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*Gizeh*  
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ZOOLOGICAL GARDENS

*Giza, near Cairo.*

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SPECIAL REPORT N° 2.

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NOTES ON ZOOLOGICAL COLLECTIONS

VISITED IN EUROPE,

1907.

BY

STANLEY S. FLOWER, DIRECTOR.



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## I. — P R E F A C E

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IN the autumn of 1905 I was sent to Europe to acquire information for the benefit of the Egyptian Zoological Gardens, and a "Report on Mission to Europe, 1905," was published in May, 1906.

The present Report, based on notes made when on leave\* in May, June and July, 1907, supplements and extends the former.

In this Report my notes are mainly confined to mentioning the more interesting specimens contained in the various collections; because in visiting these menageries the points to which I paid most attention, as the division of labour among the staff, the management of the visitors, the storing and distribution of the forage, the disposal of refuse, etc., are not generally suitable for publication without wounding susceptibilities, some institutions being so very much better managed than others. It also is only too easy to criticize, but not at all easy to do so justly, without knowing *all* the very varying circumstances under which the direction of a public garden has to be carried on.

To give an account of every establishment visited would produce this Report to an undue length, it is therefore limited to those likely to be of most interest to the readers.†

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\* NOTE.—By a decision of the Council of Ministers of the 15th of June 1907 I was given a mission to visit the zoological establishments of Hamburg and of Liverpool and allowed my travelling expences between London and these two towns, at each of which very useful exchanges of animals were effected.

† NOTE.—Since returning to Egypt I have, through the kindness of the author, received a most interesting "Rapport sur une mission scientifique dans les jardins et établissements zoologiques publics et privés du Royaume-Uni, de la Belgique et des Pays-Bas" by M. Gustave Loisel, published in Paris by the Imprimerie Nationale 1907, which I recommend to all interested in the subject: it contains 124 pages and 25 plates of illustrations.

The comparative rarity of various kinds of wild animals in captivity is an important matter to the directors of menageries both in buying and selling stock and in attracting visitors ; it was surprising to find how little in some cases is known of the state of the stock in other neighbouring zoological collections.

It may be worth recording that during my holiday in Europe I saw only 7 live specimens of the Mias, or "Orang-utan," but no less than 36 Chimpanzees ; also that Lions were twice as numerous as Tigers, as I saw just over 120 of the former to a little under 60 of the latter.

The very handsome Ruffed Lemur *Lemur varius* of Madagascar appears to be unusually abundant in European collections at present : I saw just over 50 individuals, of which 5 were of the beautiful red variety, and the remainder all of the better known black and white form.

The aggregate number of Polar Bears in captivity must be large ; on the 11th of July I was privileged to see Mr. W. Hagenbeck's troop of trained animals in Busche's Circus, Hamburg ; besides domestic animals and monkeys, there was a black bear, and actually 63 (I counted them carefully) Polar Bears : it was a wonderful sight, but more marvellous still to see all these bears turned into one enclosure with Mr. Hagenbeck and his assistant, Mr. Krüger, calmly walking about among them.

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I would like to be allowed to take this opportunity of rendering thanks to the Directors and other officials of the various institutions visited for the courtesy and assistance they invariably extended to me.

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## II.— ZOOLOGICAL GARDENS AND MENAGERIES.

### 1.—Alfeld. Handelsmenagerie, Reiche.

Among the northern slopes of the foothills of the Harz Mountains, in the main street of the picturesque old town of Alfeld-on-the-Leine, stands an unpretentious but artistic building bearing the simple name-board "C. Reiche"; within, and beyond in the yards, stables and poultry-runs, is housed one of the most important trading menageries of the entire world, famed not so much for the magnitude of its trade, but for having supplied the public zoological gardens of Europe with so many of their rarest exhibits, and the Zoological Society of London appears from time to time to have been indebted to Herr Reiche for help in obtaining otherwise unprocurable animals, generally, as far as I am aware, at very moderate prices.

On the day of my visit, among Herr Reiche's live animals those I specially noted were six Chimpanzees, a fine male Anubis Baboon, a Cape Hunting Dog *Lycaon pictus*, two Caucasian or "Sarmatian" Polecats, a white-footed female "Chapman's" Zebra, three good Antelopes, four Asiatic Wild Sheep, and five of the rare Australian Partridge-Pigeons *Geophaps smithi*.

### 2.—Alfeld. Handelsmenagerie, Ruhe.

Although the New York branch of the firm of Ruhe is perhaps most widely known on both sides of the Atlantic, the business originated in Alfeld with the famous Harz Canaries, and to-day is housed in a fine series of recently erected menagerie buildings pleasantly situated in a valley just beyond the town of Alfeld-on-the-Leine.

The trade in singing canaries is colossal: I was informed that over 100,000 cock birds reared in the Harz passed through Herr Ruhe's hands during 1906, and a large business is also done with other small cage birds.

Of the larger animals that I saw living under Herr Hermann Ruhe's care may be mentioned a Chimpanzee, five Tigers, a black-footed male "Chapman's" Zebra, five Antelopes, two Markhoor, one Thar, and three Gorals from the Himalayas.

### 3.—Amsterdam.

In the years 1889, 1896 and 1900 I had the pleasure of making long visits to the Zoological Gardens of the "Natura Artis Magistra" Society of Amsterdam, and was very glad to be able to revisit them in July

1907. This great institution comprises not only a menagerie and gardens, but also a museum of general zoology, a museum illustrating the fauna of Holland, an ethnographical museum, a very good library and a large aquarium. Taken as a whole, the collection is magnificent, and does great credit to Dr. C. Kerbert, the Director, and his very able assistant, Mr. G. Janse, the Librarian.

PRIMATES.—I counted 34 monkeys referable to 19 species; including a male Mias, or "Orang-utan," which has been five years in the Amsterdam gardens; a Gibbon, labelled *Hylobates cephalopterus*; two Javan Lutongs *Presbytis maurus*, which I understand have been two years here, an unusually long period for monkeys of this genus, which are difficult to keep alive in captivity even in their native countries; a *Cercopithecus talapoin*, which was received in 1888, and so has been 19 years here; and a Red Howler *Alouata seniculus*, recently acquired.

There were only nine Lemurs, but among them was a fine Aye-Aye *Chiromys madagascariensis*, which had been nearly two years here, the others comprised two *Lemur catta*, and six representatives of various varieties of the common *Lemur fulvus*.

CARNIVORA.—29 species noted, of which may be specially mentioned some unusually dark coloured Leopards, a magnificent male *Cryptoprocta ferox* (two years here), a fine *Arctictis binturong*, two Californian Sea-Lions and one Seal *Phoca vitulina*.

CHIROPTERA.—None noted.

INSECTIVORA.—Hedgehogs *Erinaceus*, and two specimens of the Tenrec *Centetes ecuadatus*.

RODENTIA.—Out of about 15 species seen, two specimens of the Brush-tailed Porcupine from Sumatra interested me most.

UNGULATA.—Two Indian, and four Sumatran, Elephants.

The *Perissodactyla* were represented by a Malay Tapir, two female Mountain Zebras and some Wild Asses: and the *Artiodactyla* by seven species of cattle (including a pair of Anoa's), three species of wild sheep represented by 13 individuals, four Thar (including a very large male), 11 antelopes of 6 species, a very nice pair of Sudan Giraffes, 21 species or subspecies of deer (including both European and American Reindeer, Elk, a species which has thrice bred in the Amsterdam gardens, twins being produced on each occasion, a fine pair of *Cervus duvaucelli*, and a remar-

kable individual Sambur hind *C. equinus*, which although a fertile female carries small antlers!), one Mouse-deer *Tragulus javanicus*, two Arabian and two Bactrian Camels, two Huanacos, six Lamas, three Hippopotamus (the female being remarkable in having pied fore-legs), and pigs referred to *Sus vittatus* and *Dicotyles tajaçu*.

EDENTATA.—Six Sloths *Choloepus didactylus*: Mr. Janse told me that this species once bred here, but that unfortunately the young Sloth only lived for about one week.

MARSUPIALIA.—A fair number of Kangaroos and Wallabies, and some Wombats.

MONOTREMATA.—One Echidna, which has lived nine years here.

BIRDS.—Among the many nice birds that I saw in the Amsterdam Gardens attention may be specially called to the following:—

Australian Bullfinch-Jay *Struthidea cinerea*.

South American Black Hangnest *Cassidix oryzivora*.

East Asian Gold-crest Myna *Ampeliceps coronata*.

Greater Bird of Paradise *Paradisea apoda* (3 years here).

Mexican Jay *Cyanocorax luxuosus*.

Brazilian Sulphury Tyrant *Pitangus sulphuratus*.

Buff Laughing-Kingfisher *Dacelo cervina*.

New Zealand Kingfisher *Halcyon vagans*.

Surinam Cuckoo *Crotophaga ani*.

Levaillant's Parrot *Poeocephalus robustus*.

Jardine's Parrot *Poeocephalus gulielmi*.

Harpy Eagle *Thrasaëtus harpyia* (about 4 years here).

The American Vultures *Cathartes urubu*, I was informed, breed here successfully.

I saw 13 species of Herons, including *Ardea cocoi* (6 individuals), *A. goliath* and the Tiger-Bittern *Tigrosoma brasiliense*. Little Bitterns *Ardetta minuta* were breeding in one of the aviaries.

Besides many specimens of the Stork *Ciconia ciconia*, there were 21 other storks, of in all 13 species. The Japanese *C. boyciana* was represented by two fine specimens. The veteran of the Amsterdam stork paddocks is an Indian Adjutant who has been over 30 years here, while an American Jabiru has lived over 25 years in the collection, and a Saddle-bill over 10.

Of the Spoonbills, besides many individuals of *Platalea leucorodia*, there were three *P. ajaja*, and one specimen of the fine Australian *P. regia*, which I take to be a very rare bird in European menageries.



Seven species of *Ibis* were represented, including *I. hagedash* and *I. melanopsis*.

48 species of Anseres, mostly numerously represented, the most remarkable being a flock of perhaps 30 Mergansers, including specimens of *Mergus merganser*, *M. serrator* and four beautiful Smews *M. albellus*.

The Chimney-sweeper Gold Pheasant *Chrysolophus obscurus* is bred here in fairly large numbers.

I saw three Trumpeters *Psophia crepitans*, 20 cranes of 11 species, and a Sun-Bittern *Eurypyga helias*.

