SIR HANS SLOANE

Collector, Scientist, Antiquary
Founding Father of the British Museum

Edited by Arthur MacGregor

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1 The Life, Character and Career of Sir Hans Sloane

Arthur MacGregor

The salient features in the life of Sir Hans Sloane have been mapped out in a number of biographical studies.[1] Since our principal concern in this volume will be with Sloane the collector, a brief survey will suffice here to provide a background against which the following essays may be set.

Almost all we know of Sloane's antecedents can be gleaned from a brief pedigree certified by Hans together with his brother William in 1726,[2] and from a memoir[3] thought to be based on information culled from personal interviews with Sloane by Thomas Birch,[4] conducted for a projected series of biographical studies of contemporary notables. We learn that Hans 'was descended of a Family originally of Scotland, but settled in the North of Ireland upon the new Plantation of that part of the Kingdom in the Reign of King James I'.[5] He was born at Killyleagh, Co. Down, on 16 April 1660, the seventh son of Alexander Sloane, by faith a Protestant and by profession the agent for James Hamilton, 2nd Viscount Clandeboye and later Earl of Clanbrassill.[6] Hans's mother, Sarah Hicks, came to Ireland in the company of Anne Carey, daughter of the Earl of Monmouth, who was to marry James Hamilton.[7]

Alexander Sloane died six years after Hans was born and Sarah remarried by the time he reached eleven, moving away from the village with her new husband. Hans appears to have remained in Killyleagh and to have attended school there. A 'strong Inclination to the study of the Works of Nature'[8] developed in the young Sloane, as he recalled in later life:

> I had from my Youth been very much pleas'd with the Study of Plants, and other Parts of Nature, and had seen most of those Kinds of Curiosities, which were to be found either in the Fields, or in the Gardens or Cabinets of the Curious in these Parts.[9]

At the age of sixteen he was struck by a bout of spitting blood, a pulmonary affliction that took three years to subdue and from which, despite a prudent regime, he was to suffer periodic relapses for the remainder of his life.[10] None the less, at the age of nineteen he was judged sufficiently recovered to leave Ireland in order to further his education in London.

There the young Sloane was lodged in a house in Water Lane, adjacent to the Apothecaries' Hall where he was to study chemistry. His lodgings were shared by Nicholas Staphorst, the Apothecaries' 'chemical operator', with whom Sloane acquired 'a perfect Knowledge of the Preparations and Uses of most chemical Medicines'.[11] Lectures in anatomy and physic complemented this training, while his botanical studies were carried out at the Physic Garden in Chelsea, established by the Apothecaries in 1673 and directed by John Watts.[12]

Perhaps as important in Sloane's development as this formal training was the influence of two acquaintances first encountered during this period, who were to remain his firm friends for the rest of their lives. The first was John Ray (1627–1705): over thirty years older than Sloane, Ray was a former fellow of Trinity College, Cambridge and had been elected FRS in 1667; the first of several important publications by his hand, the *Methodus Plantarum Nova* which established the basis of a new method of classifying plants, appeared in 1682 while Sloane was in London. The particular bond of friendship established between them is illustrated by the extracts from their lifelong correspondence, marked by mutal respect as well as affection, which appear below.[13] The second of Sloane's mentors at this time was 'that great & good Man', Robert Boyle (1627–91), an exact contemporary of Ray, who occupies a position in the history of chemistry and physics as exalted as that of Ray in the natural sciences.[14] Birch reports candidly that Sloane cultivated Boyle's friendship 'by communicating to him whatever occur'd to himself, which seem'd curious & important, & which Mr Boyle always receiv'd with his usual Candour & return'd with every Mark of Civility and Esteem'.[15] There seems little doubt that the acquaintance of these two scholarly figures produced a powerful formative influence on the development of Sloane's interests.

After four years of formal education in medicine, 'having made use of all the Advantages, which London afforded him for the Study of Physic', Sloane thought it desirable for his further development to travel abroad.[16] He sought new fields in France in the company of two fellow physicians in the making, Tancred Robinson[17] and a companion named Wakely, of whom nothing further is recorded. In the spring of 1683 the trio arrived in Paris, where for some three months, Sloane followed an intensive regime 'which afforded him full Employment for the Day', sharing his time between the Jardin Royal des Plantes and the Hôpital de la Charité:

> He enter'd at six in the morning the Royal Garden of Plants with Mons^r^ Tournefort, who demonstrated the Plants after the Order of Caspar Bauhin in his *Pinax* till eight, when Mons^r^ Duforty explain'd their Virtues till ten; & at two in the afternoon Mons^r^ du Verney read upon Anatomy till four, & was succeeded by Mons^r^ Sanlyon, the Chemical Professor, who discours'd in French on the Operations to be perform'd that day by Mon^r^ Faveur.[18]

Birch records that Sloane was 'assidious in his Attendance upon all these Professors, by whom he was treated with great Respect, as likewise by those of the Royal College & others eminent for their Skill in Physic, Natural History, or Philosophy'.[19] Of his tutors, Joseph Pitton de Tournefort

4 Vertebrate Collections

Juliet Clutton-Brock

In the discussion following a lecture given at The Natural History Museum in London in 1991, someone asked whether it would ever be admissible to return certain biological specimens to museums in their countries of origin. One participant responded, perhaps mischievously, that the return of material objects might be no great loss to the Museum as long as the labels and all other information about the specimens were retained. This reflects precisely the situation of almost all of the 4,500 or so vertebrate specimens listed in the published works and handwritten catalogues of Sir Hans Sloane. Over the years the specimens have either been dispersed without trace, have perished or have been destroyed and although their loss is tragic, the evidence provided by Sloane's individual accounts of the animals remains of very great value. These accounts provide a unique record of contemporary knowledge of the natural world over the period of seventy years when Sloane was compiling his collections, from the 1680s until he died in 1753 aged ninety-two.

The main published sources of Sloane's descriptions of vertebrates are in the second volume of his *Natural History* of Jamaica, published in 1725, and in scattered papers in the *Philosophical Transactions of the Royal Society*. His collections of vertebrate specimens are described and indexed in his manuscript catalogues, which are listed (as with all Sloane's collections) according to a numerical sequence, but it is difficult to count the exact numbers in each class of animals since they are often mixed and some numbers are left unallocated. Fortunately, Sloane had all the entries indexed with marvellous neatness and accuracy by an amanuensis and this makes searching for an individual record relatively easy. The great majority of the original entries are in Sloane's handwriting but some are by his assistants, notably Cromwell Mortimer (see Chapter 1) whose script is very clear; other hands are less legible, and one is a barely decipherable scrawl. Most of the descriptions are in English but some are in Latin. Sloane was scrupulous in quoting publications that referred to any detail concerning his specimens and these are included in the descriptions given below, where appropriate.

Volume 25 of the catalogue contains the following numbers of vertebrate entries:

Fish

25a 1–1563 entries, which include parts of whales, a description of the manatee from the West Indies, a unicorn's horn, some fossils and many sea horses (designated as hippocampus).

Birds

25b 1–907 entries, ending with a shark's tooth.

Eggs

25c 1–272 entries, although some numbers are unallocated. Includes reptile eggs as well as those of birds. There is an alphabetical index of the eggs at the end of this section. 25d

Quadrupeds

1–1903 entries. 25e

Sloane's *Natural History* of Jamaica

As recounted in Chapter 1, Sloane spent fifteen months in Jamaica, arriving on 19 December 1687 (at the age of twenty-seven) and leaving on 16 March 1689, during which time he amassed huge collections of plants and animals. An illustrator was employed by Sloane to make drawings of many of his specimens and these are reproduced in the *Natural History*, as engravings (see Figs. 11–13, 15; page numbers quoted in the following text refer to the same work.

