THE
OOLOGICAL SOCIETY
OF LONDON

HENRY SCHERREN

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ZOOLOGICAL SOCIETY
OF LONDON

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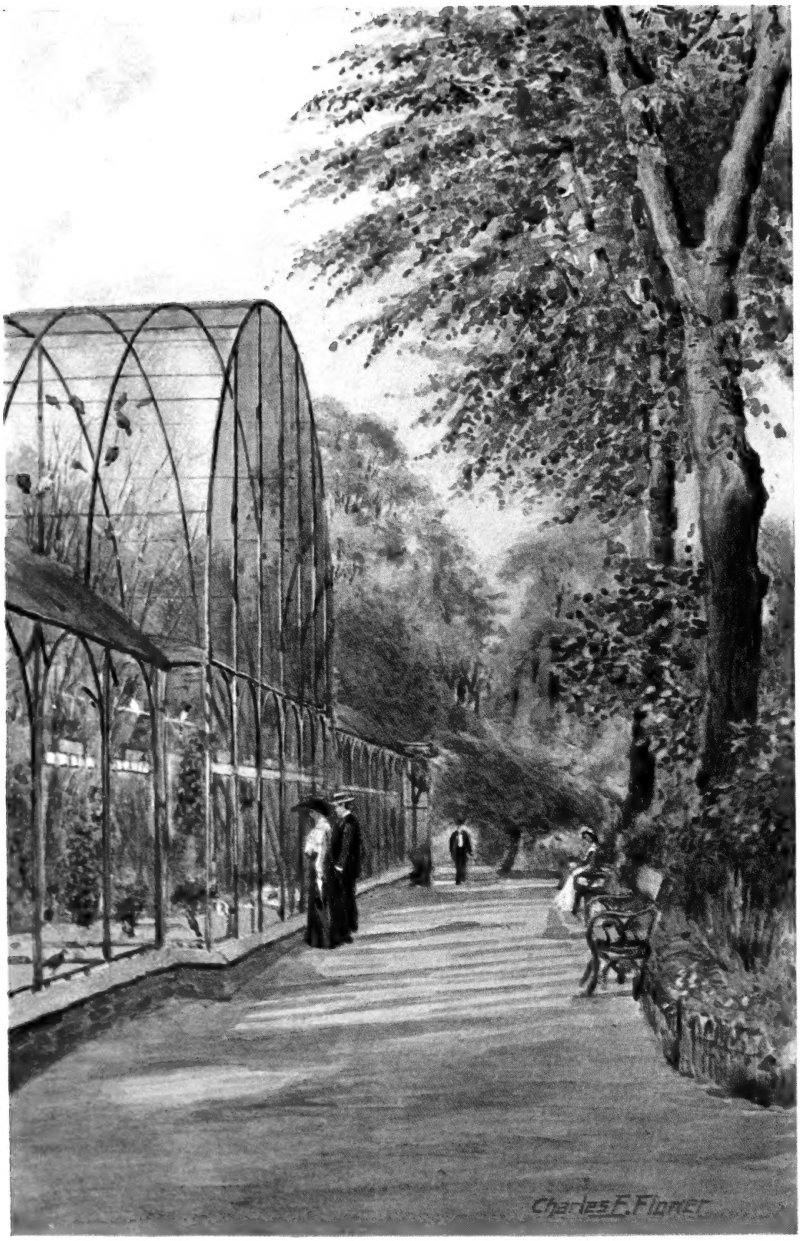
Charles E. Flower

PLATE I.

THE WESTERN AVIARY.

(*See p.* 83.)

THE

ZOOLOGICAL SOCIETY OF LONDON

A SKETCH OF ITS

FOUNDATION AND DEVELOPMENT

AND THE STORY OF ITS

FARM, MUSEUM, GARDENS, MENAGERIE AND LIBRARY

BY

HENRY SCHERREN, F.Z.S.

MEMBER OF THE BRITISH ORNITHOLOGISTS' UNION

Author of the Official "Short History," forming part of "A Record of Progress," edited by Dr. P. L. Sclater, F.R.S., late Secretary of the Zoological Society, "A Popular History of Animals," "Through a Pocket Lens," etc.

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To

HIS GRACE THE DUKE OF BEDFORD, K.G.,

the Eighth

President of the Zoological Society of London,

This Sketch

of

Its Foundation and Work

is,

By Permission, Respectfully Dedicated.

PREFACE.

In presenting this book to what I believe will prove a friendly public, attention may be drawn to the fact that this is the first attempt to tell the story of the Zoological Society at any length. Nearly seven years ago, though the project had not then taken definite shape, it received the approval of Dr. Sclater, who kindly gave me free access to the Society's records, and, in consequence of my work on them, entrusted me with the preparation of the official "Short History." Since then his successor, Dr. P. Chalmers Mitchell, has kindly allowed me the same privileges and increased my obligations to him by reading the proofs and making valuable suggestions.

My aim throughout has been to record facts and to give authority for any statement that seemed in conflict with generally received opinion, without comment or the obtrusion of my own views. While gathering material from every available source, two considerations forced themselves upon me, and, as a consequence, find expression in these pages. First, that the foundation of the Zoological Society of London was a natural development from the Zoological Club of the Linnean Society; and the second, that before the Zoological Society was half a century old, its bionomical work practically ceased owing to the increasing influence of morphographers and systematists in its councils. The election of the Duke of Bedford as President, the recommendations of the Reorganisation Committee, and subsequent changes, mark a return to lines laid down by the Charter.

The rest of my task is a very pleasant one—to offer my sincere thanks to all who have helped me in the preparation of this history. I am especially grateful to the President for accepting the dedication; and to the Duchess of Bedford, I am indebted for such particulars of the Woburn collection as were necessary for the purposes of the book.

Professor Alfred Newton, F.R.S., has favoured me with much information that has been incorporated. My obligations to Dr. Sclater and Dr. P. Chalmers Mitchell are again acknowledged; without the facilities granted by them it would have been useless to attempt the task. Mr. Arthur Ashbridge, District Surveyor of Marylebone, invited me to examine his records concerning the Gardens. Mr. R. I. Pocock has assisted me in matters of identification. My old friends Mr. F. H. Waterhouse and Mr. J. Barrow rendered valuable help—indeed, everybody at Hanover Square evinced an interest in the work that was extremely gratifying.

The Council of the Linnean Society courteously gave me ready access to the Swainson Correspondence, and the General Secretary, Mr. B. Daydon Jackson, was equally obliging with respect to the few records that exist of the Zoological Club; these were first shown me by my friend Mr. J. E. Harting, at Dr. Sclater's request, when I was engaged on the "Short History." For the photograph of the Okapi (Plate 47) in Tring Museum, I am indebted to the Hon. Walter Rothschild, M.P.; to Mr. H. D. Crompton for that of the interesting statuette of George the Fourth's Nubian Giraffe (Plate 2), and to my friend Mr. H. E. Dresser for the information, too late for insertion in its proper place, that Dr. Crisp bought the stuffed skin of that animal when the Museum collection was dispersed. Lastly, I should be in the highest degree ungrateful if I did not include my wife among those to whom my warmest thanks are due. She has shared in all my labours; and if, as I hope, the book be of permanent value, I, at least, shall ascribe no small part of the credit to her help and encouragement.

HENRY SCHERREN.

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THE

ZOOLOGICAL SOCIETY OF LONDON.

CHAPTER I.

1822—1826.

ALTHOUGH the Society did not come into existence till 1826, for some years previous various influences were at work that rendered the establishment of such a body not only desirable but necessary. Activity in exploration had increased the sum of human knowledge with respect to the animal kingdom; collections of living beasts, birds and reptiles, skins and fossils, were yearly brought to our shores, and a growing desire for information with regard to them was manifested by educated people generally. As a consequence, existing Societies were unable to deal adequately with the zoological papers presented, or to allow time at their meetings for the discussion of zoological subjects. And during the first quarter of the nineteenth century the only collections of living animals accessible to dwellers in the metropolis were the Royal Menagerie in the Tower and the private one of Mr. E. Cross at Exeter 'Change,* just east of Burleigh Street, in the Strand. A visit to the Royal Menagerie near the Sandpit Gate in Windsor Park was not to be lightly undertaken.

The Royal Society, "the dignified parent of all our scientific societies," had been expressly instituted "for the promotion of natural knowledge"; but, owing to the great development of

* In 1829 this was removed to the King's Mews, the site of which is now occupied by the National Gallery. In 1831 the collection was acquired by the Surrey Zoological and Botanical Society, and in the August of that year Queen Adelaide gave her patronage to the project of a zoological garden on the south side of the Thames, provided that it was "not in opposition, but only in a true spirit of rivalry to the establishment in Regent's Park."

physical science, natural history had to put up with less attention than many of the Fellows considered the subject deserved. This led to the foundation of the Linnean Society in 1788, by Dr. James Edward Smith, a young Norwich physician, who was knighted in 1814. Its object was defined as "the cultivation of the science of Natural History in all its branches, and more especially of the Natural History of Great Britain and Ireland." But considering that the botanical work of the great Swedish naturalist was then rated as of more importance than his zoological studies, and that his books, manuscripts, and herbarium were purchased by Dr. Smith on the death of the younger Linnæus in 1783, it will appear only natural that, in the early years of the Society, botany received more attention than the sister science of zoology. To this Sir William Flower alluded in his address to the Zoological Society at the meeting in the Gardens, June 16, 1887, on the occasion of Queen Victoria's Jubilee. He expressed the opinion that, if the leading Fellows of the Linnean Society had displayed more energy, it might have kept in its hands the principal direction of the biological studies of the country, instead of allowing the Zoological Society, which had since proved so formidable a rival, to spring up, and to absorb so large a portion of its useful function. Sir William was not curious to inquire into the reasons why the Linnean Society did not take advantage of the opportunity, but contented himself with the remark that "it did not supply all the needs of the lovers of Zoology."

Hence it came about that some members, quite as much interested in animals as in plants, determined to do something to spread the systematic study of natural history. On November 29, 1822, the birthday of John Ray, "the father of modern zoology," a meeting was held at the rooms of the Linnean Society in Soho Square.* The Rev. William Kirby, joint author with Spence of the famous "Introduction to

* On the death of Sir Joseph Banks in June, 1820, Robert Brown, the famous botanist, "clerk, housekeeper, and librarian" to the Society, suggested the advisability of removal to Banks's house, in the south-west corner of Soho Square. The front part overlooking the square was accordingly taken, and here it was that the meetings of the Zoological Club of the Linnean Society were held.

SIR JOSEPH BANKS'S HOUSE (ON THE EXTREME RIGHT). (*See p. 2.*)

From a Drawing by J. Hosmer Shepherd.

PLATE 1

Entomology," was the Chairman; and it was then resolved to form a Club. In the following May bye-laws were adopted, and the privilege of membership was restricted to Fellows and Associates of the Linnean Society. The object of the Club was defined as "the study of zoology and comparative anatomy in all their branches, and more especially as they relate to the animals indigenous to Great Britain and Ireland." After some communication with the parent Society the new association was formally named the "Zoological Club of the Linnean Society of London"; and it was arranged that all papers passed for publication should be offered to the Linnean Society, in whose *Transactions* (vols. xiv.–xvi.) many of them appear, for the Club had no publication of its own. The following is a list of the original members, and (C) denotes a member of the Committee:

* Bell, Thomas (C).
* Bennett, Edward Turner (C).†
Blunt, Edward.
Booth, Thomas Swift.
* Curtis, John.
Dale, James Charles.
* Donovan, Edward.
Du Bois, Charles.
Hatchett, John.
Hatchett, John, jun.
Haworth, Adrian Hardy (C).
Henslow, John Stevens.
* Horsfield, Thomas, M.D. (C).
* Jenyns, Leonard, Rev.
* Kirby, William, Rev. (C).
* Lovaine, George, Lord.
* MacLeay, Alexander.
* MacLeay, William Sharp.
Milne, George (C).
* Percy, Hon. William Henry.
* Sabine, Joseph (Chairman).
Sheppard, Revett, Rev.
Sheppard, Edmund.
* Sowerby, George Brettingham.
Sparshall, Joseph.
Spence, William.
* Stephens, James Francis (Treas.).
* Vigors, Nicholas Aylward (Sec.).

Owing to some misunderstanding Mr. Swainson declined to join the Club on its foundation, though he was elected in 1825. Among other members who played an important part in the early history of the Zoological Society must be mentioned Mr. J. E. Bicheno (Chairman 1825–6), Secretary of the Linnean Society; Mr. J. Children (Chairman 1826–7), of the British Museum; Mr. W. J. Broderip, the author of "Zoological Recreations," etc.; Mr. Edward Griffiths, translator and editor

* Names marked thus appear in the first printed list of members of the Zoological Society, January, 1829.

† "Under his management the Zoological Club [of the Linnean Society] became the starting-point of the Zoological Society of London."—*Diet. Nat. Biog.*, iv. 241.

of Cuvier's "Règne Animal"; Major C. Hamilton Smith, the explorer and practical naturalist; and Mr. William Yarrell, the well-known author of "British Fishes" and "British Birds." Sir Stamford Raffles was not a member, though he was eligible, having been elected a Fellow of the Linnean Society on February 15, 1825.

Some of the work was, of course, concerned with classification, and some with anatomy; but field and practical zoology was largely represented. Thus, Burchell, to whom we owe the distinction between the mountain zebra and the commoner form named by Gray in his honour, contributed a paper on some African barbets, which he considered as forming a connecting link between the parrots and woodpeckers; and he based his conclusions on observations made during his African travels. Yarrell raised the lancelet from its old position as a mollusc to the dignity of a fish, from which it has been deposed, though it now occupies a more interesting position as a degenerate representative of the ancestor whence backboned animals have developed. The same author here exhibited and described his preparations of the organs of voice in many birds, and those throwing light on the assumption of male plumage by hen birds. Nor must his dissections and description of the jaws of the crossbill and the muscles actuating them be forgotten. Buffon had called the crossed tips of the bill a defect, an error of nature, which could not fail to be very inconvenient to the bird. Yarrell explained fully the working of the jaws and muscles "in riving asunder cones or apples, while at the proper moment the scoop-like tongue is instantaneously thrust out and withdrawn, conveying the hitherto protected seed to the bird's mouth."