The Australian Stone-Curlew *Æedionemus grallarius* and the Crested Grebe *Podiceps cristatus* should also be mentioned.

**REPTILES.**—The cases in which the reptiles are exhibited at Amsterdam are arranged far more prettily than any I have seen elsewhere: each case is a delightful scene in miniature, suited to its inhabitants, water, earth, sand, rock, moss and various plants: thus the European Sand-Lizard *Lacerta agilis* is to be seen in a lovely case representing a piece of sandy moorland, the Bull Frogs are in a reedy swamp and the smaller specimens of Alligators and Boas inhabit a wall case fitted up to represent a tropical forest pool.

The collection, however, is not very large, and no poisonous snakes are kept. I noted representatives of 34 species of reptiles:—

4 of Crocodilians, including a *Crocodylus cataphractus* about 6 foot long, said to be from the Congo and to have been over 15 years here, also one medium-sized and several small *Alligator mississippiensis*, and 7 Caymans, 6 labelled as *Caiman sclerops* and one *C. palpebrosus*.

12 of Tortoises, among them a very large Snapper *Macrolemmys temmincki* which has been over 30 years here.

8 of Lizards.

10 of Snakes. Mr. Janse told me that both Anacondas and Boa-constrictors have bred here with success.

**BATRACHIANS.**—Housed partly in the Reptile House and partly in the Aquarium, I saw a very interesting series of 26 species of Batrachians, of which may be specially mentioned 4 or 5 Surinam Frogs *Pipa americana*, 11 Japanese Giant Salamanders *Megalobatrachus maximus* (an adult pair, and nine young ones bred in Amsterdam and now about 3½ years old), *Cryptobranchus alleghaniensis*, *Amphiuma means*, 6 *Necturus maculatus* (have spawned here), 3 *Proteus anguinus* which are kept in a small tank fitted up like a cave, a blind hung in front keeps the animals in the darkness to which they are accustomed, but can be raised at once when anyone wishes to see

them, and finally specimens of both the air-breathing adult form and the "larval" adult form of the Axolotl *Amblystoma tigrinum*.

Particular features of the Amsterdam Gardens are the Incubator for hatching birds' eggs, and the exhibition of live Insects; this last is in a large room, forming a vestibule to the Reptile House. There are 24 glass and metal cases containing butterflies, moths, beetles, leaf- and stick-insects, and 9 glass vessels for aquatic insects; all of the above are very prettily, artistically and practically arranged. In the centre of the room there are 6 ingenious ant cases, with glass fronted sections of nest, and lids to lift up when a visitor wishes to see the ants in their home. The popular guide-book to this insectarium, abundantly illustrated with excellent photographs, should also be mentioned.

#### 4.— Antwerp.

The beautiful grounds of "La Société Royale de Zoologie d'Anvers" I have been privileged to see on many occasions: the chief points that impressed themselves on me in my 1907 visit were:—

Firstly, the cleanliness and tidiness of the garden.

Secondly, the magnificent new Flying Cage, thus described in the guide-book: "Vaste et légère construction métallique; longueur 55 mètres, largeur 20 mètres, hauteur 18 mètres. . . . Cette grande volière, construite en 1906, d'après les plans de l'architecte Emile Thielens, est une merveille. Elle constitue un des principaux attraits du Jardin Zoologique."

Thirdly, the vast Palais des Fêtes, containing, besides the restaurant, concert hall and winter garden, a Natural History Museum in which I noted the stuffed skin and skeleton of a male Okapi, and an *artificial* stuffed Great Auk cleverly made up of the feathers of other still living species of birds. The skeleton of a Rorqual in the possession of the Society is, presumably on account of its great size, not housed in the museum, but remains in the open air at the extreme furthest end of the grounds.

PRIMATES.—I counted 50 monkeys referable to 28 species, but as the Monkey House was in progress of repair and repainting, there was probably in reserve elsewhere a portion of the collection that I did not see. The most remarkable specimens were a *Colubus guereza*, a Baboon of the genus *Theropithecus* and a Howler *Alouata fuscus*.

There were 33 Lemurs, all together in one large cage in the open air, ten of these were black and white specimens of *Lemur varius*, the remainder *L. catta*, *L. macaco* and various varieties of *L. fulvus*.

CARNIVORA.—28 species noted (there may have been a few more which I

did not see), of which may be specially mentioned a Chita *Cynælurus jubatus* from India, a pair of Cape Hunting Dogs *Lycaon pictus*, and a Jackal (possibly *Canis anthus*) from the Congo. Both the Seal and the Californian Sea-Lion were represented.

CHIROPTERA.—Nine Fruit-Bats of one species.

INSECTIVORA.—None noted.

RODENTIA.—Many species of squirrels, two specimens of the Greater Egyptian Jerboa *Jaculus orientalis*, Coypus, three species of Porcupines, Pacas, Agoutis, Guineapigs and Capybaras.

UNGULATA.—Two Indian Elephants.

The *Perissodactyla* were represented by one young Indian Rhinoceros (one of four that I had seen, *en route* to Hamburg, at Port Said in April 1907); one American and one Malayan Tapir; six Zebras, representing *Equus zebra* and three different races of *E. burchelli*; one Asiatic Wild Ass labelled "*hemionus*," and one remarkable African donkey which looked liked a cross between *A. asinus africanus* and *A. asinus tæniopus*.

*Artiodactyla*.—31 heads of cattle representing 10 species, among them one Anoa and one African Buffalo *Bos caffer* "*pumilus*."

The only Sheep were nine Arui *Ovis lervia*, and the collection of Goats consisted of five Thar and one domestic Angora.

31 head of true antelope representing 13 species made a fine show, owing to the unusually good condition in which nearly all of them were in, especially the Gnus. There was also one American Pronghorn Antelope, and three Sudan Giraffes.

41 head of deer of 7 species, including three Elk and no less than nine Reindeer.

I saw both species of camel and various lamas.

There were four Hippopotamus, two Warthog, two Collared Peccaries and some European Wild Boar and Chinese Domestic Pigs.

EDENTATA.—One Armadillo and a fine Sloth *Cholæpus didactylus*.

MARSUPIALIA.—The Tasmanian Devil *Sarcophilus satanicus* (or *Dasyurus ursinus* as it used to be called), and the Wombat were represented, besides a very valuable and magnificent series of the larger forms of Kangaroo; one row of cages containing examples (mostly in first rate condition) of *Macropus giganteus*, *M. ocydromus*, *M. melanops*, *M. antelopinus*, *M. robustus*, *M. cervinus*, *M. isabellinus* and *M. rufus*, is one of the best zoological sights to

be seen at present in Europe, and M. Michel l'Hoëst may be warmly congratulated on possessing it.

MONOTREMATA.—Two fine Echidnas.

BIRDS.—The collection of birds at Antwerp is very good, and numerically must be one of the largest in the world : special attention may be called to :—

Several fine Hornbills, including an African Ground Hornbill *Bucorvus*.  
A grand African Vulture *Vultur occipitalis*, a really fine bird.

The Anseres, though compared with other first class European Gardens, poor in species,\* were very numerous represented by individuals, a particularly pleasing feature being the great flocks of two species of Whistling Teal *Dendrocygna*.

The numerous Cranes of 11, or perhaps 12, species.

The Storks of 11 species, including a single *Ciconia abdimii*.

The Cassowaries, 10 birds, representing several species.

REPTILES, ETC.—Comparatively little attention seems to be paid at Antwerp to the " cold-blooded " vertebrates : of the Reptiles the best thing I saw was a fine *Crocodilus cataphractus* : the Batrachia were represented by only two species, both frogs : and some, apparently temporary, small tanks contained a few fish.

### 5.— Berlin.

It is difficult to add to the remarks in my 1905 report on this wonderful menagerie : my wish is again to revisit Berlin.

On my second visit my impressions of this institution were even more favourable than on my first. In 1905 the fantastic designs and brilliant colours of the buildings took me by surprise : in 1907, being prepared for them, they did not seem so obtrusive, or detract from my pleasure in the living beasts and birds.

Even with my slight previous knowledge of the Berlin Zoological Gardens I could see how it had gone ahead in the last two years, as it could but do under such an able and energetic Director as Dr. Heck, who deserves

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\* I noted only 25 species at Antwerp, there may have been a few more. In Hamburg I counted 36 species, in Amsterdam 48, and in London 53. In Berlin unfortunately I had not time to write down each species of flamingo, swan, goose and duck that I saw, they were very numerous ; the official guide-book to the Berlin Gardens mentions about 75 species.

success: but for anyone who has the opportunity of personally visiting this institution there is no necessity to read complimentary paragraphs about Dr. Heck, his assistant Dr. Heinroth, and their worthy staff of keepers; the efficiency and growing state of the collections in their charge is the best compliment.

The new house for the Rodentia is one of the most remarkable installations for animals in the world, and deserves careful study from all persons interested in the subject.

Another new building is a very nice Pig House.

Thanks to the courtesy of the officials, I was privileged to see the whole of the mammal collection, but owing to want of time I was reluctantly unable to pay proper attention to the birds, of which besides those in the numerous aviaries and enclosed ponds, there are said to be 400 species in the Bird House alone.

The only criticism that I shall venture to make concerning the Berlin Zoological Gardens is that a menagerie of mammals and birds only is not representative enough of the animal kingdom: let us hope that the time may not be far distant when reptiles, batrachians, fishes, and such invertebrate animals as are suitable for exhibition, may be added.

**PRIMATES.**—The collection of Monkeys is still inferior to the other branches of this institution; among the more interesting specimens were a Black-faced Chimpanzee, a Cameroon Chimpanzee, and two *Guereza occidentalis*.

But, as in 1905, the collection of Lemurs was good and of great interest; the two handsome specimens of the red variety of the Ruffed Lemur *Lemur varius* were still alive, and of genera other than *Lemur* I noted:—

- 2 individuals of *Microcebus coquereli*.
- 2 individuals of *Microcebus murinus*.
- 2 individuals of *Galago galago*.
- 2 individuals of *Galago zanzibaricus*.
- 1 individual of *Galago kirki*.
- 2 individuals of *Perodicticus potto*.