Fishes from Jamaica

Sloane admitted that his observations on the fishes of Jamaica were very imperfect, partly because he was based six miles from the sea and the collected fishes rotted so quickly, and also because he was otherwise occupied. He observed that the Indians were expert at spearing fish during the daytime, and also at night which they did by having wax lights (*cerei*) on their boats that attracted the fish. The Indians also soaked the bruised bark of the Dog-wood tree (probably *Piscidia piscipala*) in standing water, which intoxicated the fish so that they could be speedily taken [p. 275].

The descriptions of fish are grouped in eight short chapters according to their physical appearance, such as flat-fish, eel, smooth-skinned, prickly and so on. Reproduced here in Fig. 11 is an example of the eight double pages of drawings of fish as included in volume II of the *Natural History*. The text records that the stomach of the Toad-fish (probably *Lagocephalus* sp. or *Sphoeroides* sp.) had under it 'two wind bladders', by which it puffed itself up [pp. 279–80]. The *Cugupuguacu Brasiliensibus* (a grouper, *Epinephelus* sp.) had been taken in the sea near Port Royal and was drawn natural size at Jamaica, but through lack of time Sloane had made no descriptions of the fish [p. 280]. About the Barracuda (*Sphyraena* sp.) he had observed quite correctly that its flesh was sometimes poisonous:[1]

> According to its feeding on venemous or not venemous Food, 'tis wholesome or poysonous to those who eat it; 'tis also noxious in some Seasons of the year, and in some Places, and innocent in others, I suppose according to its nourishment, by which now and then, it acquires so much poison as to kill immediately. It was taken at *Old Harbour*, and notwithstanding its supposed poisonous Qualities sold in the Markets [p. 285].

* Marginal numerals in this chapter refer to Sloane catalogues listed on pp. 291–4

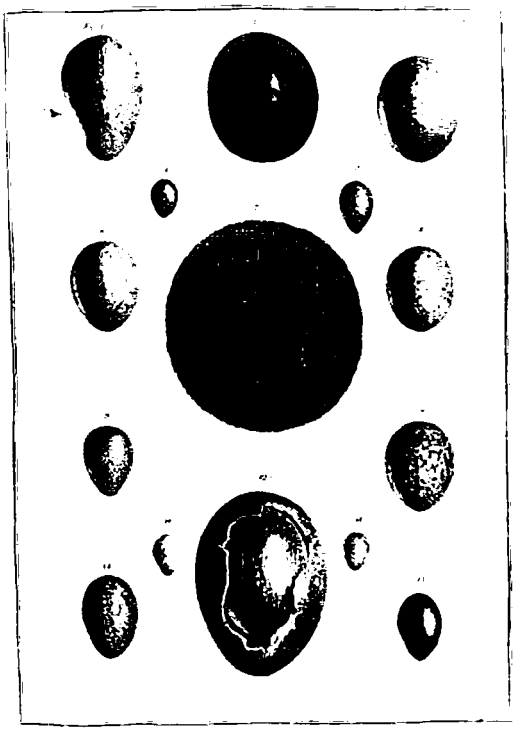

Fig. 16 J. & A. Van Rymsdyk, *Museum Britannicum* (1778), tab. vi: birds' eggs and a hair ball from Sir Hans Sloane's museum, later in the British Museum. '6: Parrot's Egg, form beautiful oval, colour reddish white, laid in September 1724, after the Parrot had been nine years in *England*, without a mate. *Vid.* for an entertaining Account like this, in the incomparable Dr. *Harvey* on Generation. *Exer.* v. *p.* 24; 7: A Hair Ball, found in an Ox's stomach, from Jamaica; colour brown ochre, the hair proceeding as it were from the center, the same at the posterior part; the inside solid of a hard glewey substance.'

sis.[7] Sloane also recorded a racoon (*sic*) or coati (*Procyon* sp. or *Nasua* sp.) which he claimed was common in the mountains, from where it made paths to the sugar cane which was its only food [p. 329]. There are no raccoons or coatis living wild on Jamaica today, but they were also described by Brown[8] who claimed that raccoons were occasionally brought to the island as captive animals.

The only aquatic mammal described by Sloane was the manatee or Sea-Cow (*Trichechus manatus*) which he wrote about at length:

> This is sometimes taken in the quieter Bays of this Island, tho' rarely now a Days: They have formerly been frequent, but are, by the multitude of People and the Hunters catching them, destroy'd. They are caught by the *Indians* who are reckon'd the best Hunters, knowing the Haunts and customs of their Game, and being very dexterous at it, especially those of the *Musquitos*, or *Costa Ricca*. The *Manatis* are reckon'd extraordinary Food and are likewise salted as Beef, and eaten as Provision . . .
>
> They lye towards the Surface of the Water in Rivers and Bayes, have two fins like Arms, are struck with Arrows having Cords fastened to them with a Buoy at their Ends. They are so large as to require a pair of Oxen in a Cart to carry them, the best Fish in the World and appear like Beef or Veal. Their cur'd Flesh keeps long without Corruption, is brought from *Espanola* to *Spain*, and is like to English Beef at sight, and to Tunny Fish in Taste. *Manatis* feed on Grass growing under Water, they have Stones in their Heads, good for the Diseases of the Liver burn't and pow-der'd, taken in the Morning with white Wine, it takes away the Pain in the Kidnies, breaks the Stone . . . [p. 329].

As with the 800 plants (see Chapter 8) and much else, Sloane probably brought back to England many of the vertebrate animals that he collected, preserved in spirit or as skins. It is, however, difficult to distinguish, in the catalogues, the specimens that Sloane gathered personally from those that he purchased or was given during the sixty years that he continued adding to his collections after his return from Jamaica. He also attempted to bring back some living animals, a yellow snake, a crocodile, and a 'guana' (lizard) [p. 346]. The snake was shot on board ship by servants of the Duchess of Albemarle after it escaped from the jar in which it was kept. The guana fell overboard and was drowned, and the crocodile, which was fed on the same food as the snake, died in its tub on 15 May 1689. Sloane remarked: 'Thus I lost, by this time of the Voyage, all my live Creatures, and so it happens to most People, who lose their strange live Animals for want of proper Air, Food, or Shelter' [p. 346].

Other Exotic Animals brought to England alive or reared in Captivity

Sloane did, however, manage to keep many live animals in the garden of his Chelsea home and when they died they were added to his museum, as were exotic animals which lived and died in captivity elsewhere. The catalogued examples of exotic animals bred in England include the following.

Birds and Eggs

An ostridges egg. These are eaten in Barbary. Sir Nicholas Garret had one tame which laid eggs at his house at West Ham beyond Stratford & he commended them as admirable victuals. Oeuf's d'Autruche. Il faut observer que eux, qui ont ete pondu dans l'Afrique, ont la coque incomparablement plus epaisie queles oeufs des Autriches de la Menagerie du roi Biron p. 277.[9] — 25c/136

Parrots eggs laid in [month?] 1724. after the parrot had been nine years in England & never bred, given me by Mr Harris (see Fig. 16, no. 6).[10] — 25c/150

The egg of a Guana [lizard] laid in England after it was brought from Antigua & lived a few days. — 25c/210

A vulturs egg laid in the Tower given me by Mr Doyly. — 25c/245

The skin of the head & hock of the red headed crane from Bengall [probably the Common crane, *Grus grus*]. given me by Mr Dubois. this crane lived in my garden severall years, & died by swallowing a brass linked sleeve button. — 25b/684

. . . a smaller sort of Bustard from Moca in Arabia. It lived in my garden many years and ate flesh & other foods as it had done at Mitcham in Mr Dubois' garden, who gave it me & had it brought over by one of the coffee ships. — 25b/853

Fig. 17 *Chauliodus sloani*, NHM, 1978.9.11.1. Reproduced by courtesy of the Trustees of The Natural History Museum.

Quadrupeds

25*e*/253 A piece of the lyons skin that dyed in the Tower in K. James's reign.

25*e*/677 The horns of a Spotted East India deer or stagg [probably *Axis axis* but possibly the now endangered spotted deer from the Philippine islands, *Cervus alfredi*]. They shed them here in England at all times of the year. If the horns are not hardened ere winter they gangrene & the stagg dyes. These were given me by the Earl of Abbington.