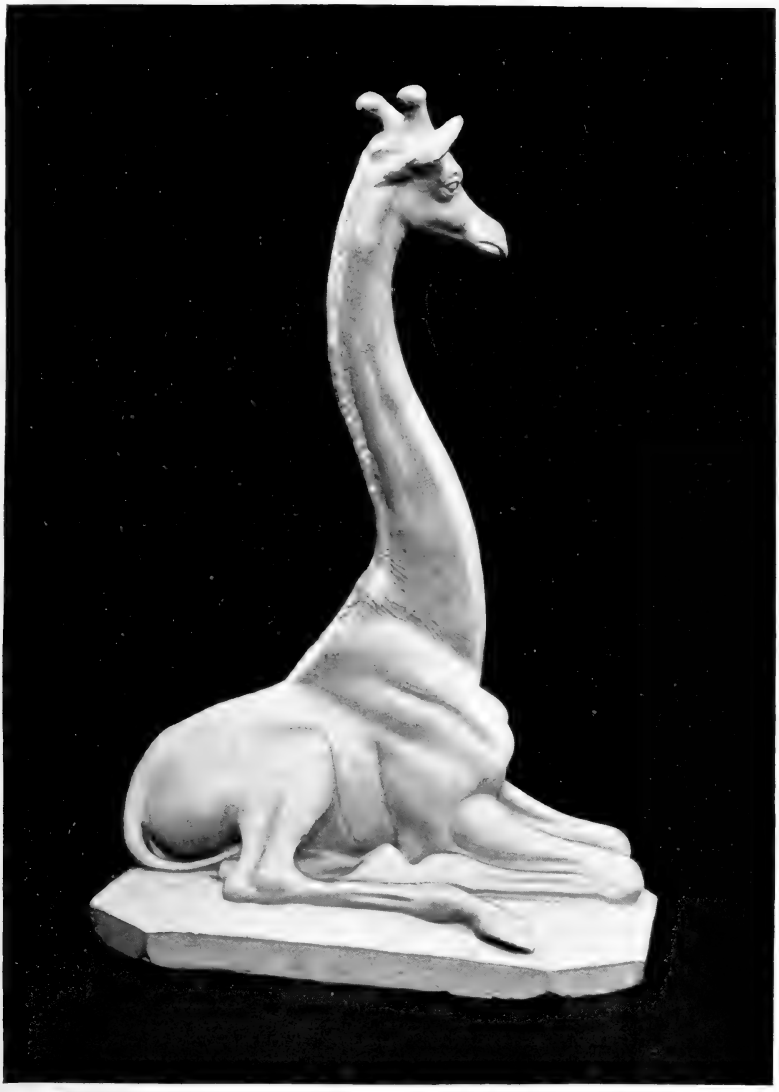
To one of the meetings Bell brought a living example of the grison, a small South American weasel-like creature, which he described as being "playful and harmless as a cat." Stedman had previously given it a bad character for its depredations in poultry yards. Not improbably both accounts are correct. There is no reason why a rapacious little beast should not make a charming pet when it is kindly treated and liberally fed. Another of his contributions confirmed Schneider's observations as to toads swallowing their cast skins.

One special line of work pursued by the Club was the observation of rare bird visitors, with the result of a considerable addition to the British list. In his presidential address at its sixth and last anniversary, November 29, 1829, Mr. N. A. Vigors enumerated the following species as having been added to the catalogue of British birds since the foundation of the Club, and chiefly by the exertions of its members: Tengmalm's owl, bluethroat, black redstart, Richard's pipit, Alpine accentor, ortolan, Lapland bunting, parrot crossbill, buff-breasted sandpiper, Temminck's stint, Baillon's crake, Bewick's swan, red-crested pochard, ruddy sheldrake, Arctic tern, glaucous gull, ivory gull, and pomatorhine skua. Sabine's snipe was, of course, included, as was the Gambian goose. The latter may be neglected, since this species has been kept in this country as ornamental waterfowl for more than two centuries, and was well established in St. James's Park in the time of Charles II. Naturalists, therefore, regard occasional specimens that may be shot as escapes, not as genuine stragglers from Africa. For many years Sabine's snipe was ranked as a distinct species; then the view gained ground that it was only a melanoid variety on precisely the same level as the albino and fawn-coloured snipes occasionally met with. But though this view is embodied in standard books, doubts were expressed of its correctness by Mr. J. E. Harting at a scientific meeting of the Zoological Society in 1871; and Mr. Pycraft's paper in the *Ibis* for April, 1905, makes it clear that further investigation is necessary. Some of these so-called Sabine's snipes are undoubtedly melanoid varieties, inasmuch as they differ from the common snipe only in the intensity of their coloration. Mr. J. L. Bonhote drew the attention of the author of the paper mentioned above to the difference of the pattern of the plumage of some specimens, which resembled that of the great or solitary snipe. But two facts must not be lost sight of in considering this question: species, now admitted to be bad, have been founded on variations in plumage; and though Sabine's snipe is rarely met with outside the British Islands, it has never been found breeding.

Beyond the papers in the Linnean *Transactions* already

referred to, the amount of literature in connection with the Club is small. As was natural, the minute-books passed into the keeping of the parent Society, and there is a very brief abstract of them at the Zoological Society's offices. The Introductory Address delivered at its foundation by the Rev. William Kirby, the first Chairman, was published in the *Zoological Journal* for April, 1825. Those delivered by Messrs. J. E. Bicheno, J. E. Children, and Joshua Brookes, on their retirement from the chair in 1826, 1827, and 1828 respectively, and that of the Chairman, Mr. N. A. Vigors, on the dissolution of the Club, November 29, 1829, were published separately at the request of the members, and copies of them are in the library at No. 3, Hanover Square. Some extracts will be of interest as showing the relations between the Club and the Zoological Society; especially as these have been somewhat overshadowed by the personality of Sir Stamford Raffles, for whom the whole credit of the new foundation has been claimed.

The Rev. W. Kirby's address dealt with "the principal objects of our association, and the best methods of carrying them into effect." These were (1) the compilation of a *Fauna* of native animals, which should contain information from the economic point of view; (2) geographical distribution; (3) comparative anatomy; and (4) palæontology. One expression in this address is suggestive. In treating of the preparation of the *Fauna* certain lines of investigation were said to be "legitimate objects of a Zoological Society." It is not easy to decide to what Society Mr. Kirby referred. Not to the Linnean, one would think, for the Club had been founded to give its members the opportunity for zoological work which the parent Society did not afford; nor to the Club, which had a specific name—the Zoological Club of the Linnean Society of London—and was no more entitled to be called a Society than is the Linnean Club or the Zoological Club of the present day. It seems, therefore, permissible to conclude that the speaker was really referring to some Society the establishment of which for dealing exclusively with zoological matters was in contemplation. This might well be the case, for Sir Stamford Raffles visited England in 1816, and under



GEORGE THE FOURTH'S NUBIAN GIRAFFE. (*See pp.* 30, 46.)

CAST OF STATUETTE MODELLED IN WAX BY S. BROWN.

By kind permission of Mr. H. Dickenson Crompton.

PLATE 2.

the date of the following year, just before his sailing for Bencoolen is mentioned, his widow wrote:*

> At this time he meditated the establishment of a society on the principle of the Jardin des Plantes, which finally, on his last return from the East, he succeeded in forming, in 1826, under the title of the Zoological Society of London.

It has been asserted that, during this visit to England, Sir Stamford broached the subject to Sir Joseph Banks, who, according to a statement in the *Athenæum* of March 4, 1905, "expressed his warm approval of the proposal." This goes a little beyond what Mr. Demetrius C. Boulger had published in 1897:

> During his, Sir Stamford's, stay in 1817, he had discussed with Sir Joseph Banks a plan for establishing in London a zoological collection which should interest and amuse the public.†

If Sir Stamford did so mention the project to the President of the Royal Society, it is readily conceivable that it was discussed in scientific circles, and especially among the Fellows of the Royal and Linnean Societies, to both of which the Rev. W. Kirby belonged. But there is no evidence that any such discussion took place; and it is equally possible that the Chairman of the Club was referring to a plan other than that of Sir Stamford Raffles, perhaps of Sir Humphry Davy or of some member of the Club. Reference to the quotations hereafter given will negative the statement that Sir Stamford Raffles intended "to interest and amuse the public." On this point we have the direct testimony of his widow, who records the fact ‡ that he had not been many months in England—he returned in August, 1824—when

> He suggested a plan to Sir Humphry Davy for the formation of a zoological society which should combine with the pursuit of science the introduction and domestication of such quadrupeds, birds, and fishes as might be most likely to prove useful to agricultural and domestic purposes.

It seems at least possible that there has been some confusion between the two Presidents of the Royal Society,

* "Memoir of Sir Thomas Stamford Raffles, F.R.S." By his widow. London, 1830, p. 290.

† "Life of Sir Stamford Raffles," p. 341. ‡ "Memoir," p. 589.

and that the suggestion made to Sir Humphry Davy has been wrongly transferred to his predecessor, Sir Joseph Banks, who was not referred to in this connection by Lady Raffles.

On relinquishing the chair, on November 29, 1826, Mr. Bicheno set the example of an annual address, deeming it "both useful and respectful." On that occasion, "surrounded by some of the leading zoologists of the kingdom," he gave a sketch of the progress of their science during the period of his presidency. He referred in a short paragraph to "the Zoological Society recently instituted in London," but said nothing about its foundation or the men who took part in the work.

Mr. Children followed the example thus set. Much of his address is taken up with a description of the progress made by the Zoological Society. In an account of its establishment the following passage occurs:

> The spirit of its immortal founder [Sir Stamford Raffles] has gone forth, and will not fail to light up in every heart, capable of exalted feelings, some portion of that fire which animated his own; some wish, some sacred hope of treading, with however unequal steps, in the path he has so zealously marked out for them.

In Dr. Brookes's address there is no direct reference to the foundation of the Society, but there is incidental allusion to Sir Stamford Raffles's gift of an example of the Rafflesian squirrel* "to the museum of the Society which hails him with just pride as its founder."

The address of Mr. N. A. Vigors, the first Secretary and the last Chairman of the Club, and the first Secretary of the Zoological Society, is the most important, inasmuch as it distinctly claims that the members of the Club were, to say the least, co-workers with Sir Stamford Raffles. Mr. Vigors took an active part in the original formation of the Club; and, to use his own words, "he pronounced its requiem," so that he spoke with authority. Having detailed the circumstances which led "the few leading zoologists of whom we

* This was described by Vigors and Horsfield in the *Zoological Journal* (iv. 112, pl. 4) as a new species under the name *Sciurus rafflesii*. It is now known that the animal is the same as that described by Desmarest in 1820 as *Sciurus prevosti*.

could at that time boast" to unite themselves into this Club, and having alluded to what they had effected, he added as a climax:

> But it was in the impulse originally given by their exertions to the propagation of science, more particularly by laying the foundation of the Zoological Society, that powerful association which, with almost unlimited resources, carried their principles and their objects into execution, that their agency is to be traced.

An identical claim is made by Mr. Vigors when referring to the dissolution of the Club:

> We can hope, in fact, to merit or attain no further wreath by our own exertions. The activity of those members who first promoted, and subsequently contributed to the support of, this club has been called into a wider and more useful sphere; and to keep up the name and pretensions of a scientific body, with diminished resources—but, above all, to retain the character of representing the zoology of this country, where a more efficient and legitimate representative of the science [the Zoological Society], springing from ourselves, has left us little claim to the dignity—would only serve to institute a striking contrast, of benefit to neither party. We have, in fact, completed our work, and it is time we should retire. The arch is rounded, and the keystone filled in, and it is expedient that the humble scaffolding should be removed from all incongruous juxtaposition with the noble edifice which it was mainly instrumental in erecting.

In his peroration he again congratulated the Club on the part the members had played in the establishment of the Zoological Society:

> On the eve of the dissolution of this club, it is a theme not merely of consolation, but of triumph, that we have been the embryo of that higher body which has now sprung into the perfect form. The individuals who are now about to separate will carry in their recollection, to their latest day, the share which they have had in this great consummation. The occurrences of those evenings will ever be vivid in their memory when, in conjunction with the illustrious founder and first president of that Society, they suggested the auspiciousness of the times for such an undertaking, and the probability, I should say the certainty, of success. With what delight have we dwelt upon the words of that great man when, with an intelligence that in a less enlightened age might have passed for a spirit of prophecy, he portrayed, even to the minutest details, the plans and the hopes which we have since seen realised!

Mr. Vigors concluded with a glowing eulogy on the qualities that marked out Sir Stamford Raffles as "the individual most fitted to organize and preside over such a national undertaking," and lauded the enthusiasm with which he devoted himself to the cause—while more cautious calculators watching the tide of events, prepared to retreat in misfortune, but ready in case of success to "swell the triumph and partake the gale." It is not improbable that the late Sir William Flower had the substance of this Address in his mind when, at the meeting in the Gardens on the occasion of Queen Victoria's Jubilee in 1887, he spoke of Sir Stamford Raffles as the leading spirit of the active and zealous band who united together and "subscribed and expended considerable sums of money for the purpose" of founding the Zoological Society of London.

The story of the foundation of the Zoological Society has to be pieced together from scanty materials, with the inevitable consequence that there are breaches of continuity. From the covering circular quoted on p. 13 it is evident that in 1824 a detailed prospectus of the objects of the Society was circulated privately, and it probably differed in no important particular from that printed on pp. 14–16. No copy of it is now known to exist; nor is there any record of the names of "the friends of the proposed Society," who met in the July of that year and nominated the Committee by whose authority the corrected prospectus was published. In February, 1825 the following circular was issued:

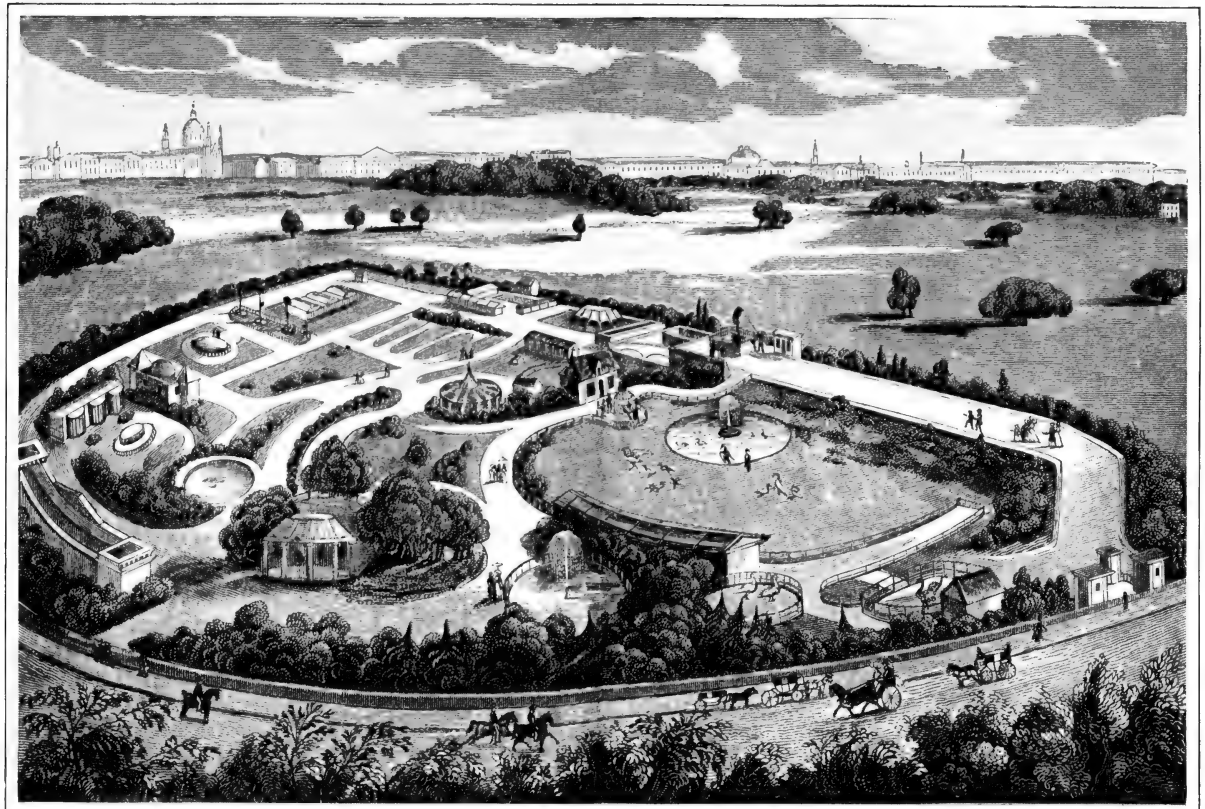
It is proposed to establish a Society bearing the same relations to Zoology and Animal Life that the Horticultural Society bears to Botany and the Vegetable Kingdom.[1]

The object is to attempt the introduction of new races of Quadrupeds, Birds, or Fishes, etc., applicable to purposes of utility, either in our Farm Yards, Gardens, Woods, Waters, Lakes, or Rivers; and to connect with this object a general Zoological collection of prepared specimens.