**CARNIVORA.**—82 species noted.

**Felidæ.**—I saw 43 true wild cats *Felis*, representing 16 species old style or about 25 new style, also some Manx and other domestic cats, and 2 Chitas *Cynælurus*. Specially noteworthy were two Tigers *Felis tigris longipilis*, a Leopard *F. pardus tulliana*, a black specimen of the Jaguar *F. onca*, a magnificent male Puma *F. concolor patagonica*, two Snow-Leopards *F. uncia*, two Indian Jungle Cats supposed to be the *F. erythrotis* of Hodgson, and a hybrid between a Leopard and a Puma.

The Fossa *Cryptoprocta ferox* mentioned in my 1905 report was still alive: this animal, the first of its species exhibited in the Berlin Gardens, was received 14th November 1902.

*Viverridæ*.—Not numerously represented, but including such nice Mongeese as *Mungos loempo* and *Bdeogale puisa*, and a specimen of *Arctictis binturong*.

*Hyænidæ*.—One recently acquired Aard Wolf *Proteles*, specimens of *Hyæna striata* from North Africa and the Cameroons, and one example each of *H. crocuta togoensis* and *H. c. germinans*.

*Canidæ*.—The series of dogs, wild and domestic, was very large: noteworthy were a male Cape Hunting Dog *Lycaon*, an Asiatic Wild Dog *Cuon alpinus*, some white Greyhounds from Lake Chad, and a hybrid between a male Dog and female Wolf. The 5 red Foxes in the collection were especially interesting on account of their localities of origin being known: they were from Germany, Tripoli, Turkestan and China respectively!

*Mustelidæ*.—9 species seen, including the Giant Otter *Lutra brasiliensis* and a Tayra *Galera barbara*. A male Honey-Badger *Mellivora ratel* has been over ten years in the Berlin Zoological Gardens.

*Procyonidæ*.—Only the usual forms seen in menageries, as the Raccoon, Coati, and Kinkajou.

*Ursidæ*.—16 bears representing 10 species or sub-species.

*Otariidæ*.—One Californian Sea-Lion.

*Phocidæ*.—Three Seals, one *Halichærus grypus* and two *Phoca vitulina*, one of these latter has been over 14 years here, the other nearly as long, and they have often bred, I am told.

**CHIROPTERA**.—One specimen of the African Fruit-Bat *Pterocyon stramineus*.

**INSECTIVORA**.—Only Hedgehogs *Erinaceus europæus* and *E. dealbatus*.

**RODENTIA**.—A very fine collection, undoubtedly the most complete ever brought together and the best housed and exhibited: the extraordinary agile Brazilian Cavy, or Moko, *Cerodon spixi* most took my fancy; this species, formerly so rare in European menageries, I am told now breeds freely in Berlin.

**UNGULATA**.—Three South African Hyrax.

One African Elephant *Elephas africanus oxyotis*, and the magnificent pair of great fat Indian Elephants "Hathi" and "Changi" formerly at Giza.

*Perissodactyla*.—One Indian and two African Rhinoceroses : fifteen horses, zebras and donkeys.

*Artiodactyla*.—40 head of cattle representing 12 species, most noteworthy being a Senegambian Buffalo Bull *Bos caffer* "*brachyceros*," a fine pair of Gaurs *Bos gaurus*, and a female Musk Ox *Ovibos moschatus* which has been over three years here. :

The sheep and goats are both well represented.

38 head of antelope representing 29 species : these will be referred to later in this Report.

Three Sudan Giraffes, male, female and young born in Berlin 26th of January 1907.

Over 100 head of deer representing 38 species or geographical races and varieties ; including such rarities as *Cervus schomburgki*, *C. davidianus*, *Blastoceros campestris*, *Hydrelaphus inermis* and two *Moschus moschiferus* (one 3 years here).

Besides the Indian Mouse-Deer *Tragulus meminna*, the Berlin collection contains its very rare African relative *Hyomoschus aquaticus*.

The *Camelidæ* call for no special remark.

Two Hippopotamus, male born in Antwerp, and female imported from Senegal.

Eight species of pig, including *Sus papuanus*.

EDENTATA.—Two Armadillos and one Anteater *Myrmecophaga jubata*.

MARSUPIALIA.—The typical Kangaroos of the genus *Macropus* do not appear to be numerous represented at Berlin, but I noted eleven other species of Marsupials, most noteworthy being examples of the Zebra-Wolf *Thylacinus cynocephalus*, the Short-nosed Bandicoot *Perameles obesula* and Bennett's Tree-Kangaroo *Dendrolagus bennettianus*.

MONOTREMATA.—Two Echidnas, one of which has now been about 13 years in the Berlin Gardens.

BIRDS.—As mentioned above, want of time prevented me from doing justice to the magnificent collection of birds, especially the Passerine and Picarian birds and the Parrots : I saw and admired them, but had not time to examine them critically or write notes.

Among the waterfowl specially noteworthy were : the Indian Pink-headed Duck *Rhodonessa caryophyllacea*, the Sandwich-Island Goose *Nesochen sandvicensis*, the Eider Duck *Somateria mollissima* (3 years here), the Australian Musk-Duck *Biziura lobata* (4 years here), and the Red-breasted Merganser *Mergus serrator*.

Admitting *Grus lilfordi* as distinct from *G. grus*, 14 species of Cranes were represented; and 11 species of Storks, including two specimens of *Ciconia ablinii*.

Of birds seldom seen living in captivity should be mentioned a Samoan Tooth-billed Pigeon *Didunculus strigirostris*, two Ripa or Willow-Grouse *Lagopus lagopus*, an Australian Mallee Bird *Leipoa ocellata*, an Arabian Bustard hen *Eupodotis arabs* (6 years here) and one South American Sheathbill *Chionis alba*.

The Struthious birds were represented by 7 Ostriches, 2 Rheas, 1 Emu and 11 Cassowaries.

At present there are no reptiles or batrachians in the Berlin Zoological Gardens, and fish only in the ponds.

#### 6. — Blackpool.

Under the experienced care of Mr. James Walsley a menagerie is maintained in the Blackpool Tower on the coast of Lancashire. Two monkey cages are in the Aquarium, the rest of the collection is housed on the first floor above the Aquarium; and there are also a set of very fine large cages in the "Palace," a separate building on the north side of the "Tower."

By reason of the small area available, this collection is small in numbers, but remarkable for its cleanness and the extraordinary good condition of the animals, which reflects great credit on the management.

At the time of my visit in May 1907 the menagerie contained:—

Two Chimpanzees "which were saved from the wreck of the s.s. *Jebba* off the Lizard, in the extraordinary circumstances detailed in the Press."

About 39 smaller monkeys representing 12 species or sub-species, and 33 lemurs of 6 different kinds.

The carnivora included eleven Lions, five Tigers, three Leopards, five Jaguars, one fine Ocelot and two small domestic dogs of a hairless breed. Both lions, tigers and jaguars have been bred here.

The only other mammals I noted were two Tree-Porcupines and five Agoutis.

Of the birds, of which 22 species were represented, the most noteworthy were some Nutcrackers, four Cape Penguins, two Crowned Cranes and a Trumpeter *Psophia*.

Besides the live animals, this institution also possesses a collection of stuffed birds, a few stuffed mammals, and two skeletons of anthropoid apes.

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From paragraphs in the English newspapers I have been very sorry to learn that in the autumn of 1907 the Blackpool menagerie has sustained a



very severe loss, by the sudden and somewhat mysterious death of several of their large *Felidæ*. The symptoms, according to the accounts I read, appear to be the same as those of cases of death from hæmorrhagic septicæmia, the cause of death of six lions and two tigers in the Giza Gardens between the 8th of November 1899 and the 11th of April 1901.

#### 7.— Clifton.

“ Nothing over-ambitious has been aimed at ” (to quote a sentence on page 11 of the official guide-book to the Clifton Zoological Gardens), but what has been done is good.

These gardens are only about 12½ acres (or nearly 5 hectares) in extent, but the ground is utilized in clever ways to the best advantage.

The houses for the large *Felidæ* are among the very best in Europe, and the improvements carried out within the last few years (I had not had an opportunity of revisiting Clifton since 1900) are all for the best, and reflect great credit on Mr. Villiers.

Of plants this institution makes specialities of fuchias and ferns: the fuchias, I am told, are at their best in the latter part of July. Mr. Villiers showed me two fuchsia plants, over 60 years old, but still flowering beautifully every year. 800 varieties of fern are said to be on exhibition: the difference between many of these varieties appears rather small to the outsider! but the collection is certainly wonderful.

A very pleasing feature at Clifton is the tameness of the Robin Redbreasts about the grounds.

The menagerie is not large, but very pleasant to visit as its inmates are so well cared for: not only does Mr. Villiers love and know his animals, but they seem also to reciprocate his attentions. I saw 101 mammals representing between 41 and 48 species (in the present transitional state of zoological nomenclature it is hard to decide on these points!), I did not count the individual birds, but noted about 77 species, and also about 15 reptiles of 9 species; so the number of species represented in the collection may be taken as not exceeding 134.

To specially call attention to are 9 young and healthy-looking Drill Baboons *Papio leucophæus*, a very dark Moor Monkey (apparently a variety of *Macacus maurus*), a nice series of eleven Lions, a female Indian Elephant “ presented through Lieut. Col. C. Wilkinson, R.E., by H.H. the Rajah of Mysore ”: she arrived in Clifton on 4th of November, 1868, being then supposed to be 8 years old, this would make her present age to be 47 years: a pair of Zebras *Equus burchelli* var.?: a Grimm’s Duiker-bok, 2 years here: two rare Owls *Bubo lacteus*: a very nice Apteryx, 3 years here (presented, I understand, by Dr. G. A. Harrison): one very large African *Python sebæ*, and a specimen of the rarer small African *Python regius*.

### 8.— Gooliust.

At his beautiful country seat of Gooliust, 's Graveland, near Hilversham, Holland, Mr. F. E. Blaauw keeps his wonderful private collection of live mammals and birds.

Already in 1900 by the kindness of the owner I had been privileged to see this menagerie, and in 1907 I was glad to be able to accept Mr. Blaauw's welcome invitation to revisit it.

The wild birds add to the attractiveness of the Gooliust estate ; in July Golden Orioles were whistling in the trees, and the number and comparative tameness of the Grey Herons was remarkable.

The mammals, seen to great advantage in large green paddocks, included 5 American Bison, 5 Banting, a beautiful herd of 6 Blessbok, a pair of Waterbuck *Cobus cob*, three Eland-Antelopes, 8 White-tailed Gnus, 6 or more Great Kangaroos and about a dozen Bennett's Wallabies.