25*e*/856 A hawks bill turtle or tortoise from the coast of Guinea where it was taken & brought to me by Mr. Harris I kept it in a tub of fresh water and made salt by the addition of 40th. part of bay salt. It fed on whitings which it would eat w^{t} its bill, it would come up to breath freq^{tly}. & [?] itselfe in the water according to its pleasure. it was killed w^{t} the cold weather as was the following.

25*e*/857 A small land tortoise from Virginia of w^{ch} I could not find the food.

25*e*/1284 A large grayish green lizard from Malaga. It would eat flies & drink water. It would likewise drink milk but vomited it curdled & died towards the latter end of Sept. at London.

25*e*/1428 The case [skin] of a beaver I kept alive in my garden for some time.

25*e*/1429 The inward parts in spirits.

25*e*/1462 The claw of an old Lyon that lived from K. Charles 2d. reign to 1711. ld. sticking to the bone.

25*e*/1519 A young lyon pupp whelped in the Tower. This is one of 3 of the same litter 2 whereof died the 3rd lived. The same lyon also brought a litter of 2 or 3 before. from Mr Marly a keeper of his Majesty's rough game.

25*e*/1779 Two cataracts taken out of the eyes of a blind small fox from Greenland [the arctic fox, *Alopex lagopus*]. He lived many years w^{t} me in my garden was brown in summer & turned white in winter. In April generally the fox shed the white hair unless [until] the last year of its life when being sick the white furr continued till its death not changing as usually.

25*e*/1864 The trunk eyes etc of the Elephant that died of a Consumption in the year 1741 at Mile end in Middlesex.

The Catalogue of Vertebrates

The entries of vertebrate specimens in volume 25*a–e* of the manuscript catalogue present a kind of synopsis of the knowledge and attitudes of Sloane and his contemporaries to the natural world. A selection of these entries, under Sloane's divisions of fish, birds, and quadrupeds is therefore given below, using Sloane's spelling and abbreviations, and including his references to other published works either on that particular specimen or to the subject in general.

The first page of the volume has a note stating that in his garden Sloane had the skeleton of the spermaceti whale, or 'Cashalot' (*Physeter catodon*), which had been stranded on the Essex coast. The sperm whale is an inhabitant of warm equatorial waters, but old males quite often extend their range northwards and then they are occasionally stranded on the British coasts.

Fish

There are 1,563 entries of fishes amongst which are a number of fossils and other classes of animals. Many of

the descriptions are in Latin. Marine mammals from manatees to whales are counted as fish.

One fish that has survived from the Sloane collection is the holotype of *Chauliodus sloani*, a deep sea fish collected from the Straits of Gibraltar (Fig. 17). The old label on the specimen bottle gives the fish the name 'viper mouth', presumably from the fish's habit of swallowing other fish whole. An entry from this fish has not, however, been found in Sloane's catalogue or index.

Birds

There are 907 entries, the last being a glass case with flycatchers, titmouse, and humming birds.

Amongst the birds indexed in volume 26*d* are:

Bird	*No. of specimens*
Birds of paradise	10
Canary	4
Cornish chough	3
Humming birds	52
Macaw	5
Toucan	11
Turkey	5
Upupa (hoopoe)	4

Selected entries of birds from the catalogue include the following:

Exotic birds

Feathers from birds of paradise (which are restricted to north Australia and New Guinea) had been brought to Europe since the Spanish explorers reached the Moluccas, the southern islands of Indonesia, in 1522. Sloane's collection
25*b*/530 included 'Remains of the Ring paradyse bird from Japan . . .' Presumably this bird of paradise had been imported to Japan by local traders. Many other birds (sometimes alive) and their eggs were brought as curiosities from all parts of the world, and Sloane must have been one of the first Englishmen to learn about the delights of bird's nest soup, as described below:

25*b*/140 Edible birds nest. /nidus avium Indicarium. Navarette voyages in Spanish page 45[11] ayuna ospecie de Golondrinas &c. Translated in Churchills Collections of voyages Vol 1 page 46.[12] In the Island of Calimianianes, belonging to Manila, & in others of that Archipelago, there is a sort of Swallows not much unlike ours, they swim upon the sea, & build their Nests in the rocks along the shore. These Nests are mightily valued in Manila among the Natives, & much more in China, where they give great Rates for them. Those Birds make them of the foam of the sea; when dry they look like a piece of ash-colour'd clay, but being boil'd w[t] flesh they are excallent meat, & very nourishing, as they all say. Marry'd men, & those that have weak stomachs use it; it is no good food for those that are didicated to God's Service; but it is wonderful so delicious a Morsel, as they who eat it think can never be sufficiently commended, should be made of such matter.

Examples of birds from the Americas include the following:

Bill of the Toucan of Condamine p. 172 who says that its tongue is said to have great virtues. 25*b*/154

There are five genera of toucans belonging to the family Ramphastidae. Toucans all come from South and Central America.

Feather of the condor from ye. coast of Chili. 25*b*/214

This feather, which was 2 ft. 4 ins. long, was described together with details of the Condor (*Vultur gryphus*) and how this bird was killed by seamen while it sat on the cliffs. They ate the bird, thinking it was a kind of turkey.[13]

A white swallow from Buenos Ayres. 25*b*/702
Feathers made up to fright the slaves . . . 25*b*/724

Sloane's description of the booby (*Sula* spp.) indicates that this bird came from the West Indies but there are many species of this sea bird around the world including the gannet (*Sula bassana*), known to Sloane as the Soland goose, which is found in Britain:

A booby? The booby is a water fowl, somewhat less than a Hen of a light greyish colour, it hath a strong Bill, longer & bigger than a Crows, and broader at the end; her feet [are] flat like a Ducks feet. It is a very simple creature, and will hardly go out of a Mans way. In other places they build their nests on the Ground but here (the Isle of Aves [north west of Domenica in the Caribbean Sea]) they build on trees; w[ch] I never saw anywhere else; tho' I have seen of them in a great many places. Their flesh is black & eats fishy, but are often eaten by the Privateers. Dampier voyag. Vol. 1. p. 49.[14] 25*b*/720

A young Flamingo or phenicopher [now called Phoenicopteridae] from Mr Theobalds from the continent of America. vid Dampier's Voy Vol 1. p. 70. The flesh of both young & old is lean & black yet very good meat, tasting neither fishy nor any way unsavoury. Their tongues are large, having a large knob of fat at the root, w[ch] is an excellent bit. a Dish of Flamingo's tongues being fit for a Princes table.[15] 25*b*/814

The back part of the eye of an ostrich [with its] muscles prepared by Mr Ranby. 25*b*/572

The latter specimen presumably came from an ostrich that was kept alive in England.

The Dodo

There is no mention of the Dodo (*Raphus cucullatus*) in Sloane's works, probably because it was already extinct by his time, but he did own an oil painting of this giant, flightless pigeon from Mauritius (Plate 5).

Birds from England

White hern [heron] top. an such as belongs to the black topping of the knights of the garter?[16] 25*b*/174
The leggs & beak of the Cornish Chough? from the Isle of Wight. 25*b*/254
A Cornish chough, a sort of Jackdaw w[t] a red crooked bill & red leggs . . . Charlton p. 75.[17] Tho. Killegrew. 25*b*/353
A white hen pheasant. 25*b*/365
A white Canary bird. 25*b*/367
A milk white swallow from Lincolnshire given me by Mr Heneage. 25*b*/616

Birds from Scotland

In addition to a few carcasses of whole birds, there is listed:

/153 'Oil from a bird in the N. Isles of Scotland w[t] w[ch] the Inhabitants cure the Rheumatisme etc.' – probably oil from the
/523 Fulmar (*Fulmarus glacialis*) – and 'Eider down used for coverlets to beds in Denmark & other cold countries? taken from a sea fowl'. The eiderdown, a quilt filled with the down of the female Eider duck (*Somateria mollissima*) was obviously not yet a common form of bedding in Britain in Sloane's time.