The Admission Fee to the Society is Three Pounds, and the Annual Subscription Two Pounds.

If it is your wish to be an original member of this Society, you will be so good as to signify the same to Mr. T. Griffiths, 21, Albemarle Street.

Two copies of this circular are preserved among some papers formerly belonging to Mr. Yarrell, at No. 3, Hanover



GARDENS OF THE ZOOLOGICAL SOCIETY, REGENT'S PARK, 1829. (*See p.* 36.)

From the "Zoological Keepsake."

PLATE 3.

Square. One contains, on the second of the four pages, a printed list of seventy-seven subscribers:

Marquess of Lansdowne
Earl of Egremont
Earl Spencer
Earl of Darnley
Earl of Minto
Viscount Dudley
Viscount Gage
Lord Stanley, M.P.
Lord Clifton, M.P.
Lord Lovaine, M.P.
Lord F. Leveson Gower, M.P.
Bishop of Carlisle
Right Hon. Sir George Rose
Right Hon. Robert Peel, M.P.
Sir Humphry Davy, P.R.S.
Sir Stamford Raffles
Sir George Staunton, M.P.
Sir Everard Home
Sir Robert Inglis, M.P.
Gen. Sir R. Ferguson, M.P.
Sir Benjamin Hobhouse
Thomas Aston, Esq.
C. Phillip Rose, Esq.
Baring Wall, Esq., M.P.
Adrian H. Haworth, Esq.
Dr. Harwood
Gerard de Vismes, Esq.
Walter Campbell, Esq., M.P.
Robert Ferguson, Esq.
Charles Bell, Esq.
Joshua Brookes, Esq.
P. Du Cane, Esq.
Professor Jack
E. J. Bennett, Esq., M.P.
J. S. Stephens, Esq.
Captain Mudge
W. Macleay, Esq.
The Duke of Bedford
Earl of Hardwicke
William Ord, Esq., M.P.
Dr. Thomas Horsfield
William Rose, Esq.
Charles Stokes, Esq.
Henry Cline, Esq.
Joseph Sabine, Esq.
H. T. Colebrooke, Esq.
Leicester Parker, Esq.
Right Hon. Sir Charles Long
J. T. Simes, Esq.
Major-Gen. Hardwicke
Alexander Baring, Esq., M.P.
Richard Heber, Esq., M.P.
T. A. Knight, Esq., P.H.S.
T. A. Knight, Esq., Junr.
Charles Hatchett, Esq.
W. T. Brande, Esq.
Francis Chantrey, Esq.
A. B. Lambert, Esq.
Davies Gilbert, Esq., M.P.
Dr. Frank
Hon. M. Percy, R.N.
Col. Cuff
Edward Barnard, Esq.
W. Vigors, Esq.
W. Kirby *
J. E. Bicheno, Esq.
N. W. Ridley Colbourn, Esq., M.P.
R. Smirke, Esq.
— Alexander, Esq.
Mr. E. T. Gray
Rev. T. W. Hope
William Swainson, Esq.
Capt. Brooke de Capel Brooke
Thomas Cater, Esq.
R. Pettiward, Esq.
Hon. G. Agar Ellis, M.P.
Sir Robert Heron

It is somewhat difficult to account for the order in which these names occur. They might easily have been sent to the printers arranged alphabetically, or according to social status. But as neither method was followed, the only possible

* This should be Rev. W. Kirby. The same mistake occurs in the minutes of the Committee meeting of June 22; there it is corrected in pencil.

conclusion seems to be that they were entered in the order in which the subscribers signified their adhesion to the project. On that supposition, too, one would expect Sir Stamford Raffles to head the list; however, his name stands sixteenth, immediately below that of Sir Humphry Davy.

In the second copy the following names, bringing the number up to 151, are added in manuscript:

Earl of Lonsdale
Alex. Macleay, Esq.
Sir W. F. Middleton
Prof. G. C. Haughton
Earl of Mountmorris
Mr. G. B. Sowerby
W. J. Broderip, Esq.
T. Hoblyn, Esq.
R. W. Newman, M.P.
J. G. Children, Esq.
Daniel Moore, Esq.
Rev. Dr. Goodenough
Right Hon. Lord Holland
Benj. King, Esq.
Dr. Such
Sir W. Rawson
S. H. Calcraft, Esq.
Hon. Col. Bligh
Benj. Brodie, Esq.
Lt.-Gen. Thornton
C. Calvert, Esq.
G. Pearson, M.D.
P. Snodgrass, Esq.
J. H. Slater, Esq.
Sir T. Dyke Acland
R. W. Coley, Esq., M.D.
S. Cartwright, Esq.
J. Curteis, Esq.
H. Jolliffe, Esq., M.P.
Lord Winchilsea
S. H. Clarke, Esq.
A. B. Vallè, Esq.
H. Warburton, Esq.
R. H. Solly, Esq.
T. Macquoid, Esq.
G. C. Fox, Esq.
John Mangles, Esq.
F. Hodgson, Esq., M.P.
J. Wardrop, Esq.
R. Murchison, Esq.
Lord Clinton
Earl of Malmesbury
T. Hannison, Esq.
R. J. Alexander, Esq.
T. Bell, Esq.
Mr. E. Donovan
Capt. Mitford, R.N.
P. J. Selby, Esq.
George Selby, Esq.
T. A. Atkins, Esq.
T. C. Sowerby, Esq.
Sir J. Shelley
Hon. George Taunton
Sir T. Lawrence
Capt. E. Sabine
Rev. J. Guthrie
Duke of Somerset
G. B. Greenhough, Esq.
J. Thompson, Junr., Esq.
Earl Stanhope
Hon. W. S. Ponsonby
S. Amory, Esq.
Capt. T. O. Travers
R. Courtenay, Esq.
Lord Selsey
P. T. Selley, Esq.
Robt. Barclay, Esq.
W. Harrison, Esq.
John Turner, Esq.
Robert Mangles, Esq.
Lord Calthorpe
B. B. Cabbell, Esq.
Sir Charles Coote, M.P.
Marquess of Hertford.

Practically 75 per cent. of these names recur in the first printed List, bearing date January 1, 1829, and containing the

names of 1,294 ordinary Fellows and forty Honorary and Corresponding Members. Among these subscribers are included the first three Presidents (Sir Stamford Raffles, the Marquess of Lansdowne, and Lord Stanley, afterwards the thirteenth Earl of Derby), the four Vice-Presidents (Lord Auckland, the Earl of Darnley, the Marquess of Lansdowne, afterwards President, and the Duke of Somerset), the first Treasurer (Mr. Joseph Sabine), the first Secretary and Vice-Secretary (Mr. N. A. Vigors and Dr. T. Horsfield); the other members of the Council, as well as the Committee originally nominated in July, 1824, whose names are given on p. 14. The next important documents in point of date are the covering circular and prospectus:

ZOOLOGICAL SOCIETY.

For the general advancement of Zoological Science, it is proposed that a Society shall be established, the immediate object of which will be the collection of such living subjects of the Animal Kingdom as may be introduced and domesticated with advantage in this country.

For this purpose a collection of living animals belonging to the Society will be established in the vicinity of the metropolis; to which the members of the Society will have access as a matter of right, and the public on such conditions as may be hereafter arranged.

It is proposed that the Society shall have a museum, as well as a library of all books connected with the subject; to which access will be given to the members and the public as above stated.

As it is impossible to attain all the objects of the Society on its first establishment, those of utility will engage its earliest attention, and the more scientific views will be attended to as the means of the Society admit.

The Society will be directed as other public Societies are—by a President, Council, and Officers, and regulated by laws to be established with the concurrence of the members of the Society.

A detailed Prospectus of the objects of this Society having been circulated privately last year, a corrected copy is annexed.

The Terms of Admission to the Society will be Three Pounds, and the Annual Subscription Two Pounds; or the whole to be compounded for on the usual terms.

A Committee of the following Noblemen and Gentlemen was originally nominated by a meeting of friends of the proposed Society in July last,* and the Prospectus is published under their authority.

* Sir Stamford's name must have been added before his arrival in England he reached Plymouth on August 22, 1824.

Chairman: Sir Stamford Raffles.

Duke of Somerset	Davies Gilbert, Esq.
Earl of Darnley	Rev. Dr. Goodenough
Earl of Egremont	Thos. Horsfield, Esq., M.D.
Earl of Malmesbury	Rev. W. Kirby
Viscount Gage	T. A. Knight, Esq.
Bishop of Carlisle	T. A. Knight, Jun., Esq.
Lord Stanley	W. Sharp MacLeay, Esq.
Sir H. Davy	J. Sabine, Esq.
Sir Everard Home	N. A. Vigors, Esq.
E. Barnard, Esq.	Chas. Baring Wall, Esq.
H. T. Colebrooke, Esq.	

*** Noblemen and Gentlemen desirous of becoming Members of this Society are requested to give their names to any Member of the above Committee, or to Mr. Griffiths, at the Royal Institution in Albemarle Street.

Prospectus of a Society for introducing and domesticating New Breeds or Varieties of Animals, such as Quadrupeds, Birds, or Fishes, likely to be useful in Common Life; and for forming a General Collection in Zoology.

Zoology, which exhibits the nature and properties of animated beings, their analogies to each other, the wonderful delicacy of their structure, and the fitness of their organs to the peculiar purposes of their existence, must be regarded not only as an interesting and intellectual study, but as a most important branch of Natural Theology, teaching by the design and wonderful results of organization the wisdom and power of the Creator. In its relation to useful and immediate œconomical purposes it is no less important. The different races of animals employed in social life, for labour, clothing, food, etc., are the direct objects of its attention; their improvement, the manner in which their number may be increased, the application of their produce, and its connection with various departments of industry and manufactures, are of the utmost importance to Man, in every stage of his existence, but most so in proportion as he advances in wealth, civilization, and refinement.

It has long been a matter of deep regret to the cultivators of Natural History, that we possess no great scientific establishments either for teaching or elucidating Zoology, and no public menageries or collections of living animals, where their nature, properties, and habits may be studied. In almost every other part of Europe, except in the metropolis of the British empire, something of this kind exists; but though richer than any other country in the extent and variety of our possessions, and having more facilities from our colonies, our fleets, and our varied and constant intercourse with every quarter of the globe, for collecting specimens and introducing living animals, we have as yet attempted

WATERFOWLS' LAWN. (*See p. 37.*)

From a Drawing by G. Scharf.

PLATE 4.

little, and effected almost nothing; and the student of Natural History, or the philosopher who wishes to examine animated nature, has no other resource but that of visiting and profiting by the magnificent institutions of neighbouring countries.

In the hope of removing this opprobrium to our age and nation, it is proposed to establish a Society bearing the same relation to Zoology that the Horticultural does to Botany, and upon a similar principle and plan. The great object should be, the introduction of new varieties, breeds, and races of animals, for the purpose of domestication, or for stocking our farm-yards, woods, pleasure-grounds, and wastes; with the establishment of a general Zoological Collection, consisting of prepared specimens in the different classes and orders, so as to afford a correct view of the Animal Kingdom at large in as complete a series as may be practicable, and at the same time point out the analogies between the animals already domesticated and those which are similar in character, upon which the first experiments may be made.

To promote these objects, a piece of ground should be provided in the neighbourhood of the metropolis, affording sufficient accommodation for the above purposes; with a suitable establishment so conducted as to admit of its extension on additional means being afforded.

As it is presumed that a number of persons would feel disposed to encourage an institution of this kind, it is proposed to make the Annual Subscription from each individual only Two Pounds, and the Admission Fee Three Pounds. The Members, of course, will have free and constant access to the Collections and Grounds, and might, at a reasonable price, be furnished with living specimens, or the ova of fishes and birds.*

When it is considered how few amongst the immense variety of animated beings have been hitherto applied to the uses of Man, and that most of those which have been domesticated or subdued belong to the early periods of society, and to the efforts of savage or uncultivated nations,† it is impossible not to hope for many new, brilliant, and useful results in the same field, by the application of the wealth, ingenuity, and varied resources of a civilized people.

* There appears to be no record of fish culture in connection with the Zoological Society or of fish ova being sent to any of the Fellows. Some ponds at Carshalton were visited with a view to renting or purchasing them as a favourable site for experiments of this kind, but the owner, in a letter to the Council in May, 1826, declined further negotiations. From an account of the operation of stripping fish and fecundating the ova, in Sir Humphry Davy's "Salmonia," it seems probable that the plan was due to him; and he and Sir Stamford Raffles formed the committee that visited and reported on the Carshalton ponds.

† We owe the peacock and common fowl to the natives of India; most of our races of cattle, and swans, geese, and ducks, to the aborigines of Europe; the turkey to the natives of America; the guinea-fowl to those of Africa. The pike and carp, with some other fishes, were probably introduced by the monks.—*Original Note to Circular.*

It is well known with respect to most of the Animal Tribes, that domestication is a process which requires time; that the offspring of wild animals raised in a domestic state are more easily tamed than their parents; and that in a certain number of generations the effect is made permanent, and connected with a change, not merely in the habits but even in the nature of the animal. The inconveniences of migration may be, in certain cases, prevented, and the wildest animals, when supplied abundantly with food, may lose the instinct of locomotion, and their offspring acquire new habits; and it is known that a breed, fairly domesticated, is with difficulty brought back to its original state Should the Society flourish and succeed, it will not only be useful in common life, but would likewise promote the best and most extensive objects of the Scientific History of Animated Nature, and offer a collection of living animals such as never yet existed in ancient or modern times. Rome, at the period of her greatest splendour, brought savage monsters from every quarter of the world then known, to be shown in her amphitheatres, to destroy or be destroyed as spectacles of wonder to her citizens. It would well become Britain to offer another, and a very different series of exhibitions to the population of her metropolis; namely, animals brought from every part of the globe to be applied either to some useful purpose, or as objects of scientific research, not of vulgar admiration. Upon such an institution a philosophy of Zoology may be founded, pointing out the comparative anatomy, the habits of life, the improvement and the methods of multiplying those races of animals which are most useful to man, and thus fixing a most beautiful and important branch of knowledge on the permanent basis of direct utility.

March 1*st*, 1825.

A few days after the date of this prospectus, Sir Stamford wrote to his cousin, the Rev. Thomas Raffles, D.D., of Liverpool, on the subject.

Lower Grosvenor Street, *March* 9, 1825.

I am much interested at present in establishing a grand zoological collection in the metropolis, with a Society for the introduction of living animals, bearing the same relations to Zoology as a science, that the Horticultural Society does to Botany. The prospectus is drawn out, and when a few copies are printed I will send some to you. We hope to have 2,000 subscribers at £2 each; and it is further expected we may go far beyond the Jardin des Plantes at Paris. Sir Humphry Davy* and myself are the projectors, and while he looks more to the practical and immediate utility to the country gentlemen, my attention is more directed to the scientific department.†

* This appears conclusive evidence against the view that Sir Stamford Raffles was the sole founder.

† "Memoir of Sir Thomas Stamford Raffles," pp. 592, 593.

In a later letter there is a more modest estimate of the number of original members, and it was not till 1831 that the Fellowship roll included 2,000 names. The foregoing letter is of considerable interest, as it contains the first known reference by Sir Stamford Raffles to the Jardin des Plantes.

About the end of April Sir Humphry Davy went into the country and left with Sir Stamford Raffles the "list of names in support of the plan for extending our zoological researches," so that he might add the names of as many of his friends as were desirous of supporting it. In a letter dated April 28, to Sir R. H. Inglis inviting his co-operation, Sir Stamford wrote:

> In the first instance we look mainly to the country gentlemen for support, in point of numbers; but the character of the institution must of course, depend on the proportion of men of science and sound principles which it contains. *I* look more to the scientific part, and propose, if it is established on a respectable footing, to transfer to it the collection in natural history which I have brought home with me.*

The only other record for this year consists of the minutes of a meeting "of the original proposers of the Society" at the rooms of the Horticultural Society on June 22. The Earl of Darnley was the Chairman, and a Committee was appointed to further the project. Its constitution was identical with that appointed in July, 1824 (p. 14). Messrs. Drummond were appointed bankers; and it was resolved that the meeting "be advertised when the number of its members amounted to two hundred."

