bell Collection, Catalogue of Testudinata No. 22a; whole, dry specimen, SCL 11.4 cm, bears small label with number “119”).

Remarks: Since there is only one specimen of *Cuora trifasciata* in the Bell Collection, we conclude that the description of *Sternothaerus trifasciatus* was exclusively based on this specimen. OUM 8557 clearly is to be identified with the figured turtle in Bell (1825b: plate 14).

Testudinidae Batsch, 1788

Kinixys castanea Bell, 1827: p. 398, plate XVII: fig. 1

Current name: *Kinixys erosa* (Schweigger, 1812)

Syntypes (3 specimens): **OUM 8519** (Bell Collection, Catalogue of Testudinata No. 17a; whole, stuffed specimen, SCL 29.2 cm); **OUM 8520** (Bell Collection, Catalogue of Testudinata No. 17c; shell, SCL 20.4 cm); **OUM 8521** (Bell Collection, not listed in the Catalogue of Testudinata; shell, SCL 23.5 cm).

Remarks: As evident from page 398 in Bell (1827), the description of his *Kinixys castanea* was exclusively based on specimens from his collection. The stuffed tortoise OUM 8519 agrees with the “*dimensions of a remarkably large specimen*” in Bell (1827: p. 399). We identify this tortoise with the individual initially kept alive by him, because Bell mentions that this specimen was “*after its death sent to be stuffed*”. Bell (1827: p. 393) mentions further that he “*became possessed of several [additional] shells of this species*”, which is why we conclude that OUM 8520-8521 are syntypes. Since none of these specimens is to be identified with the shell figured in Bell (1827: plate XVII: fig. 1), more than these two shells must have been present originally. In the Bell Collection is a second stuffed *Kinixys erosa* (OUM 1093) that is distinctly smaller than OUM 8519 (24.3 cm vs. 29.2 cm). We suppose that Bell obtained this tortoise later because he was not satisfied with the quality of the first specimen after mounting it (Bell 1827: p. 399). Consequently, we do not regard OUM 1093 as syntype.

Kinixys homeana Bell, 1827: p. 400, plate XVII: fig. 2

Current name: *Kinixys homeana* Bell, 1827

Syntype (1 specimen): **OUM 8522** (Bell Collection, Catalogue of Testudinata No. 18a; shell, SCL 19.7 cm).

Remarks: The name “*Homeana*” is credited by Bell (1827: p. 394) to his “*friend Mr. J. E. Gray*” who did not use this name in any earlier publication, which is why Bell (1827) should be regarded as the describer. OUM 8522 is the specimen figured in Bell (1827: plate XVII, fig. 2). Furthermore, its measurements agree with those given in Bell (1827: p. 401). We regard two other specimens of *Kinixys homeana* from Bell’s collection (OUM 8523-8524) not as further syntypes because Bell (1827: p. 394) explicitly mentions that at the time of the description only one *K. homeana* was in his possession. According to the original description, additional syntypes are in the collection of the Natural History Museum, London.

Pyxis arachnoides Bell, 1827: p. 395, pl. XVI: figs 1, 2

Current name: *Pyxis arachnoides* Bell, 1827

Lectotype: **OUM 1092** (Bell Collection, Catalogue of Testudinata No. 13a; shell, SCL 14.4 cm, bears small label with number “5” or “6”).

Paralectotype: **OUM 8528** (Bell Collection, Catalogue of Testudinata No. 13b; shell, plastral forelobe missing, SCL 12.3 cm, bears small label with illegible number).

Remarks: Bell (1827: pp. 394–395, 397) explicitly states that his description of *Pyxis arachnoides* was based on two shells in his collection, one of which (now OUM 8528) had lost the movable plastral forelobe. Two further ethanol-preserved specimens (both catalogued under number OUM 8782) must have been acquired later and bear, therefore, no type status. Although somewhat idealized, the carapace figured in Bell (1827: fig. 1) agrees quite well with OUM 8528, while the ventral view (fig. 2) corresponds to OUM 1092. Bour (1978: p. 153) designated the latter specimen as lectotype of *Pyxis arachnoides* Bell, 1827.

***Testudo actinodes* Bell, 1828: p. 419, plate XXIII**

Current name: *Geochelone elegans* (Schoepff, 1795)

Syntypes (5 specimens): **OUM 8555** (Bell Collection, Catalogue of Testudinata No. 7a; whole, stuffed specimen, SCL 15.5 cm, bears small label with number “20”); **OUM 8556** (Bell Collection, Catalogue of Testudinata No. 7b; shell, SCL 21.5 cm, bears small label with number “25”); **OUM 8558** (Bell Collection, Catalogue of Testudinata No. 7c; shell, SCL 15.8 cm, bears small label with number “19”); **OUM 8559** (Bell Collection, Catalogue of Testudinata No. 7d; shell, SCL 14.0 cm, bears small label with number “22”); **OUM 8560** (Bell Collection, Catalogue of Testudinata No. 7e; shell, SCL 9.5 cm, bears small label with illegible number).