Martin Martin, who had visited the islands of St. Kilda in the Outer Hebrides in the early 1690s, was one of the collectors from whom Sloane obtained a number of birds and their eggs that were otherwise little known south of
c/118 the border. Examples includes the broken egg of a Soland
b/213 goose, and a Goar fowl from St. Kilda. The Goar or Gar fowl were alternative names for the extinct Great auk (*Pinguinus impennis*) which nested on the islands of St Kilda, the Orkneys, and elsewhere until the last bird was killed in 1840.[18] The nesting habits of the flightless Great auk and its exploitation by the St. Kildans in the seventeenth century are described by Martin.[19]

Martin also presented Sloane with some examples of
5c/13 Scottish ram's horn, one of which was made into a ladle as used in the Western Islands of Scotland.

As people are today, Sloane and his contemporaries were intrigued by birds that were occasionally sighted as vagrants in the British Isles and he collected them when he could. A favourite was the hoopoe:

b/790 Upupa the Dung-bird the Hooper. Charlton p. 98. From Cambridgeshire by my Grandson Cadogan. [also] Upupa, hoopoo or hoopoe from Hampshire in Sp. V. [spirit of wine].

Eggs

There are 272 entries (although some numbers are not assigned), with the index following, all in volume 25*c* and *d*. Some examples are given below, in order of their accession numbers, to show what a medley of scientifically valuable specimens and curiosities must have been contained in Sloane's museum:

5c/15 Fulmers egg perfectly white.
5c/20 An Scotch honey buzzard . . .[20]
5c/89 Land tortoises egg.
c/117 Crocodiles egg.
c/119 A salamanders egg from the East Indies. The young one seen in it.
/121 Awks egg.
c/125 An egg w[t] a horse shoe naild on it.
/141 An ostriches egg? from Mr. Burnett from Buenos aires? much lesser an Condors? a smaller sort of Ostridge, whose feathers are of no value.[21]
/148 A Kings fishers egg.
/155 The small bird without a name like the stopparola Aldrovandi. Willughby's ornithology. p. 217.[22] eggs w[t] a nest.
/220 A humming bird large mantis & scorpion. Mr Maidstone.
/229 A Maccaws egg.
/233 The egg of a large Duke owl [?] laid in my garden.

A common hens egg shell w[th] was said to have had 2 yolks from Dr Grews collections.[23] 25c/234

Four eggs from the China pheasant. 25c/240

An ostridges egg from Sir Nicholas Garrards in Essex, smooth. They were eat by that family as other eggs given me by Lady Garrard. 25c/241

A very odd furrowed guinea hens egg given to me by my daughter Cadogan.[24] 25c/243

Quadrupeds

There are 1,903 entries. The following numbers of specimens are selected from the index of quadrupeds in volume 25*e*:

Taxon	*Number of specimens*
Armadillo	5
Bezoars	49
Calculi	10
Chameleon	21
Crocodile	21
Elephant	68
Frog [incl. Rana]	24
Gall bladder	12
Hair ball	14
Hippopotamus	8
Iguana	6
Lizards [incl. Lacerta]	248
Lion	15
Manati	10
Monkeys	20
Porcupine	4
Orang Outang	3
Rabbit	10
Rats	10
Rhinoceros	20
Salamander	29
Scaly lizard	16
Sloth	4
Snake	5
Snake stones	3
Stones	44
Tortoise [incl. sea tortoise]	67
Tree frog	3
Unicorn	3
Water lizard	15

Some examples of quadrupeds from volume 25*e* of the catalogue:

A cane made of turned & joined ivory w[th] ye fig: of a shepherd tempting a naked woman w[th] an Fruit, carved on ye Head. 25e/26

The head of a staffe of unicorns horn. 25e/111

A white boar's foot. 25e/44

The underchap of a fallow deer wherein the grinders appear gilded with armatura or pyrites. This was given me by the Lady Thanet who brought it from her park in y[e] North of England, where the deer feeding on one side of it have their teeth so encrusted the others not. 25e/140

The skin of a tartar lamb, being an abortive lamb in Tartay of w[ch] are made caps in China.[25] 25e/174

A ratt which was starved to death in a wall given me by Mr Fowler. 25e/194

25*e*/198 The skeleton of the head of the Babyroussa [the Babirusa, *Babyrousa babyrussa*] given me by Mr Courten.[25]

25*e*/222 The bone in an oxes legg taken up at Pauls & supposed to be of those sacrificed in time of the Romans when it was an heathen temple [see further, Chapter 12].

25*e*/404 A tigers tooth.

25*e*/408 Musk.

25*e*/459 The skin of the wild asse called Zebra from the cape of good hope, given me by Mr Charles Dubois.

25*e*/534 Small Cameleons from the cape of good hope. from [Dr Dolney]. One has a larger crest over the head than the others. Seba. tom. 1. p. 135.[27]

25*e*/634 Mus Indicus major . . .

25*e*/635 Mus Indicus minor . . .

25*e*/636 Mus Indicus striatus . . .

25*e*/716 A straight rams horn an the 4 horn'd one.[28]

25*e*/717 The same.

25*e*/730 A white Mole. Seba tom. 1. p. 51. Tab. 32. fig. 1.

25*e*/766 Hair ball from the stomach of a cow or ox . . .[29]

25*e*/864 A ratt with the foreleggs very short & the hind leggs long w^ch^ burrows in the deserts of Arabia from Mr Tanner.[30]

25*e*/1045 The skeleton of a Kama [hartebeest from southern Africa, *Alcelaphus caama*].

25*e*/1055 A very large Sea horses tooth. Id. vid. 1081.[31]

25*e*/1081 An Hippopotamus's tooth. Id cum 1055.

25*e*/1183 The hair of the urus lofar [?]. Commontar [?]. taken from between the horns & upper part of the neck w^ch^ smells of musk given to me as a rarity by the order of his Majesty King George [I added in pencil] being taken from 2 A bull & cow from Prussia sent from Coningsberg by the K. of Prussia. They were sent in wooden coops & were 12 weeks in their passage.[32]

25*e*/1192 A large molar tooth said to be of an alogator from Dr Houston. but Alogators have no molar tooth.

25*e*/1197 The skin of a black fox from Carolina where they are very rare & found only on the mountains. Mr Catesby.

25*e*/1198 The skin of a polecatt, they all vary in their marks – two being never seen alike, some almost all white others mostly black w^t^ but little white which forms a sport of nature peculiar to this little beast, at least I know of no wild beast but what are all of the same colour.[33]

25*e*/1201 A white mouse catch'd in a trap in Hannover square.[34]

25*e*/1202 A white mole catchd about London given me by Mr. | | perish'd.

25*e*/1257 A dogg w^t^ one head & two bodies.

25*e*/1258 A dogg with 2 heads & one body.

25*e*/1311 Sea horse beard bristles to make a ring for the cramp.[35]

25*e*/1326 A whole hoofed boars foot a breed of which is in Leicestershire & Oxfordshire said to be better for food than the other kind. from Mr Cripp.[36]

25*e*/1329 Small bones (of froggs) sent as bones of some small birds, of which there is an Hill full, at Neither-Jossa. 7 German miles or 14 hours travelling from Hesse Cassell.

25*e*/1338 The bufalos horn of America from Mr Dering.

25*e*/1484 The backbone of a horse w^t^ sevll. protruberances upon it from a collar [. . .] by Mr Ranby.

25*e*/1731 An hydatis from the viscera of a sheep in sp. V.

25*e*/1861 A beavers tail from Hudson Bay by Mr Potts.

25*e*/1862 Two scent baggs of a Beaver or Castorium from the same.

25*e*/1869 The case [skin] of a Porcupine from Hudson Bay in North America its much larger than the common Porcupine tho' the Prikkles are smaller & all cover'd w^t^ hair or furr as long & of the colour of a Beaver probablely designed by the Authore of Nature to keep it warm in that very cold climate from Dr Massey.