From this date there appear to be no records till those of the Committee Meeting held on February 26, 1826, for "taking into consideration the plan of the proposed Society." Sir Stamford Raffles was the Chairman, and the other members were the Duke of Somerset, the Earl of Darnley, Sir Humphry Davy, Sir Everard Home, Dr. Horsfield, Mr. Davies Gilbert, Mr. Joseph Sabine, and Mr. N. A. Vigors. Lord Auckland, Sir Robert Inglis, and Dr. Harewood were also present, though only as visitors. It was agreed that the official designation of the new body should be "The Zoological Society of London"; and that an application should be made to the Government for an allotment of ground

* "Memoir of Sir Thomas Stamford Raffles, F.R.S.," p. 590.

in the Regent's Park suitable to the purposes of the Institution. The task of drawing up a prospectus was entrusted to Sir Stamford Raffles, Mr. Sabine, and Mr. Vigors. It was an instruction to them that, as the objects of the Society must be limited by its means, these should not, in the first instance, extend beyond the introduction and domestication of new breeds of animals, with a Museum and Library to be attached as soon as its resources may admit. They were also to present a report "on the present state and progress of Natural History, especially Zoology, with an account of the institutions by which it is encouraged on the Continent, and showing the necessity of some similar establishment in this country, so as to place the interests of the science on a footing at least equal to that on which they stand elsewhere."

Another meeting was held on March 4, but little if anything was done. On March 17, however, an application was made by Lord Auckland and Sir Stamford Raffles to Mr. Arbuthnot, one of the Commissioners of Woods and Forests, for a grant of land from the Crown. This was not the first application for on the previous day they had "visited the piece of ground abutting the Regent's Canal." They expressed the opinion that that piece of nd was "liable to many objections, and that it was possible upon further consideration that the Crown might be induced to let us have ground still more adapted to our purpose." A request had evidently been made to them by the Crown Office for some definite information, which is thus conveyed:

> Our first plan would be to have a garden laid out in aviaries, paddocks for deer, antelopes, etc., stabularies for such animals as may require them, lodges and perhaps suitable apartments for the Society to meet in; and, if possible, pieces of water for fish and aquatic birds. Our buildings would for the most part be low, and in no case offensive, and the plans will be readily submitted to you. As we find support from the public, we should eventually wish to have a museum attached to it whenever our finances admit, and this would of course be on such a scale and plan as would render it ornamental and suitable to the situation.

They asked that, in the first instance, five or six acres in "the centre of the ring marked letter A"* might be granted to

* It is difficult to identify the spot thus indicated, for the marked plan has disappeared. But that it was "in the centre of the Regent's Park" is shown by the official reply to the application.

PLATE II.

THE TERRACE, FROM THE MAIN ENTRANCE.

(*See p.* 31.)


Charles F. Flower

the Society about to be formed, and suggested that the whole plot might be reserved for a future grant, as the proposers contemplated the possibility of forming

on this advantageous site, so admirably adapted for the purpose, an Establishment which will embrace the united interests of Zoology and Botany. And certainly nothing would be more creditable to the scientific character of the nation, and at the same time more ornamental to the Park itself, than a plan which should provide for the accommodation of the Zoological Department in the centre of the before-mentioned plot, and the appropriation of the surrounding ground to the purposes of a Botanic Garden.

From this quotation one may see in what characters the new Society was intended to resemble the Jardin des Plantes. As in the older establishment, there was to be a collection of animals in or connected with a botanic garden, and a museum was to be added. But something more than this would be necessary to complete the analogy—endowment for teaching natural history in the wide sense of the term. Had the plan here outlined been realised, the result would have been—not a miniature Jardin des Plantes, but a Garden something like that at Amsterdam or Rotterdam, though without any provision for recreation, in the shape of fêtes, concerts, or exhibitions.

Objections were raised by the Crown Office, and on April 7 Lord Auckland, Sir Humphry Davy, and Sir Stamford Raffles applied for "twenty acres in the north-east corner of the Park." In their letter they say "it may be advisable for us to apply to the Crown for such a Charter as may enable us to hold land"; but in the meantime they ask that a lease may be granted. To show that the Society would not interfere with existing interests, they add: "We are happy to state that Mr. Cross, of Exeter 'Change, has offered his lamas and birds and such part of his collection as we may choose, to the Society, with a tender of his services in promoting our views."

On April 24 invitations to the first General Meeting were sent out. The copy addressed to Yarrell, bearing an autograph note of his "First General Meeting," is still in existence. It runs thus:

SIR,—I have the honour to inform you that a General Meeting of the Friends and Subscribers to the proposed Zoological Society will be held at *the Rooms of the Horticultural Society, Regent Street,* on *Saturday* the

29*th inst.* next *at one o'clock*, when the favour of your attendance is requested. I have the honour to be, sir, your obedient humble servant,

GROSVENOR STREET, 24*th April*, 1826. *S. T. Raffles.*

Wm. Yarrell, Esq., etc. etc.

The words in italics are in Sir Stamford's handwriting, showing that the date was not fixed when the circulars were printed, nor was the arrangement with the Horticultural Society announced till the Committee Meeting of April 28. Then it was also reported that the prospectus "had been printed and circulated among persons likely to favour the interests of the Society." No copy of this document is known at the Society's offices. But that it was practically identical with the issue of March 1, 1825, seems clear from the fact that the principal resolutions drafted at this meeting, and proposed and carried at the General Meeting on the following day, were intended to give effect to the ideas therein set forth. The Report asked for in February (see p. 18) does not appear to have been presented, if indeed it was drawn up. At this April Committee Meeting Sir Stamford Raffles announced that he had "engaged an office at No. 4, Regent Street, for the transaction of the affairs of the Society."

The first General Meeting was held at the House of the Horticultural Society, Regent Street, on April 29, and about a hundred persons were present, but only Sir Stamford Raffles, Lord Lansdowne, and the Lord Mayor are mentioned, the rest being covered by an "etc." Sir Stamford was called to the chair, on the motion of Sir Humphry Davy; and, after some formal business, the following resolutions were proposed by the Chairman and carried unanimously:

I. That a Society to be designated the "Zoological Society" be instituted for the advancement of zoological knowledge.

II. That the attention of the Society be directed to the following objects: The formation of a collection of living animals; a museum of preserved animals, with a collection of comparative anatomy; and a library connected with the subject.

III. That the Society shall consist of such members as have already subscribed their names as desirous of joining the Society, or who shall do so on or before the 1st of January next, with the approbation of the Council and of such other members as shall subsequently be admitted by ballot.

IV. That the funds of the Society shall consist of the admission fees and annual contributions of the Members, together with such donations as may be received in furtherance of the objects of the Society.

V. That the affairs of the Society shall be directed by a President, Treasurer, Secretary, and Council, the officers being members of the Council.

VI. That the Council shall consist of eighteen Members, exclusive of the officers, and five shall be a quorum.

VII. That the President shall nominate Vice-Presidents from the Council.

VIII. That the President of the Royal Society, the Presidents of the Linnean and Horticultural Societies, and the Presidents of the Colleges of Physicians and Surgeons for the time being shall be *ex officio* members of the Society.*

IX. That the Council shall have the management of the Society during the first year, at the end of which, or sooner, they shall submit to the Members detailed regulations for the government of the Society.

X. The President, Secretary, and Treasurer shall form a Standing Committee for the charge of the collections and for receiving such presents as may be made to the Society.

XI. That committees shall be appointed from time to time for the superintendence and direction of the different departments of the Society's establishment.

XII. That the property and effects of the Society shall be vested in three or more Trustees.

XIII. That Members admitted on or before the 1st of January next shall be considered as original members, and shall pay for admission fee and subscription for the present year the sum of five pounds, and two pounds annually, commencing in January, 1827, or the sum of £25 as a donation.†

Sir Stamford Raffles was elected President by acclamation, and the following noblemen and gentlemen were chosen to serve on the Council: the Duke of Somerset, the Marquess of Lansdowne, the Earl of Darnley, the Earl of Egremont, Viscount Gage, Lord Auckland, Lord Stanley (afterwards thirteenth Earl of Derby), Sir Humphry Davy, Sir Everard Home, Rev. Dr. Goodenough, Dr. Thomas Horsfield (*Assistant Secretary*), and Messrs. Edward Barnard, J. E. Bicheno, J. G. Children,

* From the draft submitted and approved at the Committee Meeting of April 28 it appears that the first intention was to make these honorary members also members of Council. The list has since been increased, and now includes in addition to those given above: The Presidents of the Geological and Royal Botanic Societies, the Royal Institution and the Royal College of Veterinary Surgeons, the Principal of the Royal Veterinary College, and the Governor of the Hudson's Bay Company.

† This was a composition fee for life-membership.

H. T. Colebrooke, G. B. Greenhough, Joseph Sabine (*Treasurer*), Charles Stokes, N. A. Vigors (*Secretary*), and Charles Baring Wall, M.P.

It is recorded in the minutes that "the President then proceeded to read an opening address to the Society, in which he took a review of the past and present state of zoology in this country, and entered into a detail of the objects and plans of the Society." It seems probable that this address was never printed, and that the manuscript has been lost. There is no reference to it in Lady Raffles's "Memoir," and the late Rev. R. Blanchard Raffles, who made a special study of the early history of the Society, was unable to trace it. Mr. Demetrius C. Boulger, his literary executor, who summarised his results in the *Athenæum* (March 4, 18, 1905), says, "No copy of Sir Stamford's address has yet been found." It is, perhaps, unnecessary to add that nothing is known of it at the Society's offices.

The tone of the following extract from the *Literary Gazette* (May 26, 1826, p. 282) leaves a good deal to be desired, but the paragraph is important, for it contains independent evidence of the existence of a manuscript. It may be noted that the point to which the writer gives prominence is that attributed to Sir Humphry Davy*—the introduction and domestication of new forms:

ZOOLOGICAL, OR NOAH'S ARK SOCIETY.

A public meeting took place on Saturday last (April 29) at the rooms of the Horticultural Society, at which about a hundred persons were present. Sir Stamford Raffles was called to the chair, and read an address recommending the formation of a society the object of which should be to import new birds, beasts and fishes into this country from foreign parts. The Regent's Park is to be headquarters; though if the subscriptions amount to a sufficient sum, it is hoped that strange reptiles may be propagated all over the kingdom. But there is neither wisdom nor folly new under the sun. Worthy Dr. Plot informs us in his History of Oxfordshire that King Henry the First enclosed the park at *Wudestoc* "with a wall, though not for *deer*, but all foreign *wild beasts*, such as *lions*, *leopards*, *camels*, *linx's*, which he procured abroad of other *princes*; amongst which more particularly, says *William of Malmesbury*, he kept a porcupine *hispidis setis coopertam, quas in canes insectantes naturaliter emittunt*, *i.e.* covered over with sharp-pointed quills, which they naturally shoot at the dogs that hunt them." This is the first British National Menagerie that we have read of: the Romans

* See Note from "Collected Works of Sir H. Davy," on p. 24.

were much addicted to wild beast shows. Considering the advanced state of knowledge, it is to be expected that the new Zoological Association will beat both the Romans and King Henry, in spite of his porcupine; though we do not know how the inhabitants of the Regent's Park will like the lions, leopards, and linxes so near their neighbourhood.

The *Gazette* afterwards became quite sympathetic.

On May 5, Committees were appointed (1) to frame bye-laws, (2) to acquire a site for breeding fishes and rearing waterfowl, (3) to manage the grounds in Regent's Park, (4) the Menagerie, (5) the Museum, and (6) to form a library. On the first four the President had a seat. The first animals to come into the possession of the Society were a griffon vulture and a white-headed eagle, presented by Mr. Joshua Brookes, of the celebrated Anatomical School in Blenheim Street; and "a female deer from Sangor," the gift of Captain Pearl. This vulture was known to the older keepers as "Dr. Brookes," and must have lived in the Menagerie for nearly forty years. In 1869 Mr. W. B. Tegetmeier, writing in the *Field* (May 5), referred to it as having "died recently." At this time no keepers were engaged; and arrangements were made with those at the Tower and Exeter 'Change "for taking charge of such animals as may come into the possession of the Society till their own establishment is completed."

In May four Vice-Presidents (Lord Auckland, the Earl of Darnley, the Marquess of Lansdowne, and the Duke of Somerset) were appointed. A month later, No. 33, Bruton Street was taken for offices and a Museum, and here some animals were kept till the Gardens were opened. Then, of course, most of them were transferred to Regent's Park; but for some time afterwards the house was used for such species as needed special care. At the end of June the plans of Decimus Burton for the Gardens were approved; the sum of £5,000 was appropriated for carrying them into execution, and £1,000 for the Museum. Cross offered his services for the management of the Menagerie, at the same time proposing that the Society should purchase his collection, but the suggestion was not favourably considered.

The death of Sir Stamford Raffles from apoplexy took place at Highwood, Hendon, on July 6. At the Council meeting two days later the Duke of Somerset, who presided, announced that the Members "had been summoned in consequence of the

sudden and lamented death of their President." In the words of the minute:

His Grace suggested that under the present depressing circumstances, and at this unfavourable season of the year, it would be inexpedient to take any steps to fill up the vacancy that has occurred with so great a loss to the Society, and proposed that the Vice-Presidents who may be in town during the summer months be requested to superintend the execution of the plans already commenced under the direction of their late President.

The Society published no other obituary notice. Sir Humphry Davy, in his capacity of President of the Royal Society, of which Sir Stamford was a Fellow, furnished a short biography of his friend and fellow-worker, of which the following paragraph forms part:

Having lost one splendid collection by fire* he instantly commenced the formation of another; and having brought this to Europe, he made it not private, but public property, and placed it entirely at the disposal of a New Association† for the promotion of zoology, of which he had been chosen President by acclamation.

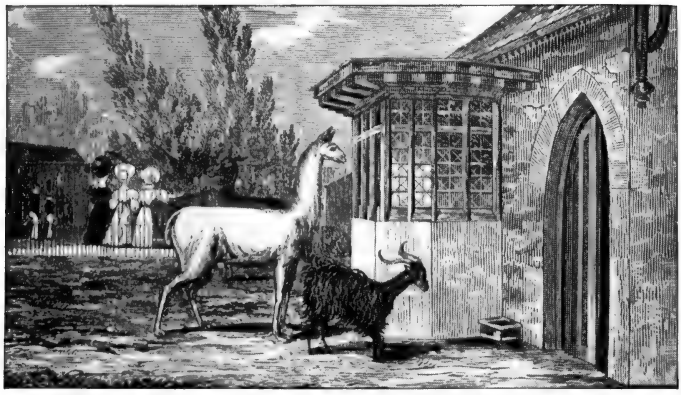
Little beyond draining and planting was done this year in the grounds in the Park; but work was actively carried on at the Museum in Bruton Street. Addressing the Zoological Club of the Linnean Society on November 29, Mr. Bicheno said:

The Zoological Society, recently instituted in London, contemplates a more practical cultivation of science than any other which exists. They not only meditate the establishment of a museum, which has already been enriched by the private collection of Mr. Vigors and the Sumatran collection of the late Sir Stamford Raffles; but every exertion will also be made to obtain an osteological collection, and in the end to establish a Menagerie, Aviary, and Piscina. Every lover of Natural History will rejoice to hear that their Museum will be open to the public in the ensuing spring.