Remarks: It is unclear how many specimens were used by Bell (1828) for the original description of his *Testudo actinodes*. In his *Monograph of the Testudinata*, Bell (1832–1836) writes under this species: “*I have had several individuals of this species living, but have not succeeded in keeping them alive over the winter, notwithstanding they had fed freely during the warm weather.*” OUM 8556 agrees with the dimensions of the shell provided by Bell (1828: p. 419). However, none of the OUM specimens is to be identified with the figured tortoise of Bell (1828: plate XXIII), so that some further syntypes may have been lost or given to other collections.

***Testudo guntheri* Baur, 1889**

Current name: unclear

Syntype (1 specimen): **OUM 8656** (articulated skeleton, SCL 79 cm).

Remarks: “*Testudo guntheri*” was erected by Baur (1889: p. 1044) for the tortoises that were placed in the species *Testudo elephantopus* by Günther (1877). The latter author states that he referred five specimens to *Testudo elephantopus* (pp. 63–64); one from the Oxford Museum (now catalogued as OUM 8656), two further specimens from the collection of the Free Public Museum, Liverpool, and one each from the collections of the British Museum (now Natural History Museum, London) and the Royal College of Surgeons, London. OUM 8656 is depicted on several plates in Günther (1877) and has been catalogued as “Holotype of *Testudo guntheri* Baur” in Oxford. However, it is clear from the list of specimens provided by Günther (1877) that OUM 8656 and the other four tortoises are syntypes. All of these tortoises have no exact locality data. Therefore, *Testudo guntheri* should best be treated as *nomen dubium*, although it has been previously identified with giant tortoises from the southwest of Albemarle Island, Galapagos (e.g., Wermuth & Mertens 1977; Fritz & Havaš 2007).

***Testudo hercules* var. *truncata* Gray in Griffith & Pidgeon, 1831: p. 3**

Current name: *Chelonoidis carbonaria* (Spix, 1824)

Holotype: **OUM 8461** (Bell Collection, Catalogue of Testudinata No. 11d; shell, SCL 21 cm, bears small label with number “53”).

Remarks: This specimen, figured in Bell’s (1832–1836) *Monograph of the Testudinata* (part 4, plate 1), is a tortoise malformed from captive conditions, with pyramidal misshaped scutes. Despite its abnormal shape, OUM 8461 can be identified with an Amazonian morphotype of *Chelonoidis carbonaria* and is clearly distinct from the morphotype occurring in the southernmost part of the species’ range as figured in Vargas-Ramírez *et al.* (2010).

***Testudo tentoria* Bell, 1828: p. 420, plate XXIV**

Current name: *Psammobates tentorius* (Bell, 1828)

Holotype: **OUM 8570** (Bell Collection, Catalogue of Testudinata No. 5a; shell, SCL 10.8 cm, three scutes and anterior part of plastron missing).

Remarks: Bell (1828: p. 420) explicitly mentions that his description of *Testudo tentoria* was based on only one specimen in which “*the anterior lobe of the sternum is wanting*”. This specimen was figured also in the *Monograph of the Testudinata* (1832–1836: Part 7, plate 1, reproduced as plate IV in Sowerby & Lear 1872). Furthermore, the measurements of OUM 8570 agree with those given in Bell (1828: p. 420) so that there is no doubt that this is the holotype of *Testudo tentoria*.

Pleurodira

Chelidae Gray, 1825

Phrynops bellii Gray, 1844: p. 41

Current name: *Myuchelys bellii* (Gray, 1844)

Holotype: OUM 8460 (Bell Collection, not listed in the Catalogue of Testudinata; whole, dried specimen, SCL 11.2 cm, bears small label with number “209”).

Remarks: It is clear from Gray’s (1844: p. 42) description of *Phrynops bellii* that this species was based only on one specimen from the Bell Collection that is consequently the holotype. *Phrynops bellii* is currently identified with a *Myuchelys* species distributed in the Namoi and Gwydir subdrainages of the Murray-Darling basin. However, genetic confirmation of the provenance of the holotype of *Phrynops bellii* is needed (Georges & Thomson 2010: p. 28).

Pelomedusidae Cope, 1868

Stenothaerus leachianus Bell, 1825: p. 306, plate XV

Current name: *Pelusios castaneus* (Schweigger, 1812)

Holotype: OUM 8618 (Bell Collection, Catalogue of Testudinata No. 56b; shell, SCL 8.6 cm).

Remarks: OUM 8618 is the shell figured in the original description of *Stenothaerus leachianus*; however, the plastral forelobe, still attached to the specimen when the figure was prepared, is lost. The original description does not indicate how many specimens were studied. Today, two *Pelusios castaneus* are present in the Bell Collection (OUM 1082, whole, stuffed specimen; OUM 8618, shell) that both could be syntypes. However, in contrast to other species Bell (1825b) does not mention any soft-part structures for *Stenothaerus leachianus*. We conclude that only the shell was present at the time of the species description and, therefore, it should be regarded as holotype of *Stenothaerus leachianus*.

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