The series of aviaries and well planted garden pens for birds are absolutely charming.

The birds I noted were :—

Parrots, 10 species, including Spix's Macaw *Ara (Cyanopsittacus) spixi*, Guilding's Amazon *Chrysotis guildingi* and two Hawk-headed Caiques *Deroptyus accipitrinus*.

The rare *Ibis melanopis*.

Four Flamingos, and representatives of 35 species of Swans, Geese, and Ducks, including : *Anseranas semipalmata*, *Sarcidiornis melanonota* (female sitting), *Cereopsis novæ-hollandiæ*, *Chen rossi* (female sitting), *Anser finmarchicus*, *Anser segetum* (pale variety), *Anser indicus* (bred 1907), a single specimen of the very rare Red-breasted Goose *Branta ruficollis*, *Nesochen sandvicensis*, *Chloephaga magellanica*, *C. rubidiceps*, *C. poliocephala*, *Chenonetta jubata*, *Chenalopex jubatus* and the very fine Teal *Querquedula falcata*.

Several species of Doves : Sonnerat's Jungle-fowl ; Black-winged and other Peafowl : Peacock Pheasant : Australian Brush-Turkey : Ypecaha and Weka Rails : five species of Cranes : Australian Plovers *Sarciophorus pectoralis* (which have bred this year, see B.B.O.C. 1907, CXXXV, page 102) : Rheas, both of the ordinary and of the white variety : four Emus : and a One-wattled Cassowary, a very fine bird in beautiful condition, which Mr. Blaauw obtained when half grown in 1889 and which has consequently lived now nearly 18 years in his possession.

### 9.— Grossborstel.

Pleasantly situated among very stately tall old trees, Herr August Fockelmann's new Tierpark at Grossborstel, near Hamburg, has at present a charm of its own, a unique character among the menageries of Europe in

that at first sight it appears to be an ordinary comfortable country house with its attached farm buildings ; it might be imagined one had mistaken one's road, there seem many quiet country lanes in this neighbourhood, till as one gets close at hand one sees it is not a big dog basking on the lawn but a young bear, the cattle a field or two away include six fine Bactrian Camels, Shetland ponies and foreign goats, and the waterfowl on the pond are not merely the Mute Swan and the " farmyard " geese and ducks that one expects in such a situation, but include 15 or more species of Anseres.

The actual total head of live animals that I saw at Grossborstel I would be sorry to have to estimate, it was certainly many thousands, but the majority was composed of small tropical passerine birds : specially noteworthy were a brown Spider Monkey, 13 black and white Ruffed Lemurs, 20 other Lemurs (including 8 Mouse-Lemurs), 5 Canadian Tree-Porcupines, 2 Black-striped Wallabies (which I am told have bred here, twice *two* at a birth), a flock of about 33 Demoiselle Cranes, 12 Rhinoceros-Iguanas, no less than 30 Mississippi Alligators and many Indian Pythons.

#### 10. — Hamburg.

In July 1907 the menagerie of the Zoological Society of Hamburg contained, as usual, a valuable and varied collection, under the veteran care of Dr. Bolau.

PRIMATES.—I saw 55 monkeys of 24 species, and 11 lemurs of 4 species ; among which may be mentioned three American monkeys (one *Callicebus cuprea*, and two *Lagothrix lagotrica* " *cana* "), and three specimens of the West African Lemur *Perodicticus potto*, all three differing from each other in colour, possibly representing three different varieties, but unfortunately the exact localities of origin are not known.

CARNIVORA.—I noted representatives of 61 species, including a Snow-Leopard *Felis uncia*, five Jaguars *F. onca* (the Jaguar breeds in these Gardens), four Pumas *F. concolor*, one of which from the Straits of Magellan is a most magnificent animal, two fine European Lynxes *F. lynx*, two Raccoon-like Dogs *Canis (Nyctereutes) procyonoides*, no less than five Hunting Dogs *Lycaon pictus* (one adult, and four young ones recently acquired by presentation), a pair of Wolverines *Gulo luscus*, a Grison *Galictis vittata*, and one very fine Grey Seal *Halichærus grypus*.

CHIROPTERA.—Apparently none.

INSECTIVORA.—Only the Hedgehog *Erinaceus europæus*.

RODENTIA.—33 species, two of the most interesting being the North American Jerboa *Zapus hudsonius*, and the Fournier's Giant-Rat *Capromys pilorides* from Cuba; it should be recorded that both the Beaver *Castor canadensis* and the Tree-Porcupine *Erethizon dorsatus* have bred in the Hamburg Zoological Gardens during 1907.

UNGULATA.—Two South African Hyrax.

Two Indian Elephants: the male, "Anton," arrived in Hamburg 24th July 1871, and was then supposed to be two to three years old, so his present age is 38 or 39. He is a large animal, with very fine long tusks, which appeared to me to have improved, especially in becoming less unsymmetrical since I last saw him in 1905; he is said to be 2.70 metres in height; the female, "Valy," arrived in the Summer of 1881, so has now been 26 years in Hamburg, she is also a large animal, said to be over 2.58 metres in height. One female African Elephant, called "Lieschen," from Abyssinia, has been 7 or 8 years in Hamburg, in her smaller ears and differently shaped forehead she appears to differ (at least sub-specifically) from the Blue Nile Elephants at Giza.

The Perissodactyla are represented by two pairs of Tapirs, the Zebras mentioned in my 1905 report, and some Donkeys.

The cattle, sheep, and goats call for no special mention, but there is a nice collection of 32 Antelopes of 16 species, and a pair of Sudan Giraffes (received 15th October 1901).

Of the deer, attention may be particularly called to the very fine pair of Elk *Alces machlis*, to the pair of Chinese Water-Deer *Hydrelaphus inermis* (three years here), and to the beautiful little female Pudu *Pudua humilis* (two years here).

The Tragulidæ and Camelidæ call for no special mention.

The single Hippopotamus, called "Glückliche," is from the Atbara; travelling *viâ* Suakin, Suez Canal and Marseilles, it arrived in Hamburg in August 1881, when it was believed to be six months old, and was 66 centimetres in height, its subsequent growth can be seen by the following figures, kindly given to me by Dr. Bolau:—

1882,	0.91	metre
1883,	1.03	"
1884,	1.15	"
1885,	1.24	"
1886,	1.28	"
1890,	1.30	"
1896,	1.32	"

Of the Suidæ, attention may be called to the very curious Asiatic Pig

with hanging lappels, to the African River-Pigs *Potamochoerus* of two species, and to the Peccaries *Dicotyles*.

EDENTATA.—Only the ordinary Armadillo *Dasypus villosus*, which Dr. Bolau tells me often breeds in his gardens.

MARSUPIALIA.—Twelve species, five of which breed here : the Kangaroos and Wallabies *Macropus giganteus*, *M. rufus*, *M. bennetti*, *M. dorsalis*, and the Australian Opossum *Trichosurus vulpecula*.

BIRDS.—The general condition of the Passerine and Picarian birds was exceptionally good ; attention may be specially called to a Tree-Creeper *Certhia familiaris*, which is said to have been nearly six years in captivity here, to the Motmot *Baryphthenus* or *Prionites ruficapillus*, to the collection of Woodpeckers representing five species (including a tame and amusing specimen of the Great Black Woodpecker *Picus martius*), to the well-conditioned Toucans, and to the Hornbills, especially a fine *Bucorvus* in full colour.

The collection of Parrots was large, two rare species I noted were the Phillipine Islands' Cockatoo *Cacatua hennitropygia*, and the Giant Military-Macaw *Ara ambigu* from Western South America.

Among the Owls I was pleased to meet a friend from Egypt in *Bubo ascalaphus*.

There was a fine series of birds of prey ; the South American Hawks *Urubitinga lacernulata* and *Leptodon cayennensis* may be mentioned as species rarely seen in captivity in Europe.

Though the collection of Storks was poor, that of Herons was numerous, including besides commoner species, two *Ardea goliath*, the American *Ardea egretta*, *A. candidissima*, and *A. sibilatrix* (= *Syrigma cyanocephalum*), the Australian White-faced Heron *Ardea novæ-hollandiæ*, two West African Tiger-Bitterns *Tigrisoma leucolophum*, and two South American Tiger-Bitterns *T. lineatum*. Other beautiful members of the "Herodiones" represented at Hamburg were the Roseate Spoonbill *Platalea ajaja*, and the American Ibises *Ibis melanopsis* and *I. alba*.

The collection of Anseres comprised two species of Flamingo, two specimens of the Horned Screamer *Palamedea cornuta*, and 34 species of swans, geese, and ducks.

Of the pigeons it should be noted that a Crowned Pigeon *Goura victoria* obtained in May 1891 is still alive, and so has now lived for sixteen years in Hamburg.

There was a fine show of game-birds, and, as with other groups, the American forms were better represented than is usual in European menageries : I noted at least six species of Curassows and Penelopes.

Among other nice Rails may be mentioned the South American Coot *Fulica armillata*.

There were 8 species of Cranes, and of the remaining birds I will only mention the Trumpeter *Psophia viridis*, two White Sheathbills *Chionis alba* presented by Capt. Hüneken, and the Chilian Tinamou *Rhynchotus perdicarius*.

REPTILES.—The collection of reptiles and batrachians contained many fine and interesting animals, of special note were: the Giant Tortoises *Testudo nigra* and *T. vicina* from the Galapagos Islands: six species of Crocodilians, i.e. *Crocodylus cataphractus* (one large and one small), *C. intermedius*?, *C. noticus* (fine specimen), *Osteolaemus tetraspis* (three large, one medium and two small specimens), *Alligator mississippiensis*, and *Caiman sclerops*: eight specimens of the Rhinoceros-Iguana *Metopoceros cornutus*: a Gila-monster *Heloderma suspectum* which has now been five years in the Hamburg Gardens: very bulky and fat Tejus *Tupinambis teguexin*: and finally some rare South American Frogs which neither Dr. Bolau nor I knew the names of, but which by kind information received from Mr. G.A. Boulenger, we believe to be *Rhinoderma darwini* and *Leptodactylus ocellatus*.

#### 11. — Hanover.

The Zoological Gardens of Hanover are situated in the Eilenriede, and in several particulars resemble the Dresden Zoological Gardens in the Grosse Garten.

Hanover possesses two very fine buildings for animals: the Lion House and the Antelope House.