25*e*/1889 A large Philander or the Opossum w^t^ its young ones from Brasil belonging to the Duke of Richmond and bought at the sale of his Museum. by J.S. M.D.

25*e*/1890 A Persian cat . . .

Primates

It is evident from the entries on primates given below that Sloane was not sure whether these creatures were animals or some sort of primitive human.

25*e*/204 The skeleton of an Orang Outang or wild man from Sumatra in the East Indies by Capt. Aprice. the hands and feet were thrown overboard in coming from the East Indies when this creature died. It was given me by Mr. Maidstone. vid No 1851.[37]

25*e*/994 Simia tardigrada? Id. Animalculum Cynocephalum, Ceilonicum, tardigradum dictum Simii species, Seba tom. 1. Tab. 35, fig 1. page 55.

25*e*/1851 The homo sylvestris, Orang outang, or Chimpanzi from Borneo. It dyed in China and was put into rack & brought over to rot [?]. Charles Lockyer who gave her to me. She is covered w^t^ longer hair.

25*e*/1895 The fore Paws of an Orang Outang or Chimpanzi from the Duke of Richmonds Sale by Dr. Stack.

Rhinoceroses

The rhinoceros horns owned by Sloane are amongst some of the very few specimens in his collections of quadrupeds to survive. There is a pair of horns of the African white rhinoceros (*Ceratotherium simum*) and a pair of horns of the black rhinoceros (*Diceros bicornis*) in The Natural History Museum.[38] They are described and figured in the long letter on the natural history of the rhinoceros by Parsons[39] (see Fig. 18). The white rhino horns are described in Sloane's catalogue as:

25*e*/1262 Two horns of a rhinoceros joined together by the skin of the snout where they grow. One of them is straight, the other crooked. from Lagoa on the Continent of Africa N of Madagascar & taken by the person who made a present of them to Mr Lockyer who gave them to me. Vid. Cosman.

In addition, Sloane made the following comments on the horns:[40]

These Horns were given me by my worthy and ingenious Friend and Acquaintance *Charles Lockyer* Esq; who was (as I have been told) sent in a Ship of Strength with a Power given him by the *East-Indian* and *African* Companies, to go on their Affairs to that unfrequented Coast [south east Africa] which common Travellers have been afraid to go to because of the Barbarity and Cruelty commonly said to belong to its Inhabitants, and with which the *Egyptians*, and from them the *Greeks* and *Romans*, had a greater Intercourse and Knowledge than with the Southern Parts of *Asia*, where the Animal is generally found with only one Horn.

The two double-horned species of African rhinoceros, the black and the white, were little known and Sloane did not know whether the double horns were an abnormality or

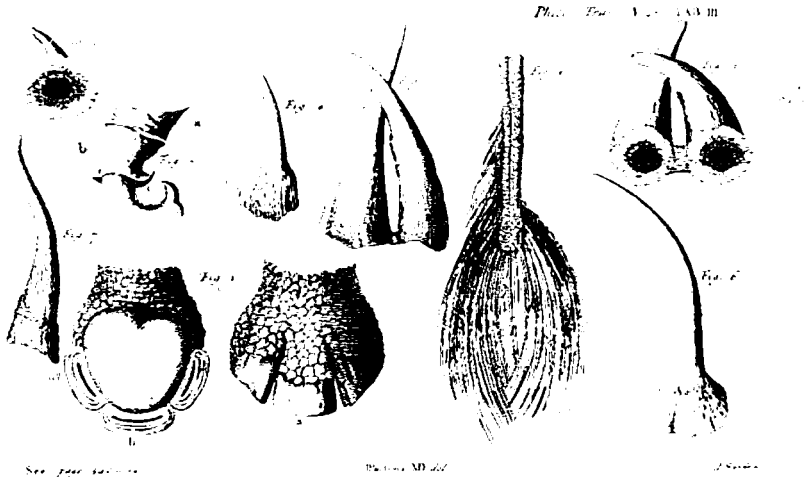

Fig. 18 Various parts of different species of rhinoceros. From J. Parsons, in *Philosophical Transactions* 40 no. 470 (1743), pl. ii. '1: Two views of the feet [*Rhinoceros unicornis*]; 2: The tail of an old rhinoceros, in the Museum of the Royal Society; 3: The penis in an erected state; 4: A horn of rhinoceros, said to be six years old, being about 10 inches long; 5: The bottom or concave basis of the same: to shew the cavity is very superficial; 6: A beautiful horn in Dr Mead's museum, being about 37 inches long; 7: The horn of a rhinoceros [*Ceratotherium simum*, NHM, 1972.748–110-d] in the museum of Sir Hans Sloane which (as those of oxen are sometimes liable to distortions in their growth) differs from the common form; it is 32 inches long; 8: The double horn mentioned above [*Dicerorhis bicornis*, NHM, 1972.753–1520b and 123a] belonging to Sir Hans Sloane: Whether they crossed each other on the Animal is uncertain: It is most likely they did not, but that by drying they were crossed by the Corrugation of the Skin that joins them together: However, I have drawn them as they appeared to me. The strait Horn is 25 Inches long, the curved one somewhat shorter, and the Two Diameters of the Bases 13 Inches; 9: The concave Bottoms of the above double horns, as they adhere to the same Piece of skin.'

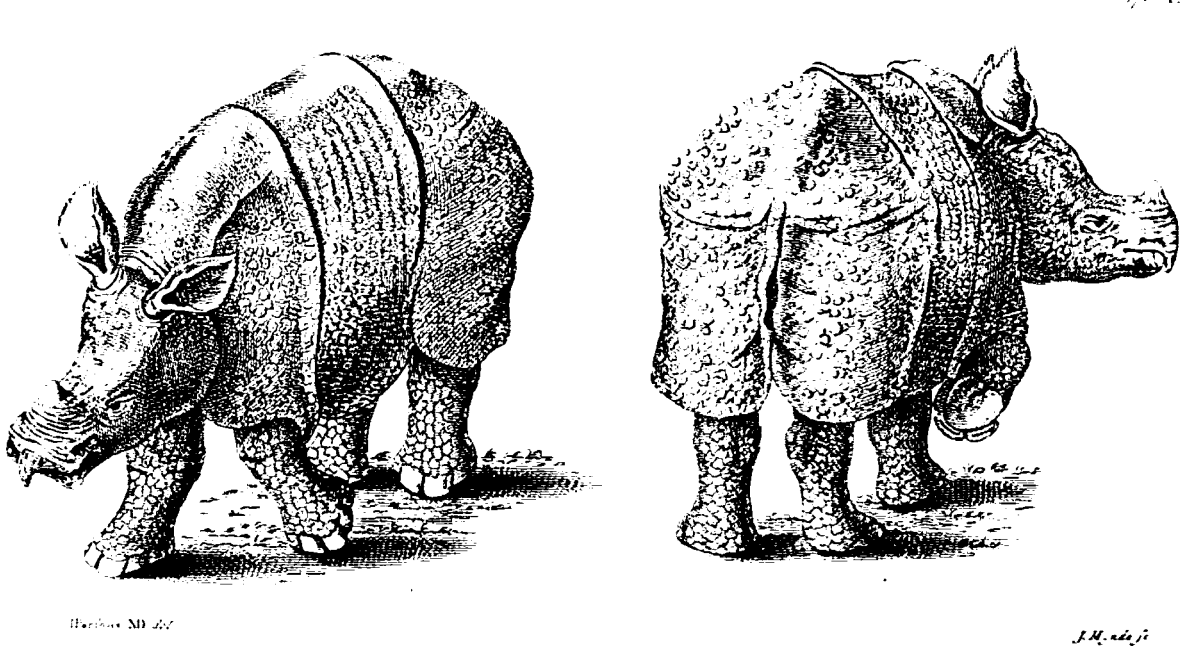

Fig. 19 The young Indian rhino (*Rhinoceros unicornis*) exhibited at Eagle Street, London, in 1739. From J. Parsons, in *Philosophical Transactions* 42 no. 470 (1743), pl. i.

whether these rhinos were distinct from the one-horned Indian rhino (*Rhinoceros unicornis*).[41]

In addition to his collection of whole horns and objects made of rhino horn Sloane owned the drawing made by Dürer in 1515 of an Indian rhino (see Chapter 16, Fig. 94). Parsons[42] recounted the story of this first rhinoceros to reach Europe, but he criticized the drawing and published his own drawings of a young Indian rhino that was exhibited in Eagle Street near Red Lion Square in London in 1739 (Fig. 19). He also made an oil painting of this rhino which is in The Natural History Museum.[43]

Other specimens in the catalogues show that it was not only rhinoceros horns that were supposed to have medical properties but that other parts of these unfortunate animals were also believed to cure human ills:

25*e*/270 A plain cup of a rhinoceros horn.