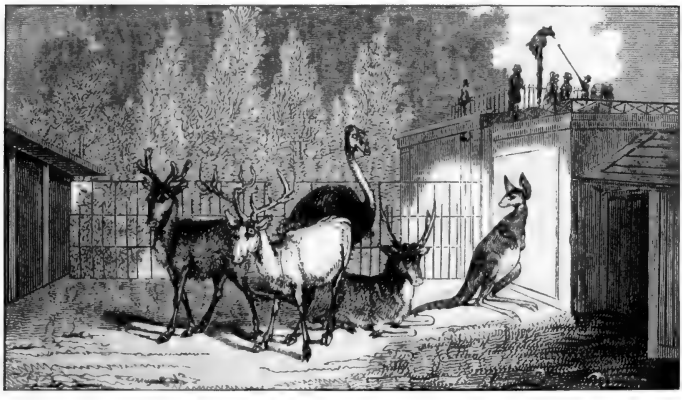
At the close of the year there were 342 members, whose subscriptions, with those received in 1825, amounted to £1,829, and the expenditure was £679.

* The vessel in which Sir Stamford Raffles embarked for England in 1824 took fire when fifty miles out from Sumatra. The passengers and crew escaped in the boats, but Sir Stamford's natural history collections and living animals were burnt.

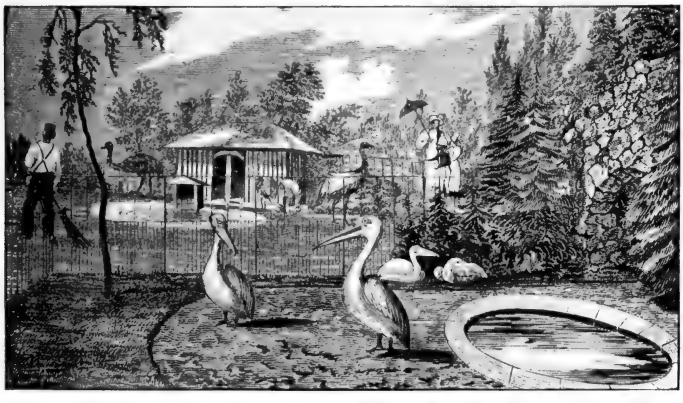
† The Zoological Society: of this association the author [*i.e.* Sir H. Davy] was one of the warmest promoters; he was concerned in forming the plan on which it was established, and the first address to the public, announcing it and soliciting support for it, was from his pen.—"Collected Works of Sir H. Davy," vii. 91 Editor's Note.



LLAMA HOUSE, 1829. (*See p.* 37.)



COURTYARD. (*See p.* 37.)



PELICANS' ENCLOSURE. (*See p.* 41.)

From the "Zoological Keepsake."

PLATE 5.

CHAPTER II.

1827—1830.

THESE four years constituted a period of preparation for the scientific* work of the Society, and witnessed the formation of the Museum, the laying out and opening of the Garden—for at first there was but one—and the experiment of a breeding farm.

The first important business was the election of a new President: the Marquess of Lansdowne was chosen, and held office till he retired in 1831. At the same meeting Dr. Raffles was elected into the Council. Ladies were declared eligible for membership; and it was resolved that those who were proposed by any member of the Council "should be admitted to the Society on the same terms and with the same privileges as Gentlemen Subscribers." At the same time it was determined to elect Corresponding Members to further the objects of the Society in foreign parts or in the provinces, and fifteen were chosen, among whom was Captain G. F. Lyon, the commander of the *Hecla* in the expedition under Captain W. E. Parry for the discovery of a North-west passage.

Thanks to Yarrell's methodical habits, one of the first circulars of instructions to Corresponding Members has been preserved; it is worth quoting to show what was expected from those on whom the honour was conferred:

* This epithet is employed in a wide sense, so as to include bionomical work of all kinds on farm and menagerie stock as well as in the laboratory. Had the early practice of the Society been continuously carried out, Regent's Park might have claimed to be free from Professor Ray Lankester's reproach (*Ency. Brit.* xxiv. 817) that the science of Zoological Gardens is that of the morphographer and systematist rather than of the bionomist—of the worker on dead structure and the cataloguer and classifier, rather than of the student of living animals who seeks to correlate them, and fit each into its appropriate niche in the scheme of things.

Zoological Society, 33, Bruton Street,
1827.

SIR,—I take the liberty, with the sanction of
of sending to you the last report* of the Zoological Society.

It is possible that, in the course of your residence at
opportunities of promoting our views and objects may occur to you, and that you may be able to send to us occasionally, and at a very inconsiderable expense, specimens of subjects in Zoology of much curiosity and interest.

Living specimens of all rare animals, and particularly of such as may possibly be domesticated and become useful here, will be much valued by us; and above all varieties of the Deer kind, and of gallinaceous Birds; but beyond this preserved insects, reptiles, birds, mammalia, fishes, eggs, and shells will be gratefully received.

And I may mention that where a more scientific method does not occur, the promiscuous immersion of any number of subjects in a tub of strong brine (feathers, bodies, and all) will be sufficient for preservation, not quite effectual perhaps for the skins in all instances, but perfectly so for purposes of dissection and comparative anatomy.

Then followed a paragraph on the necessity of confining expenses within the narrowest limits, and the advisability of consulting the authorities at home before incurring any considerable charge. Practical directions for preserving animals, skins, skeletons, and fossils, and packing specimens of all kinds, were also sent to collectors abroad.

The circular, dated on the day of the new President's election, is important, in that it negatives the idea that the foundation was the work of any one individual. It opens with the statement that

> This Society was instituted in 1826 under the auspices of Sir T. Stamford Raffles, Sir Humphry Davy, Bart., and other eminent individuals, for the advancement of Zoology, and the introduction and exhibition of subjects of the Animal Kingdom alive or in a state of preservation.

The public were informed that the Gardens in Regent's Park had been pegged out, and that workmen were actively employed upon them. Those interested in the project were invited to inspect the plans and drawings at Bruton Street, and the hope was expressed that the Gardens would be opened in the course of the summer.

* The first Report printed appears to be that presented by the Council to the General Meeting held April 29, 1829. Yarrell's copy, now in the possession of the Society, bears on the title the word "First" in his handwriting.

On April 24 Lady Raffles transferred Sir Stamford's Sumatran collection to the Society's Museum, stipulating that every subject should be distinguished by a particular mark, and that a separate catalogue should be printed. The property was to remain vested in the representatives of the late President, and in the event of any breach in the Society to revert to the family. Thereupon Lady Raffles was elected an Honorary Member—the only lady who has received that distinction.

The Anniversary Meeting was held on May 19 at the Rooms of the Horticultural Society. According to the *Gentleman's Magazine* (1827, i. 443) it was very numerously attended, and among those present were Earl Spencer, the Earls of Malmesbury and Carnarvon, Lord Auckland, the Marquis of Carmarthen, the Bishop of Bath and Wells, Sir Everard Home, Sir Robert Heron, M.P., Sir John de Beauvoir, and Mr. Baring Wall, M.P. The President announced that the works in the Regent's Park were rapidly advancing; the walks were laid out and partly made, and pheasantries and aviaries, with sheds and enclosures for some of the rarer animals, in active progress. The number of subscribers exceeded 500 and was daily increasing, and "it was expected that the gardens would possess sufficient interest to authorise the opening of them during the ensuing autumn."

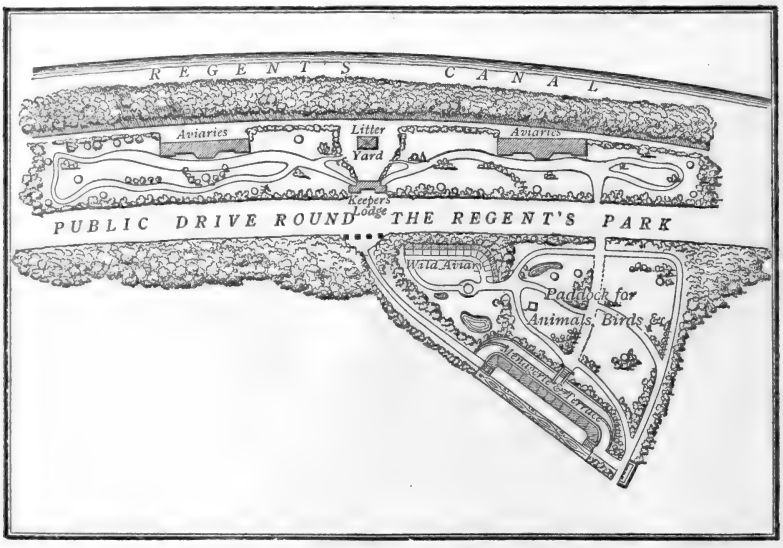
At this time there were no scientific meetings, but the monthly business meetings gradually assumed something of that character. Donations to the Museum were exhibited and briefly described; and the following extract shows that formal communications might be made, though the Society as yet possessed no organ for publication:

> *June* 22, 1827.—This evening C. B[onaparte] called with some gentlemen, among whom were Messrs. Vigors, Children, Featherstonehaugh, and Lord Clifton. My portfolios were opened before the set of learned men, and they saw many birds they had not dreamed of. Charles offered to name them for me, and I felt happy that he should; and with a pencil he actually christened upwards of fifty, urging me to publish them at once in manuscript at the Zoological Society.*

In July the plan of Decimus Burton was lithographed for distribution. This showed the proposed arrangement of the ground, and the style and location of the different houses, sheds,

* "Audubon and his Journals," i. 257.

aviaries, etc. Few copies can be traced now; but, fortunately, it was reproduced in the *Literary Gazette* with some descriptive text, and the editorial remark that "it may be a subject of interest to look back to the infant state of this establishment at a future day, when it shall have attained that extent and importance, suited to the scientific views of the nation that supports it, which is now sanguinely, and with good grounds, anticipated."



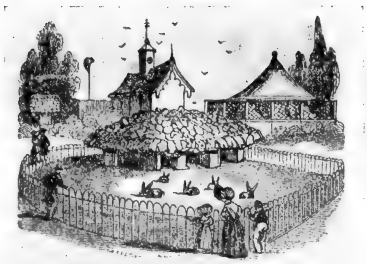
DECIMUS BURTON'S PLAN OF THE GROUND.

This is a pleasant contrast to the paragraph quoted from the same source on pp. 22, 23.

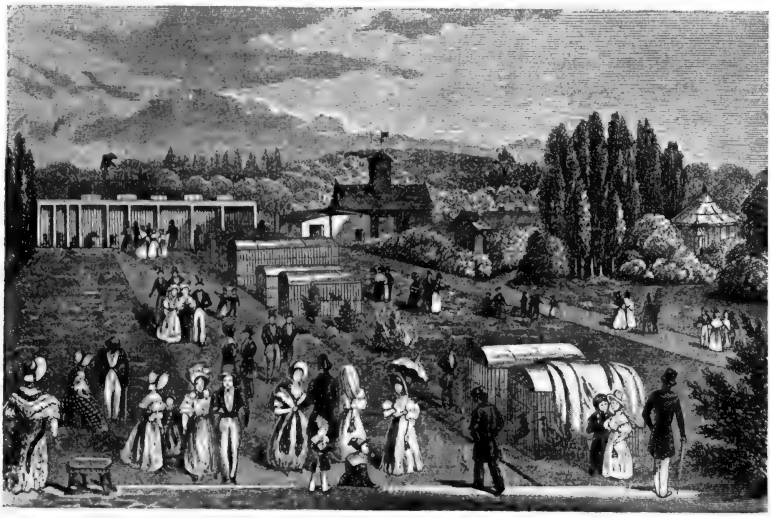
Then the larger animals had been removed from Bruton Street to the Park. Some monkeys, however, remained, and of one kept in the office the clerk reported that it had partially destroyed a book of vouchers, which had occasioned a deficiency. That monkey was unjustly blamed, but its character was eventually cleared.*

* While these pages were passing through the press this fiction was paralleled by the destruction of some scrip by a monkey in the Bank of France. About the same time it was stated in evidence before the Royal Commission to enquire into the contracts, sales, and refunds to contractors in South Africa, that the auditors were unable to obtain some important documents on account of their destruction by rats.

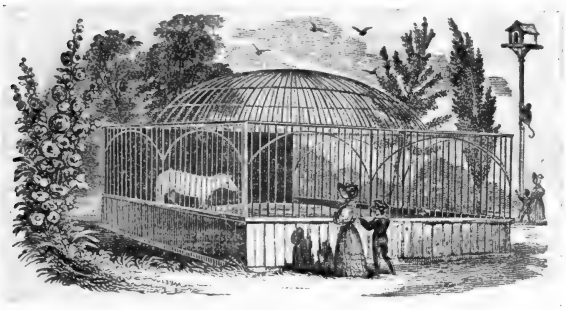
REPOSITORY. (*See p.* 41.)



RABBITS AND ARMADILLOS. (*See p.* 40.)



ZOOLOGICAL GARDENS, REGENT'S PARK. (*See p.* 55.)
From the "Penny Magazine," December 16, 1837.



POLAR BEAR. (*See p.* 39.)
From the "Mirror," 1832.

MONKEY AND POLE.
(*See p.* 39.)

PLATE 6.

One would like to know if this were the monkey described by Broderip in his "Zoological Recreations."

> There was one [Wanderoo monkey] in the Zoological Society's collection, then in its infancy, in Bruton Street, and a right merry fellow was he. He would run up his pole and throw himself over the crossbar, so as to swing backwards and forwards as he hung suspended by the chain which held the leather strap that girt his loins. The expression of his countenance was peculiarly innocent; but he was sly, very sly, and not to be approached with impunity by those who valued their headgear. He would sit demurely on his cross-perch, pretending to look another way, or to examine a nut-shell for some remnants of kernel, till a proper victim came within his reach; when down the pole he rushed, and up he was again in the twinkling of an eye, leaving the bareheaded surprised one minus his hat, at least, which he had the satisfaction of seeing undergoing a variety of metamorphoses under the plastic hands of the grinning ravisher. . . . It was whispered—*horrescimus referentes*—that he once scalped a bishop, who ventured too near, notwithstanding the caution given to his lordship by another dignitary of the Church, and that it was some time before he could be made to give up, with much mowing and chattering, the well-powdered wig which he had transferred from the sacred poll to his own.

In Children's address to the Zoological Club of the Linnean Society on November 29, 1827, he announced that arrangements were being made for the transfer to the Zoological Society of the lake and its islands near Regent's Park* for the breeding, rearing, and preserving of waterfowl, and of a plot of ground on which to erect suitable offices and farmyards for breeding and domesticating poultry. The right of entry to the walks and ornamental grounds on the west side of the Park was accorded to the Members about this time, and these were referred to as "privileges of essential importance to the Society, and gratifying proofs of the interest that His Majesty's Government takes in its welfare."

From the same source we learn that in the Menagerie and Gardens (not yet open to the public) nearly two hundred living animals were exhibited in suitable paddocks, dens, and aviaries; "as two beautiful llamas, a leopard, kangaroos, a Russian bear, ratel, ichneumons, &c., &c., besides a pair of emus, cranes, gulls, gannets, corvorants, various gallinaceous birds, and many others." Of course, the Members had free access to the grounds, as they had to the Museum, with the privilege of introducing two friends.

* The large lake, near the grounds of the Royal Botanic Society.