A summary of my notes on the animals seen in this menagerie in July 1907 may be of interest.

PRIMATES.—A small collection of monkeys, but those in the outside cages of the Monkey House were in very good condition, with nice coats of hair: some of the smaller Primates are kept in the Reptile House: the lemurs comprised two of the common *Lemur catta*, two black and white Ruffed Lemurs *L. varius*, two varieties of "Bush-Babies" labelled *Galago crassicaudatus* and *C. kirki*, and a most interesting little lemur labelled "Der Marder-Maki *Lepidolemur mustelinus*," in Dr. Schäff's Guidebook, page 68, he says very truly of this animal "Selten in Gefangenschaft zu sehen."

CARNIVORA.—About 40 species, including a Snow-Leopard *Felis uncia*, two Badgers *Taxidea americana* in very good condition, and two Seals *Phoca vitulina*.

CHIROPTERA.—Two species of Fruit-Bats labelled *Pteropus edwardsi* and *P. pselaphon*.

INSECTIVORA.—None noted.

RODENTIA.—Seven species.

UNGULATA.—At least 38 species, 10 of which were antelopes; specially may be mentioned one Indian Elephant, a very fine Roebuck, some Muntjac stags in beautiful condition and one Hippopotamus.

EDENTATA.—One Sloth *Choloepus didactylus*.

MARSUPIALIA.—One Wombat and various Kangaroos.

BIRDS.—A fairly large and representative collection: in the Bird House was a nice African Ground Hornbill *Bucorvus*, and in one of the aviaries two White-necked Storks *Ciconia episcopus*.

REPTILES.—The collection of reptiles and batrachians consisted of the more usual European forms and 13 foreign species, four of which were African and included a large Leopard Tortoise *Testudo pardalis* and two Crocodiles, one quite small but the other about 6 to 7 foot long.

A curious but rather pathetic feature of the Hanover Zoological Gardens is a "home" for lost dogs.

## 12. — London: Zoological Gardens.

During my leave I had the pleasure of visiting the Regent's Park menagerie on fourteen different days, which combined with my intimate knowledge of this institution from childhood enabled me to get a good general idea of its present condition.

One visit was on the Whit-Monday holiday (20th May 1907); watching the good behaviour of the crowd and the interest they took in the various exhibits was very instructive: the number of visitors that day (I understand) was no less than 37,920, and they seemed to be thoroughly enjoying themselves in a good-tempered, orderly manner.

The piece of ground in the north garden, west of the Insect House, has during the last few years, been greatly improved, and some pretty aviaries constructed on that part of it which slopes down to the Regent's Canal; also the opening of communication between this part of the grounds and the west end of the middle garden is a long desired improvement now happily

effected, and the plot of land between the "new" bridge and the Zebra House has been nicely laid out and planted.

Several other important alterations and reconstructions have also been recently carried out, including a large paddock for the Eland Antelopes, Deer and Cattle House, and a new Bird House.

Artificial rock-work has been introduced with picturesque effect in several of the enclosures. The new Sea-Lion pond, with its interesting inhabitants : Sea-Lions, Seals and Penguins, is very attractive, but even more so to me is the very charming Plover's Aviary between the Lion House and the Great Lawn, where this year the Avocet *Recurvirostra avocetta* has bred (an account of this by Mr. R. I. Pocock has been published—*Avicultural Magazine*, July 1907, Vol. 9, page 258).

It may also be mentioned that the refreshment department appears to have been much improved recently.

The collections of Antelopes and of Fish will be specially referred to later in this Report, of the other groups of animals the following notes may be of interest :—

PRIMATES.—An unrivalled collection, worthy of the best traditions of Regent's Park. For the privilege of housing and seeing many of the rarer of these the Society and the public are indebted to the generosity of the Hon. Walter Rothschild : and to preserve records of them, their appearance in life, their habits, etc., Mr. Pocock is taking careful notes, some of which have already been published in the "Proceedings of the Zoological Society."

According to my counting, the numbers on one day in June 1907 were as follows :—

<i>Family.</i>	<i>Specimens.</i>	<i>Species.</i>
Simiidæ.	20	6
Cercopithecidæ.	103	41
Cebidæ.	15	8
Hapalidæ.	7	4
Lemuridæ.	71	16
Total=	216	75

The Anthropoid Apes, under the skilful charge of Keeper Mansbridge, consisted of 13 Chimpanzees, 2 Mias and 5 Gibbons.

Of the Cercopithecidæ I would specially call attention to the African long-tailed Monkeys *Cercopithecus erythrogaster* and *C. otoleucus*, to the rare Baboon *Theropithecus obscurus* and to the very large males of *Papio anubis* and *P. mormon*.

Three handsome specimens of the red variety of the Ruffed Lemur *Lemur varius*, all three females I am told, and representatives of *Hapalemur*,



"*Chirogaleus*," *Microcebus*, and *Nycticebus*, should be mentioned among the Lemurs.

CARNIVORA.—82 species noted.

*Felidæ*.—I saw 41 true cats representing 14 species (but no specimen of *Cynælurus*): among these were 10 Lions, 7 Tigers (some very fine, especially a male Indian), and 7 spotted Leopards (including a very fine male Indian) from a good series of localities.

*Viverridæ*.—The Civet-Cats and Mongeese were represented by over forty individuals, mostly in very good condition, of no less than 20 species; of which the most remarkable were the interesting and beautiful Madagascar animals called *Galidictis striata* and *Galidia elegans* respectively.

*Hyænidæ*.—A very complete collection consisting of one Aard Wolf *Proteles*, which had been purchased on the 23rd January 1906, three specimens of *Hyæna striata*, two of *H. brunnea* and three of *H. crocuta*.

*Canidæ*.—I saw 32 dogs of 18 species, there may perhaps have been a few more I missed. Most noteworthy were a Cape Hunting Dog *Lycaon*, and four Asiatic Wild Dogs, *i.e.*, one *Cuon alpinus* and three *C. dukhunensis*.

*Mustelidæ*.—7 species seen, including a Burmese Ferret-Badger *Helictis personata* and a Japanese Sand-Badger *Meles anakuma*.

*Procyonidæ*.—Besides Raccoons, Coatis and Kinkajous, there was also a specimen of the very rare *Bassaricyon alleni*.\*

*Ursidæ*.—The Zoological Society of London has a magnificent collection of Bears: I saw 26; 24 of 11 species or sub-species, and 2 hybrids between *Ursus maritimus* and *U. arctos*.

*Otariidæ*.—Three Californian Sea-Lions.

*Phocidæ*.—Two Seals *Phoca vitulina*.

CHIROPTERA.—None seen.

INSECTIVORA.—Hedgehogs *Erinaceus europæus* and *E. algirus*, and four specimens of the Tenrec *Centetes ecaudatus*.

RODENTIA.—35 species seen, perhaps the most interesting of which to me, never having seen them alive before, were some South Australian Jerboa-Rats *Notomys (Ascopharynx) cervinus*.

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\* Mr. R. I. Pocock has been so kind as to inform me that two examples of *Bassaricyon alleni* have been received in the London Zoological Gardens. The first, presented 28th March 1894 died in September 1899; the second, deposited in May 1904, died in November 1907. Mr. Pocock writes: "Externally it is like a Kinkajou with a more pointed nose and a non-prehensile tail. He was fed like a Kinkajou almost wholly on fruit (banana, dates etc.) and bread and milk."

UNGULATA.—One South African Hyrax, living in the Squirrel's enclosure ; one of the most interesting sights in the whole gardens, especially to see it high up in the branches of the trees.

Four Indian and one Abyssinian Elephants.

The *Perissodactyla* were represented by four Rhinoceroses (2 *Rhinoceros unicornis*, 1 *R. lasiotis*, and 1 *R. bicornis*), three American Tapirs and fifteen horses, zebras and donkeys, including three Grévy's Zebra mares.

*Artiodactyla*.—18 head of cattle representing 7 species, most noteworthy being an African Buffalo *Bos caffer* "*planiceros*."

About 32 sheep representing 8 species and varieties, including a fine Asiatic Ram *Ovis vignei blandfordi*.

19 goats and "goat-antelopes" of 8 species, including a very fine male Markhoor *Capra falconeri megareros* presented by Col. H. A. Deane, 3rd May, 1904, a Long-tailed Korean Goral *Nemorhædus caudatus*, and a male Rocky Mountain Goat *Oreamnos montanus*, purchased 6th June 1900, and now (June 1907) in very fine condition.

40 head of antelope representing 22 species.

Two Sudan and one West African Giraffe.

About 38 head of deer of 17 species and races, including two recently acquired *Moschus moschiferus*.

The *Camelidæ* call for no special remark.

Four Hippopotamus.

Eight species of pig, including *Sus leucomystax*.

EDENTATA.—One Armadillo and one Sloth *Cholæpus hoffmani*.

MARSUPIALIA.—20 species in all ; 10 species of kangaroos of the genus *Macropus*, and 10 representing other genera.

MONOTREMATA.—None.

BIRDS.—The Zoological Society had alive eight beautiful Birds of Paradise, all in good condition, belonging to five species :—

Lesser Bird of Paradise, *Paradisea minor* . . . 1 cock.

Greater " " " " *apoda* . . . " "

Red " " " " *rubra* . . . " "

Twelve-wired Bird of Paradise, *Seleucides nigricans* " "

King Bird of Paradise, *Cicinnurus regius* . . . 2 cocks and 2 hens.

Where all are so beautiful it is hard to make comparisons, but I admired the Twelve-wired Bird most.

Other interesting birds were Gambian Amethyst Starling *Pholidauges leucogaster*, the Seychellian Bulbul *Ixocincla crassirostris*, Sugarbirds of two

species *Cæreba cyanea* and *C. cærulea*, and a Myna Bird *Gracula intermedia* which had a most amusing way of saying to the visitors in plain English "I am surprised at you."

The American Toucans were represented by 8 birds of 5 species, and the Old-world Hornbills by 6 birds of 4 species.

In June I saw three Humming Birds alive, one *Amazilia feliciae* and two *Lampornis prevosti*, which had been presented in May 1907.

The collection of Parrots was magnificent, and contained many rarities, including two "Black Cockatoos," and a New Zealand "Owl-Parrot" *Stringops habroptilus* deposited by the Hon. Walter Rothschild 28th May, 1907.

Over 20 species or sub-species of Owls were represented, and I counted about 72 birds of prey of 36 species, including a Harpy Eagle.