25*e*/518 Shavings of a rhinoceros horn for a counter poyson.

25*e*/1003 Rhinoceros's hyde. Id. [note] le Rinoceros Biron. p. 183 the Blood is used to fortify the heart & in all Contagious diseases causing the Sweat very plentifully Stops the flux of the Belly and purifies the Blood & stops Bleding. Of the Horn are made Cups against the bad air in time of Contagion. The teeth are used for the tooth ache applying it against the aching tooth.

25*e*/1046 A very large rhinoceros horn.

Stones and Bezoars

From the Middle Ages onwards, the various kinds of calcitic deposits called stones, bezoar stones,[44] and snake stones[45] that are found in the body cavities of humans and animals were of intense interest to the medical world and to ordinary people who believed that eating the powder from ground-up stones would cure them of innumerable ills, and act as an antidote to poisons. Some examples are:

25*e*/1454 A stone from the kidney of a mare 3 years old weighing 8 ounces cut out by a huntsman from the mare which dy'd in Hertfordshire of a totale suppression of water given to me by Dr Quinton.

25*e*/184 Orientale bezoar from Suratte. Thevonet Edit 1696 tom. 1. Bezoard d'Orient Biron. pag. 20 of Franc. Polsart w[t] the Tarters of Urbek the animal is call'd Pazard whence come, by corruption of the word Bezoar.

25*e*/763 A [Four written above] rhinoceros bezoars made up of severall solid bezoars after the manner of the calculus humany Spinosus. This is of a darker colour than 5 others brought by Mr Moores w[ch] are w[t] 2 others marked 25. & 26. pretended to be had from Snakes heads vid. serpents. It is used in India as other bezoars. One given to the Russian Librarian. one rattles like an aetites & one split in the center of w[ch] is seed or fruit, an Acorn?

25*e*/444 Manati stones.

25*e*/436 Buffalos bones calcined & halfe calcined for making the Snake Stones of India, from Dr Stuart.

25*e*/606 Snake stones of severall sorts from the East Indies. Dr Sam Brown.

25*e*/1334 Serpent stones w[ch] are the bones of buffalos calcin'd by their own dung in Persia. Pet.[ae] India Snake stones.

Elephants

Sloane was fascinated by the huge bones and teeth found underground in Europe and he wrote two accounts of them.[47] He described a great many of these finds from many parts of Europe, including Russia, where parts of frozen mammoths were quite commonly washed out of periglacial deposits and where mammoth tusks were already being collected for their ivory. Sloane recounts the legends of the time concerning these remains: that they were the carcasses of huge animals which lived underground in Siberia, or carcasses that had been washed northwards by the Deluge. Those in Germany and other parts of Europe were thought by some to be the remains of elephants that died during Roman manoeuvres and were thrown into water, 'as it is still practised to this Day with the Carcasses of Horses and other Beasts, to prevent the Distempers and other Inconveniences, which their putrefaction might otherwise occasian.'[48]

Sloane believed, probably correctly, that the very widespread myths and legends about the existence of giants owed much to the finding of ancient remains of elephants. The most intriguing of these concerns an elephant's skeleton that was found in Sicily, the skull of which was considered by some to be from one of the mythical Cyclops.[49] And herein could lie the origin of the Ancient Greek legend of the Cyclops, a race of men of huge stature, inhabitants of Sicily, who had only one central eye, as described by Homer in the *Odyssey* (*c*.850BC). For if the skull of an elephant is looked at from the front, the large cavity of the nasal orifice could very well be taken as a central eye socket.

There are sixty-eight entries for elephant teeth, ivory, and other parts in the catalogue of Quadrupeds, including two pieces of ivory that remain in The Natural History Museum (Figs. 20–1). These are described as:

A leaden bullet or slugg lodg'd in an Elephants tooth about which grows ivory or what is called lachryma elephanti bought of a Cutler who was sawing the tooth to make hafts for knives [bracketed and on the right side is the [?] price 00.05.00 on the left in pencil is the number 220.1]. 25*e*/561

Lachryma elephanti, a piece of ivory wherein by sawing to work it was found a long bullet or slugg which had many years before been shot into the tooth & had made its selfe a bed there given me by Mr. Smith of Tower hill. vid No. 1783. 25*e*/854

These descriptions match exactly two pieces of ivory incorporating bullets in The Natural History Museum collections.[50] It is recorded in the register that these pieces were presented to the British Museum, along with other specimens, by the India Museum, presumably on its closure which took place in 1879. It is not improbable that the ivories formed part of the foundation collections of the British Museum. They would then have been handed over to the India Museum sometime after it was founded in 1801, and were then returned after the demise of that institution in 1879.[51]

The manner in which the bullets would have become embedded in the tusks was described correctly in 1856 by Richard Owen.[52] He explained how a bullet shot into the

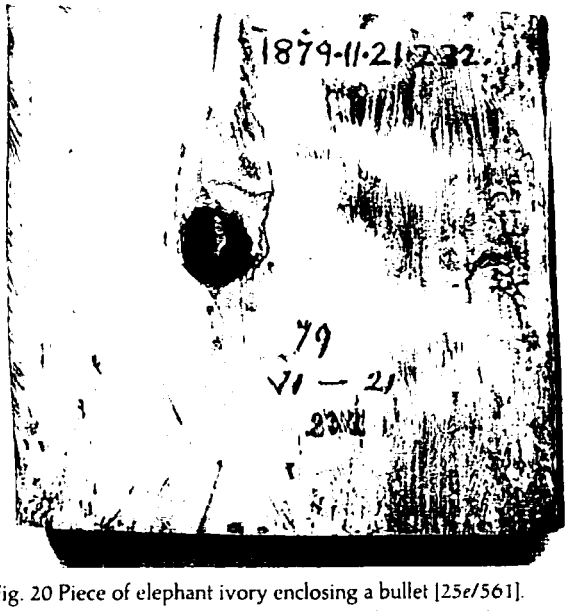

Fig. 20 Piece of elephant ivory enclosing a bullet [25e/561]. Reproduced by courtesy of the Trustees of The Natural History Museum.

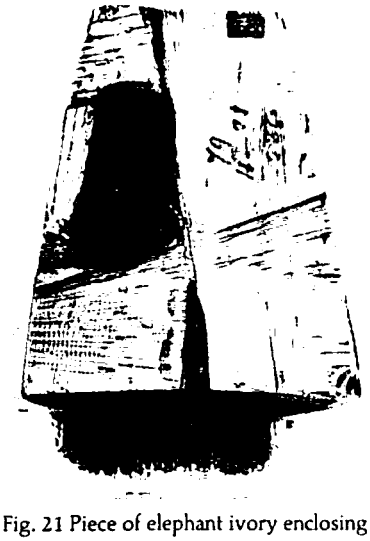

Fig. 21 Piece of elephant ivory enclosing a bullet [25e/854]. Reproduced by courtesy of the Trustees of The Natural History Museum.

head of a young elephant could enter the pulp cavity of the tusk; it would there become surrounded by an irregular growth of dentine and with subsequent growth would remain in the centre of the tusk. Even today, among some people in India, the cysts or ivory 'pearls' surrounding a bullet, which are sometimes found in tusks, are considered to have magical properties.