Another interesting event was referred to in this address—the recent gift by Mohammed Ali to George IV. of a young Nubian giraffe, the first example of the species brought alive to England. The merchant vessel conveying the giraffe and the cows which provided it with milk arrived at the wharf by Waterloo Bridge on Saturday, August 11, 1827, and the animals were at once stabled in a warehouse under the Duchy of Lancaster office. Here they remained in charge of the native keepers till Monday, when Mr. Cross took them to Windsor in a caravan, and the giraffe was lodged in a commodious hut, with the range of a spacious paddock at the Sandpit Gate. It was then about a year and a half old, and stood 10 ft. 8 in. high.*

In the *Literary Gazette* (December 1, 1827) R. B. Davis, who had many opportunities of closely observing the animal while painting its portrait for George IV., described its limbs as deformed by the treatment it had experienced at the hands of the Arabs on the overland journey from Sennaar to Cairo. It was occasionally confined on the back of a camel; and when "they huddled it together for this purpose they were not nice in the choice of cords or the mode of applying them." † While the artist was at work he observed that the giraffe still bore the marks of what it must have suffered, though it was improving in form and the joints were losing their disproportion to the limbs. It was probably at this time that he noticed there were "no teeth or nippers in the upper jaw," and that the two outside ones [in the lower jaw] were "divided to the socket." This division or lobation attracted no attention from naturalists till its rediscovery by Prof. Ray Lankester, who used it in proof of the relationship of the giraffe to the okapi,‡ in which the teeth are similarly lobed.

Although formal possession of the lake was not given to the

* The *Literary Gazette* of August 25, 1827, from which these particulars are taken, has this note: In 1810 a white camel was imported, with an elephant, into this country. This white camel being a novelty, the proprietor, then living in Piccadilly, turned his attention to making it still more of a novelty, caused it to be artificially spotted, and produced it to the public as "a camelopard just arrived."

† This seems to have been the normal mode of transport adopted by the Arabs at that time. The giraffes obtained by Warwick for the Surrey Gardens were treated in a similar way.

‡ *Transactions of the Zoological Society*, xvi. 290.

Society by the Crown Office till April, 1828, it was stocked before this time; for the first sheet of "Occurrences" received at No. 33, Bruton Street, on February 25, contained a reference to it among other particulars:

> MENAGERIE.—Received eleven wild ducks from the Lake, caught for the purpose of pinioning, and then to be returned.
> Received six silver-haired rabbits from Mr. Blake.
> Otter died, in consequence of a diseased tail.
> Emu laid her fourth egg on the 24th.
> All animals and birds well.
> WORKS.—Pit for bear, house for llamas in progress.
> Boundary wall for supporting the bank next the bear's pit begun.
> SERVANTS.—All on duty.
> NO. OF VISITORS.—Four.
> PARTICULAR VISITOR.—Lord Auckland.

Since that time a similar sheet, recording the principal events of the preceding day, signed by the chief officer at the Gardens, has been sent every morning to the office, where these are preserved in yearly volumes. A duplicate set is kept at the Superintendent's office at the Gardens. With the growth of the establishment the form has been somewhat varied to allow of other details and fuller particulars being given, such as the various occupations of the workmen, the amount of money taken, the weather, temperature of the houses, etc.

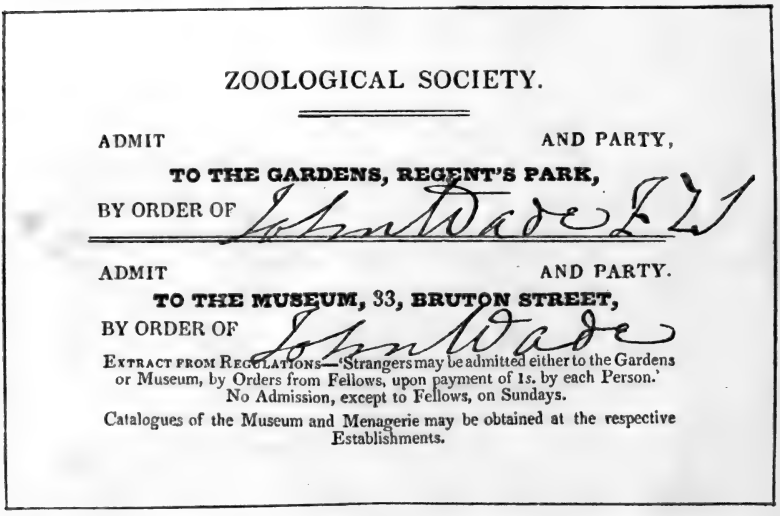
Mr. Edward Amond Johnson was appointed Superintendent and Assistant Secretary on April 27, and the Gardens were opened to the public on payment. The resolution of the Council on this subject was to the effect that "Strangers be admitted to the Gardens by the written Order of a Fellow on payment of 1s. each, the holder of such order or ticket to be allowed to introduce any number of companions at 1s. each." As will be seen from the Order reproduced on the next page, only Fellows were admitted to the Gardens or Museum on Sundays.

This is the earliest form of the ticket known, but the Fellow who signed it did not join the Society till February, 1829.

The visitor entering the Garden on that April morning, from the Public Drive, as the Outer Circle was then called, would pass a rustic lodge, on the spot now occupied by the Main Entrance. Part of the Terrace was laid out, and the bear pit built, as was the llama house on the left. To the right of the Terrace was

pasture land, and the boundary ran in a direct line from the western side of the bear pit to the opposite hedge, the intention at first being to continue the Terrace right across. On the left walks were made, and some ponds for waterfowl constructed, while a good many movable dens and cages were dotted about on the green turf.

No detailed description of the condition of the Garden as a whole has come down to us; but an official circular of April 29, 1828, speaks of it as "in considerable forwardness" and for some



ZOOLOGICAL SOCIETY.

ADMIT AND PARTY,

TO THE GARDENS, REGENT'S PARK,

BY ORDER OF John Wade 1831

ADMIT AND PARTY.

TO THE MUSEUM, 33, BRUTON STREET,

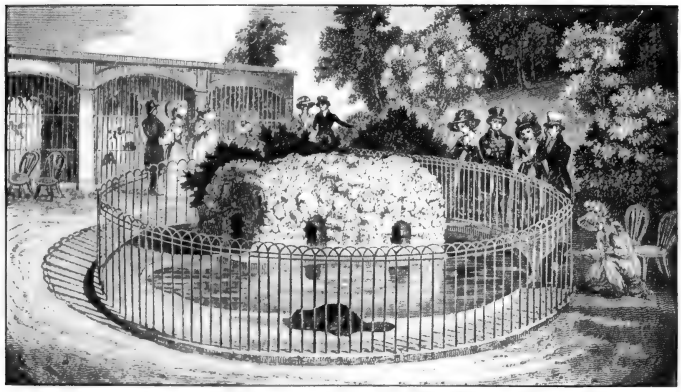
BY ORDER OF John Wade

EXTRACT FROM REGULATIONS—'Strangers may be admitted either to the Gardens or Museum, by Orders from Fellows, upon payment of 1s. by each Person.' No Admission, except to Fellows, on Sundays.

Catalogues of the Museum and Menagerie may be obtained at the respective Establishments.

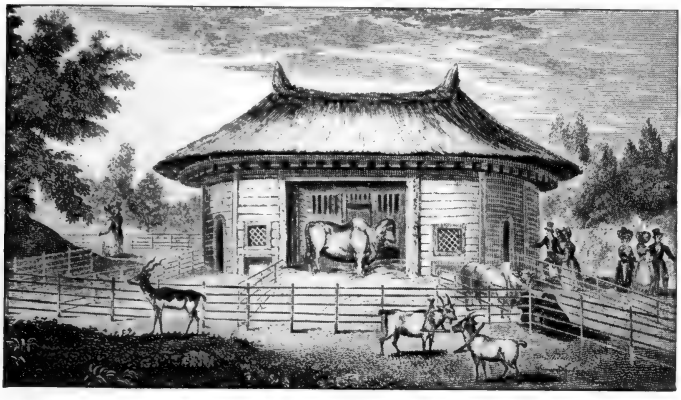
time open to Members. It then contained "a number of living animals disposed in suitable dens, aviaries, and paddocks," but there is no classified list.

Not till July, however, were the plans for the houses prepared, and still later were those for buildings on the north side approved by the Commissioners of Woods and Forests. As a provision for tender animals during the winter a stable and room adjoining in Park Street were taken, so that they might be removed thither from the Gardens. From an entry in the minutes it appears that the Council were fully alive to their responsibilities, for at the meeting of November 19 it was ordered "that an inquiry be made after a small farm or land in the vicinity of London, to be used as a breeding place."



BEAVER POND AND FALCONS' AVIARY. (*See p.* 39.)

AVIARY. (*See p.* 39.)



CATTLE SHEDS AND YARDS. (*See p.* 40.)

From the "Zoological Keepsake."

PLATE 7.

The opening of the Garden caused some excitement. In the Swainson Correspondence, now in the possession of the Linnean Society, there is a letter, dated December 1, from Barron Field, Advocate-Fiscal of Ceylon, afterwards Judge of the Supreme Court of New South Wales, and Corresponding Member of the Society, in which Vigors's share in the work is thus referred to:

> It must be very gratifying to see the March of Zoology in England. The popularity of the science is greatly indebted to Vigors and his lucky hit of the Regent's Park Menagerie.

Dr. Horsfield resigned the Vice-Secretaryship, and was succeeded in that office by Mr. E. T. Bennett; and John Gould's connection with the Society began this year by his appointment as Curator and Preserver to the Museum, now so well stocked as to warrant the issue of a catalogue of the mammalia. This was arranged on the Quinarian system, a fact not to be wondered at considering the important part Vigors played in the early history of the Society.* There were 450 specimens, the bulk of them belonging to the Rafflesian collection, but Captain Parry, Captain (afterwards Sir John) Franklin, and Dr. (afterwards Sir John) Richardson were also donors. In the Museum were exhibited the panda or bear cat, discovered by General Hardwicke; the fennec or long-eared fox, which effectually vindicated the accuracy of Bruce, that had been impugned by some French naturalists; and the clouded tiger, made known to science by Sir Stamford Raffles, the specimen he had brought alive to England, which was exhibited at Exeter 'Change.

The first printed list of Members was issued in January, 1829, and contains the names of 1,294 Ordinary, 8 Honorary, and 37 Corresponding Members. In his Jubilee Address Sir William Flower referred to it as interesting from the number of names it includes of persons eminent in science, art, literature, or social life. "Indeed," he said, "there were not many people of distinction in the country at that time who are not to be found in it."

This year saw the first publication of the Council's Report, on the occasion of the Anniversary Meeting on April 29. It

* An interesting account of the Quinarian system and the men who advocated it will be found in the Introduction to Professor Newton's "Dictionary of Birds," pp. *32-35*.

contained the announcement of the grant of a Charter, and the text of the document is given. The objects of the Society are therein defined as "the advancement of Zoology and Animal Physiology * and the introduction of new and curious subjects of the Animal Kingdom." † The Marquess of Lansdowne, Joseph Sabine, and Nicholas Aylward Vigors were confirmed in their respective offices of President, Treasurer, and Secretary till April 29, 1829, which date, or as near thereto as conveniently might be, was fixed for the Annual Meeting in successive years. From this period the Members became Fellows. The Council appointed Mr. Rees Assistant Secretary, and Mr. Alexander Miller replaced Mr. E. A. Johnson as Superintendent of the Gardens.

Cross renewed his application to the Council that they should purchase his animals, and though an offer for part of them was made it was not accepted by the owner, who wanted to dispose of the whole. Barron Field wrote to Swainson on January 21 that Cross had received notice to quit Exeter 'Change in a month, "so that he must come down to the terms of the Zoological Society, and thus will be made a great addition to their menagerie." Cross, however, did not agree; and the negotiations came to an end. If one may judge from the Address to the Reader prefixed to his "Companion to the Royal Menagerie," published in 1820, Cross took himself very seriously, and, of course, had great experience with animals in confinement. He was, however, essentially a "showman," and even if the arrangement had been brought about it may be doubted if he would have been a good manager for an establishment where the presence of the general public was suffered rather than encouraged.

A good deal was written about the system of requiring visitors, not personally introduced, to obtain an order from a Fellow as a condition of admittance on payment. In a curious

* The study of the living organism, though, from the nature of the case, without reference to its bearing on evolution.

† As was pointed out by Sir William Flower in his Jubilee Address, this meant not only the temporary introduction of individuals for the purpose of satisfying curiosity about their external characters and structure, but also the permanent domestication of foreign animals which might become of value to man, either for their utility in adding to our food supplies or for the pleasure they afford by their beauty.

little book,* somewhat of the Sandford-and-Merton type, the matter was thus discussed between Mr. Dartmouth, a Fellow, and some of his sister's children, who visit the Garden with him. Said one of the children:

> The necessity that Strangers must either be introduced by Members, or else provided with their orders, or with their tickets, is productive, I should think, of some inconveniences?

Taking advantage of this opening, Mr. Dartmouth replied:

> It certainly is so; but upon the whole the restriction is probably beneficial. Besides, few of the persons who are proper visitors can have much difficulty in finding Members willing to oblige them.
>
> It is evidently proper, that in the admission of Strangers, some degree of system should be observed, especially at the Garden, for the sake, both of preventing mischief and injury to the Animals, and to the Garden itself, and of contributing, in some degree, to save the Visitors themselves from the accidents that sometimes attend exhibitions of wild beasts of prey. The vulgar are too fond of irritating the fiercer animals and of teasing and hurting those which are gentle; and both vulgar and others are often exceedingly rash in introducing their hands into the dens and enclosures, or careless in placing themselves so near the bars, as to defeat the effect of every precaution for their safety. Upon the first subject, as you know, we have had to caution George; and I believe both George and Jane are indebted to some risks which they have run for the respectful distance which they now keep. Only the other day, too, as we saw, one of the Wolves, though so well guarded in the kennel, bit the arm of a little boy that had taken much pains to introduce it through the bars. You see, therefore, that caution is needful; and, perhaps, even in this view alone, it is proper that the admission should not be indiscriminate. The necessity for orders almost prevents young people from coming without some superintendence.

The "thick ungrateful clay" of the Park was found to be the cause of increased expense in the construction of houses. Consideration for the health of the animals necessitated oak floors, and a thick layer of dry material had to be deposited under enclosures and walks. These disadvantages, however, were considered "amply counterbalanced by the vicinity of the

* "The Zoological Keepsake; or, Zoology and the Garden and Museum of the Zoological Society for the year 1830." London: Marsh and Miller. No author's name is given, and the Editor's Preface is signed M*. It is stated in a note on p. 45 that the Editor contributed "Critical Accounts of South American Camels" to the *Colonial Journal* (1817, 1818); but examination of that short-lived Quarterly throws no light on the authorship.

site to town." Flower-beds were laid out, and the Horticultural Society was very liberal in sending supplies for this purpose. An account of the stock puts the number of species and varieties belonging to the Society at 194, of which 69 were "quadrupeds," *i.e.* mammals, and 125 birds; there were 152 examples of the mammalian and 475 of the avian species, so that the collection consisted of 627 animals, of which the larger portion was in the Garden. There were few that would be considered rare at the present day, but some of the "larger and stronger quadrupeds" were promised as soon as dens and enclosures could be prepared for them.

In March the first Guide was drawn up, at the request of the Council, by Vigors and Broderip, and the style of the latter is clearly perceptible. The following passage, describing the raccoon, certainly did not come from Vigors's pen:

> Strange stories are told of its fishing for crabs with its tail, and opening oysters with its feet; and Pennant says "that it loves strong liquors, and will get excessively drunk."* It seems to be attached to good cheer in general, from "'Possum up a gum tree"† to sugar cane, and appears to have a penchant for turtle; for our friend here, who is extremely amiable, playful and caressing, was admitted one day into a room with a land tortoise, which he no sooner saw than he flew at it with the zeal of an alderman.