Of the "*Pelecaniformes*" the best thing was a Frigate-Bird *Fregata aquila*.

I noted 53 species of Anseres, but they were mostly represented by only a small number of individuals, in many cases by only a single bird.

There were 23 Cranes of 12 species, but only 8 Storks of but 5 species.

A Boatbill *Cancroma cochlearia* purchased 30th March 1904, a Kagu *Rhinochetus jubatus*, and three Bustards *Otis tarda* from Spain, were among the nicest birds in Regent's Park.

The Penguins *Spheniscus demersus* showed to great advantage in the Sea-Lions' enclosure, and there was quite a large herd of them—18 birds I believe, including one partial albino.

The Seychellian Red-crowned Pigeon *Alectraenus pulcherrima*, and the Assumption Island Rail *Rallus abbotti*, both presented by the Earl of Crawford 14th May 1906, also deserve special mention.

The Struthious birds were represented by one Ostrich, two Rheas, three Emus, three Cassowaries and one Apteryx.

REPTILES.—Reptiles taken as a class (with the exception of the fresh-water tortoises) are, as far as my experience goes, more difficult to keep alive in captivity than either Mammals, Birds, Batrachians or Fish, and it does the greatest credit to the officers of the Zoological Society of London, formerly Dr. P. L. Sclater and the late Mr. A. D. Bartlett, and now Dr. P. Chalmers Mitchell and Mr. R. I. Pocock, that they have got together and maintained for so long such a magnificent collection as that always to be seen in the Regent's Park menagerie.

From all accounts (I unfortunately have not personally seen it), the Zoological Society of New York, thanks to Dr. W. T. Hornaday and Mr. R. L. Ditmars, have also a very fine collection of live reptiles, but with this possible exception the contents of the London Reptile and Tortoise houses

are unrivalled in the world : and Keeper J. Tyrrell, who for so many years has had charge of this collection, has an equally unrivalled experience of the handling and management of these animals.

The London collection has also the great advantage of the presence of Mr. G. A. Boulenger in the same town, so that it is possible for the least known new arrivals to be correctly identified, and consequently properly labelled, instead of being named more or less haphazardly as has frequently to be done in other zoological gardens.

The most interesting reptiles in the house were three specimens of *Sphenodon punctatus*, the only living ones I saw in Europe.

There was a fine collection of Tortoises, including the East Indian *Batagur baska*.

*Crocodylus niloticus* was represented by three individuals, the largest presented by Mr. R. D'Oyly Carte 20th February 1900. Of the Broad-fronted Crocodile *Osteolaemus tetraspis* I saw two, one presented by Dr. W. E. Macfarlane 22nd August 1902, and one from Nigeria presented by Mr. C. V. Fox 26th March 1903. There were about eight small and three large specimens of *Alligator mississippiensis*, including "Old Dick," who was purchased 11th July 1876, and has therefore now lived 31 years in Regent's Park. The rare East Asian *Alligator sinensis* is represented by one of the original two individuals presented by Dr. D. C. Jansen of Shanghai 26th August 1890. *Crocodylus americanus* and *Caiman sclerops* were also living in the collection at the time of my visit.

Of the Lizards I will only mention here the beautiful green Gecko *Phelsuma madagascariense*.

28 species of Snakes were on exhibition ; *Python reticulatus* was represented by six individuals, all large, and of the Puff-Adder *Bitis arietans* I counted no less than 46 specimens.

BATRACHIANS.—There was a fair collection of frogs and toads, several of them being very nicely exhibited, and 8 species of *Caudata*, mostly represented by numerous individuals, including a *Siren lacertina* which has now been 6 years in Regent's Park.

Finally, the Insect House must be mentioned, one of the most interesting features of these gardens, where Mr. A. Thomson has done so much good work for years in breeding and exhibiting Lepidoptera. Some big tropical spiders are generally also to be seen, and it is to be hoped that in the near future a representative collection of the larger Arachnida and Myriopoda may be maintained here, now that Mr. R. I. Pocock, the leading English authority on these animals, is resident in the Gardens.

### 13. — London : Public Parks.

As is well known, London possesses a number of large parks, beautifully kept up and gardened, freely open to the public ; but it is not generally known to people abroad that the natural and horticultural attractions of these parks are added to by more or less extensive collections of birds. In the summer of 1907 I noted about 48 species of introduced birds (ducks, geese, swans, pelicans, cormorants, herons, storks, gulls, rails and peafowl), living practically at liberty in the Regent's Park, St. James' Park, Battersea Park and Kew Gardens. These birds are delightful to watch, and what is even more delightful is to see the tameness of the large numbers of really wild birds (wood-pigeons, starlings, thrushes, blackbirds, robin-redbreasts, etc.) which also frequent these parks.

Besides birds, there are also sometimes mammals ; in Bushey Park were troops of importunate Fallow Deer soliciting food from picnic parties, in a part of Hyde Park a number of fancy Rabbits gave vivacity to the lawns, and in Regent's Park (I was sorry to see) the American Grey Squirrel was much in evidence in the trees.

In Battersea Park, besides the birds at large, there are also aviaries, containing owls, ravens, gold, silver and other pheasants, various finches, doves and pigeons : Battersea also has an extremely nice and pretty enclosure for Fallow Deer, where a notice runs as follows :—

“ The public are earnestly requested not to feed the deer with any kind of food. The animals are duly fed by the attendant in accordance with their habits.”

It would be advantageous to the animals if this notice could be posted, and enforced, in all menageries.

In Kew Gardens, Mr. F. E. Blaauw informed me, hybrids have been bred between the Egyptian Goose *Chenalopez ægyptiacus* and the Upland Goose *Chloephaga magellanica*.

And when mentioning Kew I must call attention to some very interesting old pictures of birds in the Royal Palace of Kew, the existence of which was apparently unknown to various English ornithologists I asked information from.

Kew Palace is open free to the public most days of the week, including Sunday afternoons. A guide-book by Mr. Ernest Law is on sale in the building, from which useful and well-got-up publication I have obtained the subjoined information as to the artists who painted the pictures.

The following list of the pictures which appeared to me to be of most interest zoologically, indicating the room in which they are placed and their catalogue number, may be of use to those who, like myself, when

visiting Europe have a great many things to see in a very limited time. I quote also the titles of the pictures, and my notes on them.

*King George III.'s Dining-room.*

11. (679). "Foreign Poultry and Ducks." Bogdane.  
Monkey, Chough, Doves, Guineafowl, Curassows, Stone-  
Curlew, etc.
15. (682). "Waterfowl and a King-Fisher." Barlow.  
Kingfisher, Coot, Moorhen, Gull, Pochard, Wigeon and a  
specimen of the very remarkable variety of the Common  
Duck with depressed curved bill.
16. (681). "Waterfowl—A Duck." Barlow.  
A Goose, evidently of the genus *Chenalopez*.
- (683). Not mentioned in catalogue. Bogdane.  
American Flamingo, Curassows, Penelopes, Touracos, etc.

*Queen Charlotte's Bedroom.*

86. "Ten Basso-Relievo Water-Colour Drawings."  
Various birds.

*The Queen's Boudoir.*

101. (680). "Foreign Birds—Pigeons, Quails and Bull-Finches, etc."  
Bogdane.  
Oyster Catcher, Quail, Bullfinch, etc.
103. (678). "Foreign Birds—Green and Red Parrots and Parroquets,  
etc." Bogdane.  
Amazon, Conure, Woodcock, etc.
104. (677). "Foreign Birds—A Cockatoo and Red and Green Parrots."  
Bogdane.  
Moluccan Cockatoo, Palæornis, Love-birds, Red Cardinal,  
Amaduvade Finches, etc.
105. (821). "Flowers and Insects." Withoos.
106. (825). "Flowers, Weeds and Insects." Withoos.  
Hedgehog, Mouse, Plants, etc.
107. (822). "Still Life—Flowers in a Glass Vase." Withoos.

As these artists are so little known, it may be as well to add that Francis Barlow, English, was born 1626 and died 1702; James Bogdane (or Bogdani) was a Hungarian who painted in England in Queen Anne's reign 1702-1714; and M. Withoos, Dutch, was born 1627 and died 1703.

14. — Manchester.

A general account of the Zoological Gardens, Belle Vue, Manchester, was

given in my 1905 report, pages 24-26. I will only add now a few notes of another visit in June 1907 to this interesting institution.

Some changes have been made in the Reptile House : in the large 72-foot-long cage an inner glass case has been added for the boas and pythons in particularly cold weather, the gratings in the floor of this long cage have been increased in size to admit more heat from the pipes below, and a second bathing-tank has been provided for the reptiles. Mr. George Jennison told me that they keep the snake cage hotter than formerly, the temperature is now maintained at 80° Fahrenheit (26.7° C.).

Two of the most remarkable animals at Manchester were a Koola-Kamba "Toby," and a Chimpanzee "Sylvia," both deposited here by the Hon. Walter Rothschild.

Other valuable monkeys were 2 Wanderoos *Macacus silenus*, 11 Mandrills *Papio mormon* and 6 Drills *P. leucophæus*, including the great male, who is the finest individual monkey I have ever seen in captivity. It is worth recording that when the Messrs. Jennison purchased him in May 1895 he was valued at 30 shillings : they would not now part with him for £300.

The old female Hippopotamus which had been purchased on the 19th July 1876, I was sorry to find, had recently died : but a great addition had been made to the collection by the purchase in May of a fine young Rhinoceros *Rhinoceros unicornis*, one of four which I had seen in April 1907 at Port Said in charge of Capt. Johansen, who brought them from India and, with many other valuable animals, took them to Herr Carl Hägenbeck at Hamburg.

The male Sudan Giraffe which arrived in Manchester in April 1905 had grown considerably since I last saw him.

Finally, it should be mentioned that two of the Sea-Lions at Belle Vue are of the South African species *Otaria pusilla* : as far as I recollect, they were the only specimens I saw in Europe, the Sea-Lions in other menageries being invariably *O. californiana*.

#### 15. — **Marseilles.**

These Zoological Gardens, originally connected with the Jardin d'Acclimatation of Paris, were some 8 years ago taken over by the municipality of Marseilles, to whom they now belong, and are under the care of Monsieur Pierre Illy, Directeur des Travaux Neufs et Plantations de la Ville.

My previous visits to this institution had been in 1895, 1899, 1900 and 1903, and I was very glad in May 1907 to be able to spend four happy days there and bring my knowledge of it up to date.