Included in this section is: 'The Tusk or *dens exertus* of an elephant or ivory dugg up 12 foot deep among loam in a gravelle pitt near the Pindar of Wakefield by Grays inn. Mr Conyer' (see also Chapter 12). This fossil elephant tusk was described in detail by Sloane[53] who recorded how the separated 'cone-in-cone' structure of the degraded ivory was 'tied about with Whale-bones and Tape by Mr Conyers, an ingeneous Apothecary, and a great Collector of Curiosities of all kinds'. The piece of tusk was about five inches long by nine inches circumference by three inches diameter.

Other entries list many fragments of tusks and bones of elephant as separate items: 'found not far from the via Appia abt. 6 foot down near Rome from the Cardinall Gualtieris collection'. Also listed is a growth from an elephant's brain in a gold case. This was obviously considered by Sloane to be of considerable value, since the printed list of the sale in Amsterdam whence it was bought in 1737 is bound into the catalogue together with a hand-written certificate in Dutch and an English translation, which states:

We the under Written Directors of the East India Company for this Chamber, do Certify for Truth that the Growth out of the Brains of an Elephant, Contained in a gold case, was sold at our sale the 13th May 1737. And Sent to the General East India Company as a present by the Zery Sultan of Iamby. [Signed] B. Scott G.V. Hoven 2d July 1737.

Water Buffalo Horns

'A very streight wreathed large pair of horns of a black colour', may be the catalogue entry for probably the best-known and certainly the largest of Sloane's quadruped specimens, being the horns of the water buffalo, *Bubalus arnee* (Fig. 22). As described by Sloane,[54] they were found by Mr Doyly (who gave his name to the cotton mats, known as doylies) 'in a cellar in Wapping where they had lain so long that noone knew where they had come from or when'. Doyly refused many large payments for them but gave the horns to Sloane on recovery from a sickness from which he believed Sloane had cured him. After describing the horns Sloane commented: 25e/1562

The Commander of an *East-India* Merchant ship upon seeing them, told me, that he had seen such in the *Indies* on a large *Bufalo*'s Head. I am inclined to think, that they must belong to a very large sort of Bulls or Cows, who are Natives of *Aethiopia*, and other of the midland Parts of *Africa*, and are mentioned by many of the Ancients, perhaps not without some fabulous additions, though, which is strange, very few of the Modern Writers take any notice of them

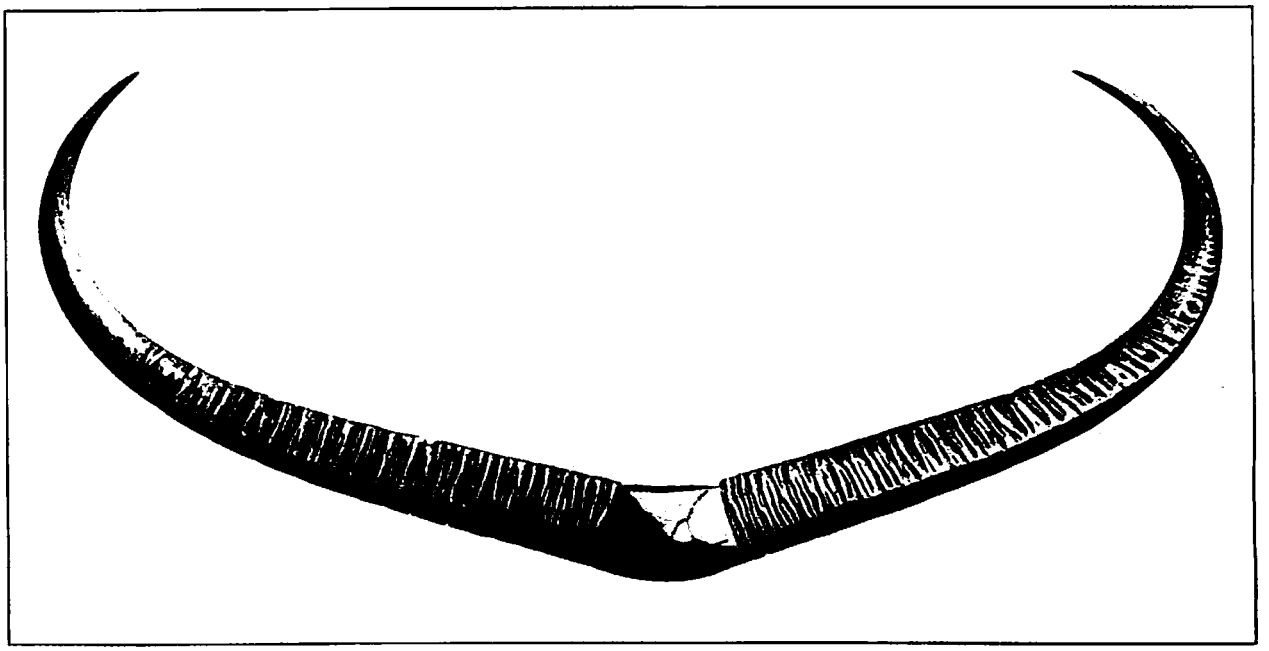

Fig. 22 The horns of the water buffalo (*Bubalus arnee*) that were given to Sir Hans Sloane by Mr Doyly. From J.G. Dolman, in *Natural History Magazine* 2 no. 12 (1929), fig. 4.

Each horn has a length of about 77 inches (196 cm) and for many years it has been accepted that the pair holds the world record for length in the species of buffalo.[55] Recently, however, a most interesting account has been made known to me of the way in which the horns of domestic water buffalo can be induced to grow longer than their natural length.[56] Wegner[57] described how the people of the island of Sumba in Indonesia used to castrate their male water buffaloes at the age of two years and then they would cut a notch about one inch in length on the dorsal side of each horn, right in the middle of their long axis. This notch had to be deep enough to draw blood. Nothing else was done and the wound healed quickly. When combined with castration this small operation was enough to make the buffalo's horns grow extra-long and very straight, turning up only at the ends. This is exactly the appearance of the Sloane horns and therefore it may be postulated that they are not from a wild water buffalo but from a domestic buffalo, *Bubalus bubalis*, that has been operated on in this way.

Conclusion

Sloane was a polymath and probably the most prolific collector in British history. His writings lie in a direct line of descent from Pliny's *Natural History*: they have exactly the same mixture of vast knowledge, correct observation, medical superstition, and empathy with the natural world. If he was intellectually the descendant of the classical polymaths such as Diodorus Siculus, Strabo, and Pliny, Sloane was also the forerunner of Joseph Banks and Charles Darwin.

Sloane's intense interest in natural history, as with Banks and Darwin, was fuelled by his travels across the world. His passion for collecting was made possible by his wealth, his social connections, and the world-wide explorations of the times. That his name is so much less well-known than those of other great figures in the history of natural history must be due only to the fact that his observations remain largely unpublished, being expressed mainly in his hand-written catalogues. Even today, these would present difficulties in printing and making available to a wide public. None the less, they deserve to form an essential part of the literature on the history of ideas concerning the natural world during the long period of Sloane's working life from about 1680 until he died in 1753.

Notes and References

1. I am grateful to Oliver Crimmen, Gordon Howes, and Alwyne Wheeler (NHM) for identifying and commenting on the fish from Sloane's *Natural History* of Jamaica.

2. O. Crimmen, personal communication (1991).

3. The maximum length recorded for this species of crocodile at the present day is 23 ft (7 m). A. Wheeler, personal communication (1993). I am grateful to Nick Arnold, Colin McCarthy, and Garth Underwood (NHM) for identifying and commenting on other reptiles from Sloane's *Natural History* of Jamaica.

4. G. M. Allen, 'Mammals of the West Indies', *Bulletin of the Museum of Comparative Zoology* 54 no. 6 (1911), p. 217.

5. I am grateful to Peter Colston (NHM, Bird Section at Tring) for identifying and commenting on the birds from Sloane's *Natural History* of Jamaica.