This was edited and added to before publication. Several editions appeared, the last being probably that of October. The title runs thus: List | of | The Animals | in | The Garden | of the | Zoological Society | With Notices Respecting Them: | and | A Plan of the Garden | Showing the Buildings, Enclosures and Places in which | the Animals are kept | October 31st, 1829. | Seventh Publication. | From this one may get a fairly good idea of the Garden‡ and Menagerie stock, especially if the plan be compared with Plate 3.

Fellows signed their names in a book kept in the lodge (1)

* "Arctic Zoology," p. 69. (This note and the next are from the Guide.)

† See—or rather hear | the Carmen Zoologicum of the egregious Matthews:

> 'Possum up a gum tree, Raccoon in a hollow,
> Catch him by him long tail! How him whoop and halloo!!

‡ At first the singular form was correct, for only a portion of what is now the South Garden was opened. When the tunnel was made and the North (now the Middle) Garden laid out and stocked, the plural form was used.

ELEPHANT PADDOCK AND WAPITI HOUSE. (*See p.* 54.)

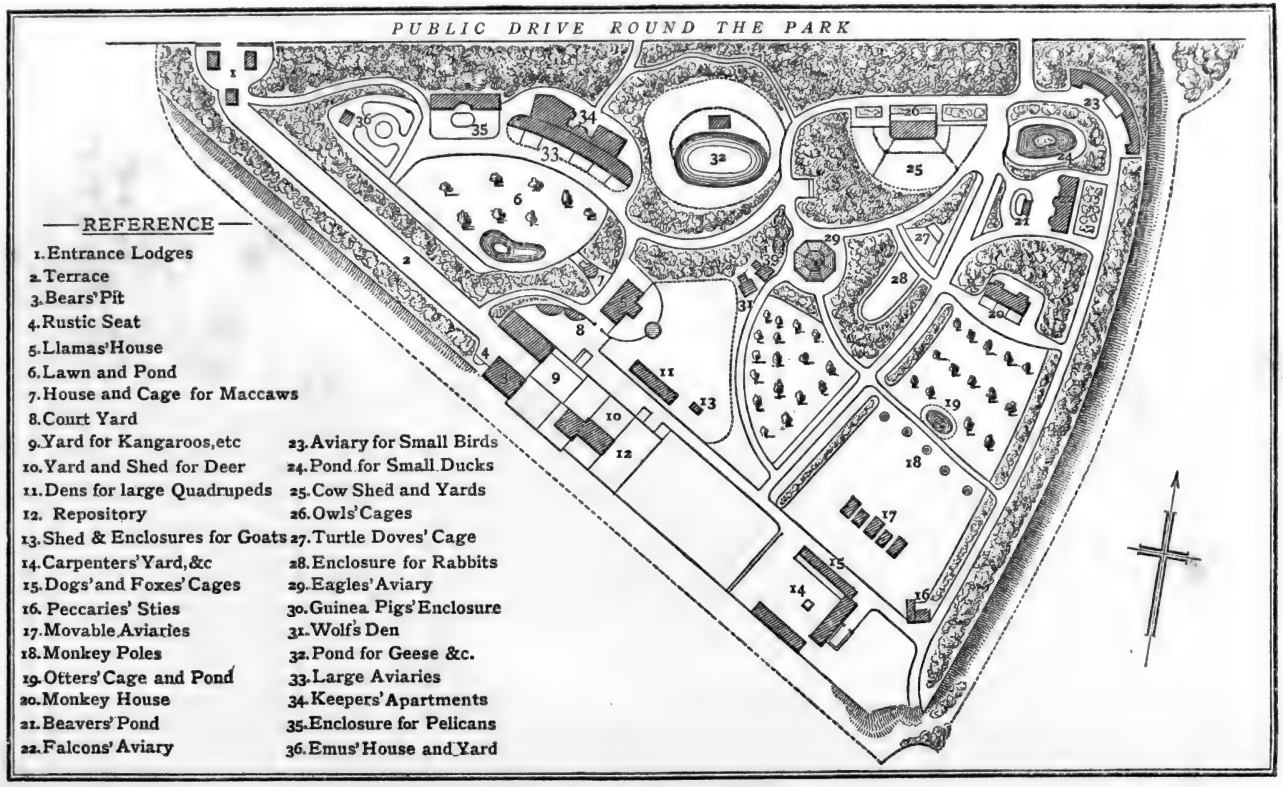
From a Drawing by G. Scharf.

PLATE 8.

on the right; persons provided with an order paid one shilling each at the lodge on the left, receiving in return a check which was given up at the central lodge a little farther on. There were three bears in the pit (3) at the end of the Terrace (2); and where the "bear bar" now stands was a rustic seat, in which a person was permitted to attend during the hours of exhibition "for the sale of cakes, fruits, nuts, and other articles, which the visitors may be disposed to give to the different animals." Below the Terrace on the left was the waterfowls' lawn (6) with a pond and fountain. In this enclosure were kept a shag, black-billed whistling ducks,* mallard (taken in the Society's decoy on the Lake in the Park), pintail, wigeon, pochard, and greater and lesser black-backed, herring, and common gulls. The crowned cranes and other wading birds from the large aviaries (33), approximately on the site of the Eastern Aviary, were turned into this enclosure during the day.

In the llama house (5), now the camel house, were two llamas, and behind, there stood, as it stands to-day, an open-air aviary (7), then used for the blue-and-yellow and red-and-blue macaws, and greater and lesser sulphur-crested cockatoos. North of the llama house was a court yard (8) with iron cages, in which were a hybrid between a jackal and a dog, a pair of cinnamon bears, European and American bears, Cuban mastiffs, dingos, and a sable. Under the Terrace were some chambers, in which an American tapir and an ostrich were kept. Adjoining, but nearer the Park boundary, was a yard (9) with three divisions; in one was a reindeer, and in the others some great kangaroos. In front of this were enclosures (10) accommodating a couple of sambur, one of which came from Windsor, and had been hunted by the Royal buckhounds, an American fallow-deer, and a nylghaie. Still nearer what is now the South Entrance was a temporary building (12) with three leopards, a jaguar, a lion cub, two striped hyæna cubs, a black buck, a pair of ocelots, an African civet cat, a Tibet bear, three coatimondis, Virginian opossums, guinea-pigs, agoutis, a ratel, a couple of genets, common, fasciculated and Canada porcupines, some

* This anticipates the notice in the Hon. Rose Hubbard's "Ornamental Waterfowl" (ed. 1888, p. 92) that the species had been "an inhabitant of the Zoological Gardens since 1831."



PLAN OF THE GARDEN, 1829.

ichneumons, and an Indian civet cat. In cages at the end of the room were kept a condor, a harpy eagle, and a Chilian eagle. Beyond this was a turfed piece, then came the carpenters' yard (14); on the east side were the dog and fox cages, containing Esquimaux, wolf, Hare Indian, and Chinese black-mouthed dogs; common, cross, black, and American foxes; and raccoons.

On the lawn in front of the llama house, and opposite the deer enclosures were the dens for large quadrupeds (11), tenanted by a pair of leopards, a Cape lion, a striped and a spotted hyæna, a young tigress, a puma and leopard in the same cage, two cheetahs, two sloth bears, and a polar bear. Near this was a shed (13) with enclosures for goats. In the farther angle (on the plot behind the diving birds' house) were the sties for peccaries (16), of which the collared and white-lipped species were exhibited; westward were some movable aviaries (17) with gold, silver, and ring-necked pheasants, partridges, red-legs, and black-cock. Later this was called Monkey Green, from the monkey poles (18), to which certain species were fastened during the day in favourable weather. In front were the otter pond (19) and a paddock for tortoises, of which four species were exhibited, and on the west of the poles was a wirework cage containing a bearded vulture.

In the monkey house (20), with open-front cages on the site of the present eagles' aviary, were an agile gibbon, mangabeys, patas, green, mona, and lesser white-nosed guenons, wanderoos, rhesus, bonnet and pigtail macaques, a black ape, a Barbary ape, baboons (not to be identified), a young mandrill, and some drills. What is now the otter pond was then the beaver enclosure (21), and the old kites' cages (22) contained kites, peregrines, a moor buzzard, a honey buzzard, even then "not of frequent occurrence," common buzzards, an unidentified South African eagle, and Egyptian vultures. The aviary "for small and middle-sized birds" (23) is still standing, but is used as the civets' house. Part of it was devoted to British species—the hooded crow, jackdaw, magpie, starling, missel thrush, thrush, blackbird, haw-finch, greenfinch, chaffinch, tree sparrow, linnet, lesser redpoll, goldfinch, redbreast, woodlark, bearded titmouse, yellowhammer, cuckoo, little bittern, sparrowhawk, kestrel, hobby, short-eared

and little owls, and a hybrid between the turtle-dove and domestic pigeon, of which, unfortunately, there is no history. The exotic birds consisted of the crested partridge, Chinese starling, the parrot fruit-pigeon (of which very few examples have been exhibited since), and the St. Domingo falcon, now called the American sparrowhawk.

In front was a large pond (24), on which were summer ducks, shovellers, tufted ducks, gadwall, teal, garganey, lapwings, ruffs, a night heron, coot, and black-headed gulls. In their printed draft Vigors and Broderip mention the fact that carp were bred here in 1828, adding:

> When some of the more pressing objects of the Society have been attained, a favourable spot will be selected where experiments may be tried with regard to Fishes, the naturalisation of which was a favourite project with many of the leading and most active founders of the Society.

West of this, on the site of the existing llama house, were the cattle sheds and yards (25), containing small zebus, a fine Brahmin bull, and an American bison calf, presented by the Hudson's Bay Company. This young female replaced a very large male, purchased from a showman, by whom it had been exhibited under the classical name of "the bonassus," to which, of course, it had no claim. Soon after its transfer to the Society it died, "probably in consequence of the sudden change operating upon a habit already enfeebled by chronic disease." Behind this house were the owls' cages (26), which have been removed within the last few years. The stock consisted of great-eared, Virginian eagle, snowy, brown, and white owls, and a pair of ravens were kept here.

In front of these sheds, near the site of the bandstand, was an octagonal eagles' aviary (29), containing a griffon and sociable vultures, white-headed eagle, white-tailed eagle, osprey, and golden eagles. East of this aviary was the turtle-doves' cage (27), containing, in addition to the common form, white and pied varieties, wood-pigeons, white-crowned pigeons, an "Oriental partridge," a Californian quail, black-tailed godwits, a scarlet ibis, and some Norfolk plover. Opposite was a rabbit enclosure (28), in which the wild species and fancy varieties were kept. On the right was the guinea-pig enclosure (30), and,

PLATE III.

THE CAMEL HOUSE.

(*See p.* 37.)


Charles F. Flower

close by, the wolves' den (31), where a litter was produced in the spring.

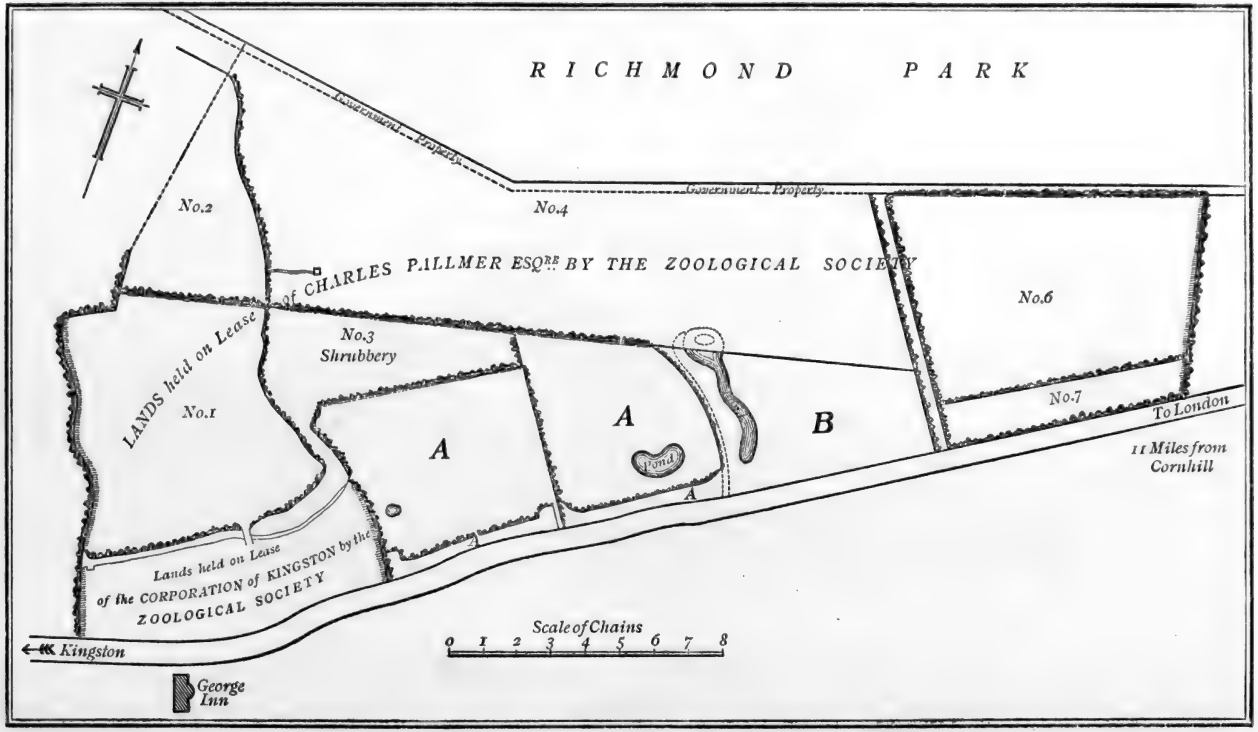
The rest of the buildings and enclosures stood between the cattle shed (25) and the entrance. First in order was the pond for geese (32), stocked with mute, Polish and white swans, Gambian, Canada, Chinese, Egyptian, grey-lag, bean, white-fronted, brent and barnacle geese, and sheldrakes. Beyond, and facing the waterfowls' lawn, were the large aviaries (33), with Balearic cranes, a marabou stork, common and black storks, common and purple herons, bitterns; a collection of curassows, and a guan; a number of fancy pigeons, and an interesting hybrid between the pheasant and the guinea-fowl. At the back of the aviaries were the keepers' apartments (34) and the office of the Superintendent. Nearer the entrance were the pelicans, enclosure (35) and the emus' enclosure (36). The emus were hatched in the Royal Menagerie at Windsor, and presented to the Society by George IV.

Receipts from the sale of the Guide for 1829 amounted to £288, and rose in 1831 to £369; they then dwindled gradually till 1847, when vanishing point was reached.

Towards the close of the year the tunnel was made connecting the two Gardens, and the Repository was built at the east end of the North Garden. This served for the reception of animals on their arrival, and as a place in which to keep those that needed protection. It has been, in turn, the lion house, a reptile house, a small cats' house, and is now the squirrels' house.

A very important part of this year's work was the establishment of a farm under the wall of Richmond Park at Kingston Hill. The Council described it in their Report as well adapted for the work of the Society. With the exception of two or three meadows it consisted of covert and arable land with a light dry soil, and was well supplied with springs, so that stews and fish-ponds might easily be added.

It had been urged against the Council that the delay in carrying out the experimental work specified in the Charter was a matter of reproach to them. There were, however, good reasons for waiting, and in their Report they specified the following as the purposes and objects for which the farm would be utilised:



THE FARM AT KINGSTON HILL, 1829-1833.

(A A and B were the freehold plots belonging to the Society.)

I. In affording a convenient relief and assistance to the Menagerie in the Park, by removing from it such Quadrupeds and Birds as may require a quiet place to bring forth and rear their young; also in receiving the duplicates of the collection which it may be expedient to keep in hand to replace those which are exhibited in the Park when necessary; and likewise to maintain such as want a more extended range than the Garden at present admits of, or which it is necessary to allow to remain at liberty.