The Gardens, which are open free to the public, are very pretty ; the natural hilly site has been judiciously and artistically used, and the general

result both of the landscape-gardening and of the horticultural work is very pleasing. The chief architectural feature is adventitious to the Zoological Garden proper, being the very handsome stone aqueduct that crosses one half of the grounds, and some of the arches of which are utilized to form lofty, spacious cages for the birds of prey. Of houses giving shelter to the visitors from rain and weather there are none, except the small but well managed restaurant. The public are not admitted to the interior of the Monkey House as a rule, but see the inmates (as also in the new Lion House) only when they are let out into the exterior cages.

The copious supply of clear running water, the clean and neat paths uphill and downhill and the well arranged mixture of temperate and sub-tropical vegetation all help to give these gardens a charm of their own, as compared to similar institutions in other parts of Europe.

The funds for supporting the menagerie are unfortunately not large, some of the more valuable animals I noted there in former years, as Zebra, Beisa Oryx, and Hartebeest, are no longer to be seen, and the old female Indian Elephant that died lately (after many years' residence) has left a gap in the collection that for the present the exchequer cannot fill: but nevertheless it is a collection worth visiting, containing some very interesting individual animals of varieties that I saw nowhere else in Europe.

In all I counted 155 mammals of 55 species, a fair number of birds representing 93 species, and examples of 2 species of land tortoises. Specially should be mentioned a very large male Asiatic Monkey, allied to *Macacus nemestrinus*, and *M. arctoides* (this fine monkey has been for some years in Marseilles and may perhaps be the *M. leoninus* mentioned by Dr. P. L. Sclater, "Proc. Zool. Soc.," 1898, p. 280); three Tigers from Cochin China; a very handsome Leopard from Yunnan *Felis pardus fontanieri*; a Syrian Wolf; four Algerian Jackals (differing considerably from our Egyptian Jackals); some interesting Gazelles; some curious Long-eared Goats, said to be from Yemen; a fine male Corsican Muflon, and finally a nice and fairly tame Echidna.

While at Marseilles I was very interested to see a live Mediterranean Seal *Monachus albiventer*, which was being exhibited on the deck of a boat in the Old Port: in colour it was entirely black, except for the conspicuous white patch on the belly which gives this animal its specific name. The attendant told me it was a male, and had been caught by fishermen at Cap de Fer, near Bona, Algeria, that it was 2.70 metres (8 ft. 10 in.) in length, 1.90 metres in circumference, and weighed 470 kilos (1,036 lbs.).

#### 16. — Paris: Jardin des Plantes.

"Le Jardin des Plantes, c'est, pour ainsi dire, une *réduction* de l'univers. C'est le résumé de la Création; animaux vivants et morts, minéraux, plantes



de toute nature et de tout pays, tout est là." Without going so far as to fully endorse the above, written more than half a century ago, when the zoological gardens and museums of other countries were in their infancy or non-existent, I must say that this great national institution of France must always have a fascination for the zoologist: even the names of the streets which bound it bring up memories of the great dead—Buffon, Cuvier, Geoffroy St. Hilaire—ere ever we enter the gates and feel we are treading sacred ground.

*Horas non numero nisi serenas.* To my mind there are few more romantic spots in all Europe than the hill of "le Grand Labyrinthe": its pretty winding paths, its trees and shrubberies, its wood-pigeons and singing birds, its peace and calm, its traditions and its history.

Since Joseph de Tournefort planted his Italian pines in 1698, how many generations of naturalists have rested here and pondered on the works and ways of nature?

One's mind involuntarily conjures up the past: Bernard de Jussieu just returned from Kew, the little flowerpot accidentally broken in the Place Maubert, the precious seedling Cedar of Lebanon in his hat, planted in 1734 and now the lordly giant tree we know: the aged Louis Daubenton laid to rest in 1799 among the collections he had loved: and, in contrast, those stormy days of the bombardment 8th to 25th January 1871, when of the 80 shells which fell in the Jardin des Plantes 20 struck this labyrinth.

La Rotonde des Grands Animaux, Le Palais des Singes, La Ménagerie des Animaux Féroces—these buildings are all of historical interest to the zoologist, not only for the good service they have done in the past in helping the more modern zoological gardens to form ideas as to the installation of their collections, but also for the valuable observations, of which they have been the scene, made by the series of brilliant savants who have been attached to the Paris Museum.

And for the same reasons the Reptile House, though comparatively modern, having been opened in 1874, deserves careful inspection.

The Grande Volière is certainly the best and most handsome construction of its kind that I have hitherto seen in any zoological garden.

At the end of the grounds nearest the Seine there is some very pretty gardening, centring in a pond with luxurious masses of aquatic plants, and in contrast to this quasi-wild effect at the other end of the grounds, in the open air, near the bandstand, is a circular stone pond, with specimen water plants in neat clumps, species by species, each labelled with its name; the effect is not only instructive but pretty: the labels, being painted a quiet green, are not unnecessarily obtrusive: a small fountain splashes pleasantly in the centre of the basin, and some batrachian concealed among the vegetation from time to time raises its cheerful little voice.

Since my last visit to Paris in 1905 a general improvement seemed to have been made in the menagerie, many things had been smartened up, there was an air of activity in most departments, and the collection of animals appeared to have been considerably increased. Among other repairs in progress, the great outer cage of the Monkey House was being rebuilt.

A collection consisting of a few representatives of a great many species is interesting, but it is also pleasant to see a number of individuals of one species together: thus a party of 8 Maras *Dolichotis patagonica* in a large paddock looked very nice, as also did the fine herd of 17, or more, Arui Sheep *Ovis lervia*: similar parties among the birds should also be mentioned, 27, or more, Roseate Cockatoos in one large cage, 22 Egyptian Geese in one enclosure, 6, or more, great Eagle-Owls, 9 Griffon Vultures in one cage, and 8 Condors in another; these last were a very fine sight, bathing in a pond, and then preening their feathers and basking in the sun. It should be mentioned that in another cage were two more Condors, so that Dr. Trouesart had altogether ten of these great birds in his care.

Besides the great Mandrill, presented by Monsieur Lesieur in 1897, a Chimpanzee, Brazza's and other nice *Cercopithec*i should be noted in the Monkey House. As on my last visit, I saw eleven Lemurs—nine *Lemur* and two *Microcebus*.

Of the death of "Saïb" I was aware from the newspapers; this great African Elephant had for many years been the most noted inhabitant of the Rotunda. This year I saw only three Indian Elephants, and two Hippopotamus.

The collection of living *Equidæ* deserves special notice, including a pair of Prjewalski Wild Horses in very good condition with nice coats, three Mountain Zebras, one Grant's Zebra, two Chapman's Zebras, one hybrid between "Hemione" and "Daw" born here in 1875, so now 32 years old, four Asiatic Wild Asses labelled "*Equus hemionus*," examples of the common Donkey and Shetland Pony, and the "Jument fissipède" (received this year), which last I did not look at.

Among the birds may be specially mentioned the African Ground Hornbill *Bucorvus*, Fraser's Eagle-Owl *Bubo poensis*, the Herons *Ardea goliath* and *A. candidissima* and the Madagascan Guinea-fowl *Numida mitrata*.

The Aquarium is housed in the Reptile House, and consists of some 30 to 35 fresh-water tanks. Of fish there appeared to be only 7 or 8 species represented, including the Goldfish and the Canadian Sunfish *Eupomotis gibbosus*: the collection of batrachians was much more interesting, besides examples of *Amblystoma punctatum* (bred here), *A. tigrinum*, *Cryptobranchus alleghaniensis*, *Amphiuma means* and *Siren lacertina*, there were two Japanese Giant Salamanders *Megalobatrachus maximus*, one of which, having been presented in 1882, by Dr. Geerts, has now lived 25 years in captivity here.

17. — Paris : Jardin d'Acclimatation.

The chief features of the menagerie of the Jardin Zoologique d'Acclimatation in the Bois de Boulogne is the large collection of domesticated or semi-domesticated animals : dogs, rabbits, ponies, cattle, yaks, sheep, goats, reindeer, white, red deer, white fallow deer, lamas, alpacas, poultry, turkeys, white, ordinary and black-winged peafowl, pheasants, several species of curassows and penelopes, pigeons and fancy water-fowl.

But the collection is by no means limited to the above : in June 1907 among the mammals I specially noted were two very fine Sacred Baboons, three Sea-Lions and one Seal, a colony of Prairie Marmots living free in a large green deer paddock, two Indian Elephants, two American Tapirs in very good condition, some nice Antelopes in very large green paddocks, a herd of 15 Arui Sheep, a male Sudan Giraffe, a Collared Peccary, an African River-Pig and a Wombat.

Among the birds were such great rarities as a Kagu *Rhinocetus* and two Sun-Bitterns *Eurypyga* : also must be mentioned a beautiful group of 14 African Glossy Starlings, and the Penguins *Spheniscus demersus*, of which I counted 27 !

The Aquarium consists of two small buildings : the first is furnished with 14 wall tanks, in three of which were specimens of *Hippocampus* and in the remainder common European freshwater fish : the second contains some 49 table tanks, and a fish-hatchery.

18. — Rotterdam.

Of the Rotterdamsche Diergaarde, and Dr. Büttikofer's new buildings, I have already written at some length in my 1905 Report (pages 22 to 24) ; it remains for me to add that in 1907 I had the great pleasure of seeing both the Monkey House and the Reptile House finished, well stocked with valuable, healthy exhibits, and fully answering their designer's expectations. And again I would like to call attention to the beauties of the botanical part of this institution, especially to the rock-garden and to the *Victoria regia* house.

*Contents of Monkey House.*

I saw about 65 monkeys representing 28 species, and about 25 lemurs of 9 species : specially remarkable being two Chimpanzees (one a large female), three Mias, one Gibbon *Hylobates "concolor,"* two Dusky Lutongs *Presbytis obscurus*, a large specimen of *Cercopithecus ascanias* in very fine condition, and examples of the interesting Lemurs *Chirogale milii*, *Microcebus pusillus*, *Galago garnetti* and *Nycticebus tardigradus*.

*Contents of Reptile House.*

In this very original and practical building I noted living representatives of 126 species of animals :—

2 of Birds, the Sugarbird *Cœreba cyanea*, and the Tanager *Euphonia luteicapilla*.