6. Allen op. cit. (note 4), p. 180.

7. Ibid., p. 234.

8. P. Browne, *The Civil and Natural History of Jamaica* (London, 1756), p. 484.

9. C. Biron, *Curiositez de la Nature et de l'art, apportées dans deux voyages des Indes, etc.* (Paris, 1793), pp. xxiii, 282.

10. Illustrated in John and Andrew Van Rymsdyk, *Museum Britannicum*, 2nd edn (London, 1791), tab. vi, fig. 6.

11. F. Dominick Fernandez Navarrette on travels in China, translated by Awnsham and John Churchill, *A Collection of Voyages and Travels* (London, 1704), vol. i, pp. 1–424.

12. Churchill, op. cit. (note 11).

13. Hans Sloane, 'An account of a prodigiously large feather of the bird Cuntur, brought from Chili, and supposed to be a kind of Vultur; and of the Coffee-Shrub', *Philosophical Transactions* vol. 18 no. 208 (1693–4) pp. 61–4.

14. Capt. William Dampier, *A New Voyage Round the World* 7th edn. (London, 1729), vol. i, p. 49 [*anno* 1681]. Sloane's text is taken almost verbatim from this book, the observations being entirely those of Dampier.

15. Ibid., p. 71 [*anno* 1683]. The comments concerning the eating qualities of flamingo are again those of Dampier.

16. Sloane was the provider in 1705/6 of a 'Large fine Naturall Herne Topp' for the Garter headgear of the Prince Elector of Brunswick-Lunenburgh, for which service he received payment of £60 (PRO, LC5/44, 270; Royal Archives, Windsor Castle, 80825v; references kindly supplied by Lady de Bellaigue, Registrar of the Royal Archives). Later the Prince Elector, as George II of Great Britain, was to appoint Sloane his Physician in Ordinary (see Chapter 1).

17. Probably this was a manuscript catalogue of the Charlton (Courten) collection, which Sloane inherited: see Chapter 1.

18. R. Whitlock, *Rare and Extinct Birds of Britain* (London, 1953), pp. 32–3.

19. Martin Martin, *A Late Voyage to St. Kilda, the Remotest of all the Hebrides, or Western Islands of Scotland* (London, 1698), pp. 48–9.

20. *Pernis apivorus*, a rare summer visitor at the present day.

21. Sloane was very familiar with the ostrich, but this appears to have been his first sight of a Rhea (*Rhea americana*), the large flightless, ostrich-like bird from South America.

22. *The Ornithology of Francis Willughby*, ed. John Ray (London, 1676).

23. Nehemiah Grew, author of the Royal Society's museum catalogue, whose collections Sloane acquired; see Chapter 1.

24. The domestic Guinea fowl (*Numida meleagris*) may have been in Britain since Roman times and certainly since the sixteenth century; see P. Mongin & M. Plouzeau, 'Guinea fowl', in *Evolution of Domesticated Animals*, ed. I.L. Mason (London, 1984), pp. 322–5.

25. The modern so-called Persian lamb which has been a valuable commercial pelt for making fur coats and hats.

26. This wild pig is found only in the Celebes; the specimen was probably brought back by the Dutch spice traders.

27. Albertus Seba, *Locupletissimi rerum naturalium . . .* (Amsterdam, 1734–65).

28. The origins of the several breeds of four-horned sheep in the British Isles are unknown but records of their presence in park flocks goes back at least to the eighteenth century; see H.J. Elwes, *Guide to the Primitive Breeds of Sheep and their Crosses* (Edinburgh, 1913), reprinted by The Rare Breeds Survival Trust (Kenilworth, 1983).

29. This hair ball would have resembled the one shown in Fig. 16, no. 7.

30. This would have been a species of Jerboa, *Jaculus* sp.

31. This must be a muddled entry, as the hippopotamus is a river-horse not a sea horse and sea horses do not have teeth!

32. References follow that are very difficult to read. This sample of hair may have come from the European bison (*Bison bonasus*), which still lives in the forests of Poland, or from the aurochs (*Bos primigenius*), of which the last individual is said to have died in Poland in 1627; see F.E. Zeuner, *A History of Domesticated Animals* (London, 1963), p. 203.

33. Sloane was correct in his observations that there is seldom any variation in colour in any species of wild carnivore. The 'polecatt' skins that he saw were probably not from the wild polecat (*Mustela putorius*) but from ferrets (*Mustela furo*), the domesticated form of the polecat. This is an earlier use of the term 'sport' [mutation] than the date of 1768, given in the *Oxford English Dictionary*.

34. This was probably an escaped domestic mouse (*Mus domesticus*).

35. Probably these were hairs from a hippopotamus, see note 31 (above).

36. This abnormality, in which the two hooves are fused on each foot, is a mutation that occurs sporadically. A breed of solid-hoofed pigs was favoured in North America at the beginning of the nineteenth century, see R. Lydekker, *A Guide to the Domesticated Animals Exhibited in the Central and North Halls of the British Museum (Natural History)* (London, 1918), p. 26.

37. A note follows in Latin with references and mention of the Drill.

38. The horns of *Ceratotherium simum* in the NHM have the numbers 1857.2.5.2/1167c and 1972.748/1167d. The horns of *Diceros bicornis* have the numbers 1972.753/1520b and 123a.

39. J. Parsons, 'A letter from Dr. Parsons to Martin Folkes, Esq; President of the Royal Society, containing the Natural History of the Rhinoceros', *Philosophical Transactions* 42 no. 470 (1743), pp. 523–41, 2 figs.

40. Hans Sloane, 'A Letter from Sir Hans Sloane Baronet, late Pr.R.S. to Martin Folkes Esquire Pr.R.S. containing accounts of the pretended serpent-stone called Pietra de Cobra de Cabelos, and of the Pietra de Mombazza or the Rhinoceros Bezoar, together with the figure of a rhinoceros with a double horn', *Philosophical Transactions* 46 no. 491 (1749), p. 188, 1 fig.

41. Parsons does suggest (op. cit. (note 39), p. 538) that the African rhinos might have two horns.

42. Ibid., pp. 524, 539.

43. Oil painting on canvas of a young rhinoceros, no. 113. See J.C. Thackray, *A Catalogue of Portraits, Paintings, and Sculpture at The Natural History Museum, London* (London, 1992).

44. Bezoar stones were most commonly found in the gut of wild goats as described by Sloane [25e/184]. See Jessie M. Sweet, 'Sir Hans Sloane: life and mineral collection', *Natural History Magazine* 5 no. 36 (1935), pp. 156–8; see also Sloane, op. cit. (note 40), p. 118.

45. Ammonites were also known as snake stones. See Peter Dance, *Animal Fakes and Frauds* (Maidenhead, 1976), pp. 103–5.

46. For Petiver, see Chapter 1.

47. Hans Sloane, 'An account of elephants teeth and bones found under ground', *Philosophical Transactions* 35 no. 403 (1728), pp. 457–71; idem, 'Of fossile teeth and bones of elephants; part the second', *Philosophical Transactions* 35 no. 404 (1728), pp. 497–514.

48. Ibid., p. 510.

49. Ibid., pp. 500–1.

50. NHM nos. 1879, 11.21.232 and 231.

51. Ray Desmond, *The India Museum 1801–1879* (London, 1982), pp. 215.

52. Richard Owen, 'The ivory and teeth of commerce', *Journal of the Society of Arts* 5 no. 213 (1856), p. 69.

53. Sloane, op. cit. (note 47), p. 459.

54. Hans Sloane, 'An account of a pair of very extraordinary large horns found in Wapping some years since, with a probable account, whence they came, and to what animal they belonged', *Philosophical Transactions* 34 no. 397 (1717), p. 222–9.

55. Rowland Ward, *Records of Big Game*, 4th edn. (London, 1903), p. 407.

56. G.B. Corbet, personal communication (1991).

57. A.M.R. Wegner, 'The cause of the enormous proportions and the extraordinary shape of some buffalo horns from the island of Sumba', *Hemera Zoa*, Buitenzorg, Bogor, 57 (1950), pp. 708–10.