6 of Crocodilians, including the West Indian *Crocodilus rhombifer*, not often seen in captivity.

31 of Tortoises belonging to 15 genera.

17 of Lizards, the Rhinoceros Iguanas *Metopoceros cornutus* being especially notable.

1 of Chameleon.

19 of Snakes, including *Cylindrophis rufus*.

20 of Batrachians, of which may be specially mentioned three (or more) Menobranchs *Necturus maculatus*, and examples of *Amphiuma means*, and the Japanese Giant Salamander.

29 of Fish ; 16 Cyprinidæ, 2 Siluridæ, 1 Loricariidæ (*Chætostomus pictus*), 1 Anguillidæ, 1 Esocidæ, 1 Gadidæ, 1 Centrarchidæ, 2 Percidæ, 3 Osphromenidæ, 1 Cichlidæ. Some of the European freshwater fish were unusually large for Aquarium specimens, notably a *Silurus glanis*, taken in the West-plas near Aalsmeer, 1·52 metres (5 foot) in length, and 26 kilos (57 lbs.) in weight.

1 of Insects, the " Stick-insect " *Dixippus morosus*.

The cages were very nicely arranged, and with much diversity to suit the habits of their various occupants.

Of the other inhabitants of the Rotterdam Zoological Gardens I can only now mention a few : the very large male Jaguar *Felis onca*, the two fine Golden Tiger-Cats *F. temmincki* from Sumatra, the Fruit-Bats belonging to two species of *Pteropus*, the little Flying Squirrel *Sciuropterus sagitta*, the Elk, the Sumatran Elephant, the fine series of Malayan Pigs *Sus verrucosus*, *S. vittatus* and *S. oi* (the former labelled as from Java, and the two latter as from Sumatra), and lastly a fine Sloth *Cholæpus didactylus*.

19. — **Southport.**

Although the youngest of the zoological gardens of the United Kingdom, the Southport institution is well worth visiting. The proprietor of the park is Mr. Nathan Yates, and the proprietor and director of the zoological department is Mr. W. Simpson Cross, the present head of the old-established firm of Cross of Liverpool.\*

The grounds are prettily laid out and planted, and the animal houses

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\* Mr. Cross has now (1908) severed his connection with the Southport gardens.

cleverly and economically constructed ; the lake and neatly kept bowling green add to the attractions of the gardens.

At the time of my visit thirteen species of monkeys were being exhibited, including two Chimpanzees, one White-crowned Mangabey and a fine Humboldt's Woolly Monkey *Lagothrix*, there were also five Lemurs representing two species. Of the other animals may be specially mentioned 8 Lions, 2 Tigers, 7 spotted and 1 black Leopard (one of the former was an exceptionally large and very fine specimen), 3 Canadian Tree-Porcupines, 1 Sudani Wild Ass, 1 Zebra (a sub-species of *Equus burchelli*), many Shetland and other ponies, 2 Indian Elephants, a Wombat, 3 Emus and a Cassowary.

Particular attention should also be called to the very large collection of domestic poultry, in beautiful condition.

## 20. — Stellingen.

Marvellous progress has been made in these new Zoological Gardens during the last two years, and their energetic and experienced founder, proprietor and director, Herr Carl Hagenbeck, and his two sons, have every reason to be justly proud of their work, and thoroughly deserve the success that is already theirs.

It is impossible to describe this institution within the limits of this Report, everyone interested in the subject should personally visit the Stellingen Tierpark and form their own judgment ; but I must say that the view of the grounds from the restaurant is as unique and interesting as any sight in Europe, interesting not only for the actual spectacle of garden and animals, but for the vast amount of careful forethought and practical knowledge of landscape-gardening and menagerie-technique that have necessarily been expended to bring about the result, a result on which Herr Hagenbeck may be heartily congratulated. His scheme was vast and ambitious, but is now an accomplished fact.

Besides the grand panorama above referred to, I must however call attention to a few of the many other features of this wonderful place : firstly, the Japanese garden with its pretty pond and valuable antique bronze ornaments ; secondly, the Reptile House, where the animals are very well exhibited, as the light enters the house from above the cages, and not from above the visitors, and where the service arrangements for the large snake cages are unusually practical and simple ; thirdly, the collection of horns and antlers mounted on the walls of the restaurant, the specimens exhibited, which deserve a much more detailed examination than I had time to devote to them, comprise according to Herr Hagenbeck's catalogue :

84	pairs	antlers,	representing	42	species	and	races	of	deer
105	„	horns	„	71	„	„	„	„	of antelopes

32	pairs	horns,	representing	17	species	and	races	of	sheep.
30	„	„	„	13	„	„	„	of	goats.
8	„	„	„	6	„	„	„	of	goat-antelopes.
27	„	„	„	18	„	„	„	of	cattle.

also 13 rhinoceros horns of 4 species, and examples of the American Prong-horn Antelope, the Babirusa and the Warthog.

This being a trading menagerie, its inhabitants are constantly changing : in July 1907 of the many animals I saw at Stellingen, perhaps the following were the most noteworthy : 2 Chimpanzees, Brazza's Monkey and other nice *Cercopithec*i, a White-crowned Mangabey, 5 Wanderoos *Macacus silenus*, 32 Lions (one of which, Herr Hagenbeck informed me, was 24 years old, and had been 19 years in his possession), 4 Lion-Tiger hybrids, 11 Tigers, 4 Snow-Leopards, 4 magnificent Lynxes, 11 Polar Bears, 3 Asiatic Wild Dogs *Cuon alpinus*, 8 Indian Elephants, 1 Blue Nile Elephant (" Dinder," formerly at Giza), a male Burchell's Zebra (of the form so seldom seen now, with very few stripes on its legs), a male Chapman's Zebra, 5 Grant's Zebras, 3 Zebra hybrids, 3 Prjewalski Wild Horses, two enormous Asiatic Wild Sheep, 2 male Markhoor, some Nubian Ibex (from the Giza Gardens), 50 head of antelope representing 14 species, some fine Elk, 2 young Hippopotamus, 10 Ostriches, very large *Python reticulatus*, and some interesting Madagascar Chameleons.

## 21. — Woburn.

By the kind permission of the Duke of Bedford, I was enabled to see again his Grace's wonderful park at Woburn Abbey, which I had visited before when on leave in Europe in 1903. There is nothing like this anywhere else in the world, and zoologists of all countries are indebted to the Duke and Duchess of Bedford for importing and maintaining these vast assemblages of large herbivorous mammals and delightful birds, and allowing facilities of seeing them in their picturesque surroundings of rolling pasture, glade and woodland.

The beauties of this great estate are well known, and cannot be over-estimated : I can only mention here some of the wild animals living at large in the park or in the various larger and smaller enclosures.

Except for Kangaroos, a few species of Rodents, and some *Perissodactyla* (Tapirs, Grévy's Zebra, Prjewalski Wild Horses, and Asiatic Wild Asses) which I did not see on this visit, the mammals all belong to the *Artiodactyla*, of which I was informed there were about 3000 head in the park, including the Red and Fallow Deer.

The cattle were represented by a large herd of American Bison, a bull and three cows of the European Bison, very many Zebus, several Yaks and two Anoa.

The sheep were represented by Mouflon and Burrhel, the goats by a large herd of Thar.

The antelopes, of which I saw representatives of 5 species, will be referred to later in this Report.

There was one Giraffe.

The deer are, however, the chief feature of the Woburn collection: the number of species in the park must be very large, during my all-too-short afternoon's visit I noted 19 species, including the very remarkable Père David's Deer.

There were also three Bactrian Camels and Lamas and Alpacas.

The birds include a large number of Pheasants and Partridges, some Vulturine Guinea-fowls and Wild Turkeys, a magnificent collection of Swans, Geese and Ducks, three *Ibis melanotis*, a beautiful series of about 10 species of Cranes (including many Stanley Cranes, and one African Wattled Crane), Rheas of two species, and an Ostrich.

There is also at the Abbey an interesting Museum of stuffed and mounted mammals and birds, and a very large series of horns and antlers.

There is a very fine collection of stuffed Tortoises, including unusually large examples of the following species: *Testudo calcarata*, *T. iberica*, *T. marginata*, *T. pardalis*, *T. radiata* and *T. tabulata*. Among the stuffed Lizards is a giant example of *Varanus salvator*.

Some gigantic Rays will probably be noticed by every visitor, as they stand conspicuously in the central hall, but another great fish worth seeing in the side gallery is an Assyrian Barbel, labelled *Barbus euphrati*.

Many of the zoological specimens are in a separate building, the Anatomical Museum, on the other side of the Gardens; this collection is adapted for students only, and is not entirely pleasant as a public exhibition. To persons interested in the osteology of the animals known to the ancient Egyptians, it may be noted that there is here a case containing skeletons of an Apis Bull, two Gazelles and a Dog, from ancient Egyptian mummies: two mummied Cats are also exhibited.

In this building there is a wonderful pair of horns of a domestic ox, of very great width from tip to tip: it is specimen No. 1, above wall case XII.

#### 7.— Tring.

At Tring Park, Hertfordshire, England, the Hon. Lionel Walter Rothschild maintains his unique private zoological collection, which in June 1907 I had the great privilege and pleasure of visiting in the company of the founder himself and of the learned curator Dr. Ernst Hartert. The vast number of specimens, not only valuable for themselves, but also for the scientific data recorded about them, brought together in the lifetime of one man, and he still young, is very wonderful, but more wonderful still is the extensive and accurate knowledge which Mr. Rothschild has of all these hundreds of thousands of specimens. Only a very few things can be referred to within the limits of this Report. Among the mammals there are particularly fine collections of Anthropoid Apes, of Zebras and of Antelopes, and particularly noticeable specimens are the White Rhinoceros, the stuffed Okapi, the stuffed Giraffe, from Angola, with completely spotted legs, thus markedly different from all our Sudan Giraffes, the head and upper part of the neck of another Southern African Giraffe, showing the absence of the frontal horn, and the stuffed head and neck of a Reticulated Giraffe from Somaliland.

In the Bird Room are, I was informed, 186,000 birds' skins: the richest collection of birds in the world apparently, with the one exception of the British Museum (which possesses about 300,000 skins); the series of Birds of Paradise at Tring is considered by experts to be *the* best in the world. The Great Auk is represented by a stuffed specimen, a skeleton and two eggs. There are two mounted Shoebills *Balæniceps rex* (one of these is from Marno's