II. The rearing various domesticated Quadrupeds and Birds, both of ornamental as well as useful varieties, with a view of having their kinds true and free from mixture; or in effecting improvements in the quality or properties of those used for the table; and likewise in domesticating subjects from our own or foreign countries, which have not hitherto been inmates of our poultry or farm yards.

III. The conducting experiments in all matters relating to breeding and points of animal physiology connected therewith, the range of which is very various and extensive. Many of these will require much time to be completed; some may be brought to a conclusion within a year or two. It is remarkable that there have never been published any correctly recorded facts on which the opinions at present entertained by physiologists on many of such matters can be supported. It is to be hoped that the Zoological Society may be the instrument of settling many questions of this description in a satisfactory manner.

In the objects of attention at the Farm, the breeding and trying experiments with fish are of course included.*

In 1830 Mr. Decimus Burton was appointed architect, and a good deal of work was done in laying out the North Garden. The main walk was made from end to end, as were others radiating from it and on the slope down to the canal. South of the Repository was a row of dog-kennels; westward, near the site of the thars' house, were the ostrich shed and walk, separated by the gravel path from the kangaroos' paddock, in which was a shed for shelter. The most important structure was the wapiti house, which also accommodated antelopes and zebras; here, too, for a time, elephants were kept. It communicated with six

* In 1830 the idea of fish-culture seems to have been abandoned in favour of experiments for introducing new forms. At the Anniversary Meeting in that year the Council reported that some of the varieties most desired were to be found in Germany; and that the steam navigation of the Rhine offered new facilities for their transportation. Two years later the ponds and supply of water at the Farm were found less satisfactory than was expected. The fish-stock then consisted of common carp, gold-fish, flounders, and eels; but the last two species had not been examined for two years, for fear of disturbing the aquatic birds. In the following year the Farm was given up.

paddocks, strongly fenced, and in the upper storey were rooms for keepers and stores. Beyond this was a paddock containing the pond (Plate 12) which is now at the back of the rhinoceros stalls in the elephant house. The exit gate and carriage-sweep outside were made, and in this farther part of the Garden were sties for peccaries, a small house for tapirs, and yards for the gardeners and carpenters. In the South Garden the grounds were cleared of the workmen's sheds; a pit with a pond was constructed for the polar bear just east of the monkey poles, and a seal house erected in a line with and west of the otter pond.

The Menagerie stock was greatly increased. The King signified his pleasure to become the Patron of the Society, and presented the collection of animals in the Royal Menagerie at Windsor. The following is the list given in the Report of the Council:

Mammals:—14 wapiti, 3 axis and 2 sambur deer, 1 American roe deer, 3 gnus, 2 nylghaie, 2 llamas, 4 Cashmere and 3 Barbary goats, 1 Cape ram, 7 zebus, 2 mountain and 2 Burchell's zebras, 2 hybrids between both species of zebra and the common ass, 1 wild boar, 1 peccary, and 13 kangaroos.

Birds:—1 king vulture, 2 sea eagles, 1 peregrine falcon, 2 great-eared owls, 4 macaws, 2 cockatoos, 1 scarlet lory, 2 golden parrakeets, 1 rosehill parrakeet, 5 widow birds, 11 emus, 1 curassow, 42 pea-fowls of different varieties, 4 crowned cranes, 1 scarlet ibis, 1 spoonbill, and 7 cereopsis geese.

No mention is made of any reptiles, but Jesse,* who, from his official position as Surveyor of H.M.'s Parks and Palaces, must have known a good deal about the Royal Menagerie, says that the man in charge had a narrow escape of being killed by "the boa constrictor." He seems to have made a pet of the reptile, and used to bring it into his sitting-room. On the last occasion of being allowed its liberty, the serpent struck at the keeper, and threw two or three coils round his body. Fortunately his cries brought assistance, and he was released from his perilous position.

In addition to this "splendid present," as it was rightly called by the Council, Queen Adelaide sent three alpacas, and the Duke of Sussex an original Member of the Society, a Persian lynx. From other donors were received ostriches, three

* "Gleanings in Natural History," 2nd series, p. 120.

FIRST MONKEY HOUSE. (*See p.* 56.)

From a Drawing by G. Schary.

PLATE 9.

demoiselle cranes, several South American birds and quadrupeds, a wombat, a vicugna, and a pair of Javan peafowl.

The Royal gift naturally excited a good deal of interest. A paragraph in the *Times* of August 19 announced that great preparations were being made at the Gardens for the reception of the animals, and that more than 100 men were employed in draining the ground on the banks of the Regent's Canal and constructing habitations for housing the stock. A good deal of it, however, was sent to the Farm.

This notable accession enabled the Council to behave liberally to the Zoological Society then being formed in Dublin by offering duplicates. A similar offer was made to the Royal Menagerie at Paris, whither were sent a pair of wapiti from the Royal herd, and duplicates of Indian and Australian animals "worthy of the National Institutions of England and France respectively to offer and accept."

About this time the Society endeavoured to procure a giraffe. At the Council Meeting of July 7 a letter was read from Mr. Traill, of Cairo, offering his services in obtaining a specimen, and it was determined to allow £300 for one "delivered safely and in good health at Alexandria." Not long after this the skin and skeleton of "the giraffe which lately died at Windsor" were offered to the Society. A minute states that the Council "thankfully accept the same, and will also defray the charges of preserving and setting up the animal."

The following account* of that giraffe in captivity is, not improbably, from Owen's pen:

> It was at that time [August, 1827] exceedingly playful; but as its growth proceeded, which was rapid (having increased eighteen inches in less than two years), it became much less active; its health evidently declined; its legs almost lost their power of supporting the body; the joints seemed to *shoot over;* and at length the weakness increased to such a degree, that it became necessary to have a pulley constructed, which, being suspended from the ceiling of the animal's hovel, was fastened round its body, for the purpose of raising it on its legs without any exertion on its own part. From the harmless disposition and uniform gentleness of this animal, the interest which it had excited in his late Majesty was very

* *Zoological Magazine*, p. 3. This was founded by Owen (Jan., 1833), who sold the copyright after six numbers had appeared. In the "Life" by his grandson, the Rev. Richard Owen, he is said to have written the greater part of this short-lived periodical.

great; but notwithstanding every attention it died in the following year. . . .

Owing to the distance from town at which this animal was kept, and the state of confinement which its weakly condition rendered indispensable during the latter period of its existence, the living giraffe was seen in this country by comparatively few individuals. The skin, however, and skeleton, both beautifully prepared, are preserved in the Museum of the Zoological Society—the munificent donations of his present Majesty [William IV.].

The date of the animal's death is fixed by the following extract from the *Windsor and Eton Express*, October 17, 1829:

Messrs. Gould* and Tomkins, of the Zoological Gardens, are now dissecting the Giraffe which expired on Sunday last. We understand that when the skin is stuffed, His Majesty intends making it a present to the Zoological Society.

The most important animal received in 1830 was a young male orang presented by Mr. Swinton, of Calcutta, who had previously sent a female specimen in spirits for the Museum. It reached England in the late autumn; for at the meeting of November 3 the Council voted a gratuity of £3 "to the person who had the care of the orang lately presented to the Society." It was, however, never exhibited. Jesse,† who was interested in the animal, prints the following account of it "from a gentleman connected with the Zoological Society":

On its return from India, the vessel which conveyed the poor little orang to a climate always fatal to its race, stopped some time at the Isle of France to take in fresh provisions. The orang accompanied the sailors in their daily visits to the shore, and their calls upon the keepers of taverns, and places of a like description. To one of these, kept by an old woman who sold coffee, &c., for breakfast, the orang was accustomed to go, unattended every morning; and by signs easily interpreted, demand his usual breakfast, which was duly delivered. The charge was scored up to the captain's account, which he paid before his departure.

The orang was on excellent terms with all the ship's company, except the butcher, of whom he was afraid, and whom he made every effort to conciliate, "having seen him kill sheep and oxen in the exercise of his duty." From the sailors' hammocks the orang would convey any article that he considered would add

* This must have been John Gould, then preserver and curator to the Museum of the Zoological Society.

† "Gleanings," 2nd series, pp. 40–42.

to his own comfort. Any piece of bedding that was missed was, of course, sought for in that part of the ship where the orang slept, but he was by no means disposed to give it up to the rightful owner without a contest. The animal was subjected to some training, for

> His conduct at table, to which he was familiarly admitted, was decorous and polite. He soon comprehended the use of knives and forks, but preferred a spoon, which he handled with as much ease as any child of seven or eight years old.

On its arrival in this country the animal was kept for a short time in the house of a gentleman residing in Regent's Park. There it sickened, and was removed to Bruton Street; but it gradually grew worse and died in a few days, "not without the regret of the nurse and the sympathy of us all."

Mr. Joseph Sabine resigned the treasurership and was succeeded by Mr. James Morrison.

This year witnessed the establishment of scientific meetings. At the Council Meeting of July 21 a Committee of Science and Correspondence was appointed, consisting of Dr. Grant, Dr. Harwood, Dr. Horsfield, and Messrs. Bell, Bennett, Bicheno, Broderip, Brookes, Children, Coleman, Spence, and Yarrell. Each Member of the Council had a seat on the Committee *ex officio*, and letters of invitation to take part in the meetings were sent to prominent Members engaged in scientific work. Among these were the Bells, E. T. Bennett, Robert Brown (the botanist), Dean Buckland, William Clift (Conservator of the Museum of the Royal College of Surgeons), W. H. Fitton (President of the Geological Society), R. E. Grant (of University College), J. E. Gray (of the British Museum), Sir Everard Home, the Rev. F. W. Hope, Murchison (afterwards Director of the Geological Survey), Ogilby, Owen (then Assistant Conservator of the Hunterian Museum, afterwards Superintendent of the Natural History Department of the British Museum), the Sowerbys, and many others.

The duties of this Committee were (1) to suggest and discuss questions and experiments in animal physiology; (2) to exchange communications with the Corresponding Members; (3) to promote the importation of rare and useful animals; and (4) to receive and prepare reports upon matters connected with zoology.

In the Council's Report of November 4 there was an explanation that the work entailed by the formation of the Society's establishment—Gardens, Museum, and Farm—had prevented the discussion of scientific matters at the monthly meetings. Consequently it was proposed that this defect should be remedied by holding meetings on the second and fourth Tuesdays in each month for that special purpose. The first meeting was held on November 9, when Vigors opened the proceedings with a description of the colins or New World quails (*Ortyx*), of which four species were then in the Gardens. One, the Virginian colin, had, he said, bred in this country, and "had even become naturalised in Suffolk." In this, however, he was mistaken; and though many other attempts have since been made to introduce the species, they have been unsuccessful. It formerly had a place in Yarrell's "British Birds." In the fourth edition (iii. 122) Mr. Howard Saunders remarked that thousands had been "brought over from North America during the present [the nineteenth] century, without having succeeded in permanently establishing themselves." He, therefore, omitted it from the list. Mr. J. E. Harting dealt with the subject in the last edition of his "Handbook of British Birds" (pp. 153-55) and referred briefly to the principal attempts to introduce this species, with references to the literature.

More important by far was the paper on the anatomy of the orang, of which the first part was read by Mr. (afterwards Sir Richard) Owen. The subject was the young male which had recently died in Bruton Street. According to Owen it was in "a very debilitated state" when it reached this country, and he attributed its death, not to climatic influences as suggested by Jesse's informant, but to "debility and exhaustion of the system" produced by a long voyage, improper food, and intestinal trouble. This paper, in four parts, was the first of a long series of contributions for more than half a century, the last being included in the *Proceedings* for 1884. Abstracts of the papers were published in fasciculi, generally of sixteen pages, and the first, which appeared about the end of the year, contained the business of three meetings. These fasciculi were delivered to the Fellows free of charge.

Though not an official publication, "The Gardens and

Menagerie of the Zoological Society Delineated" was prepared under the superintendence of the Secretary and Vice-Secretary, with the sanction of the Council. The first volume, dealing with the mammals, appeared in the autumn, and the second, treating of the birds, some months later. In the preface it was stated that "one great aim of the Society is to diffuse as widely as possible a practical acquaintance with living animals." Technical expressions "which render most scientific works unintelligible to the general reader" were avoided. With this simplicity of language was combined scrupulous accuracy with regard to facts, and the drawings were made and the descriptions taken from animals living in the Menagerie. There was no attempt to arrange the beasts or birds in classificatory groups, but a systematic index was given at the end of each volume. Much was said about the possible domestication of new forms, notably of the curassows. There was reference to some attempts at acclimatisation in Holland in the eighteenth century; and the remark that "it may not be too much to expect that the Zoological Society may be successful in perfecting what was then so well begun" shows the author was thoroughly in sympathy with the economic aims of the new institution. But the hopes then entertained with regard to these birds have been disappointed, and the story of the failure was told some twenty years later.* These volumes were very well received, and might serve in many respects as models for a popular "Natural History."

Bennett's name appears as editor, though he was more than that; and was assisted in his task by Vigors, Broderip, Wallich, and Yarrell. A notice of the first volume in the *Athenæum* (Oct. 23) is of interest from the mental attitude of the writer with respect to the Gardens:

> This book will be invaluable to the sick, to the infirm—and, indeed, to all those persons who from weakness of constitution or the severity of our English summers, are unable to go upon their travels so far as the Zoological Gardens, in the back settlements of the Regent's Park—where the wild beasts of the desert, and the wild birds of the wood and rock abound. The Zoological Gardens may be visited in this singularly faithful and beautiful work to the perfect satisfaction of the eye; and

* E. S. Dixon, "The Dovecote and the Aviary," pp. 223–279 (London, 1851).

perhaps the holiday which the ear and nose enjoy in this pictured visit is not without its pleasures and relief. . . . The publication of a work so spiritedly, yet so carefully got up as this, is a real treasure to science. Anyone may now have his own menagerie in his own room—every gentleman be his own Wombwell.

Till long beyond this date it will not be possible to tabulate the condition of the Menagerie stock with any approach to accuracy. All the details procurable with regard to the number of animals in the Gardens at the Anniversary Meeting in 1829 are given on p. 36. At the next anniversary no particulars were afforded, but a record of the number and species of "living animals at present exhibited in the Gardens and at Bruton Street" was laid upon the table for the inspection of the Fellows. In an account published in the Annual Report presented in 1831 there are included 178 species of mammals and 195 of birds. At the end of the list it is stated that "many of the smaller British birds which have been kept in the Society's Aviaries are purposely omitted, as are also the Reptiles, although many species of this class have been continually exhibited in the Gardens." This list was probably made up to December 31, 1830, as were the accounts, but in many cases the figures, especially those of the breeding lists, refer to the period between one anniversary and the next.

FELLOWSHIP ROLL, VISITORS AND FINANCE.

	No. of Fellows.	Admissions to Gardens.	Income. £.	Expenditure. £.
1827	602	——	4,079	4,375
1828	1,226	98,605*	11,515	10,044
1829	1,528	189,913	13,994	12,414
1830	1,769	224,745	15,958	14,615

* From April 27—December 31.

FIRST LADY JANE. (*See pp.* 65, 85.)
From the "Mirror," 1838.

FIRST CHIMPANZEE. (*See p.* 60.)
From Studies by G. Scharf.

PLATE 10.

CHAPTER III.

1831—1840.

At the Anniversary Meeting of 1831 the Marquess of Lansdowne resigned the office of President, and Lord Stanley (afterwards the thirteenth Earl of Derby) was unanimously elected. An entry in the minutes records the appreciation by the Council of the services rendered by Lord Lansdowne "in accepting office on the melancholy occasion of the death of the Founder* and first President of the Society"; and in consequence he was made an Honorary Member. Mr. J. Morrison, the Treasurer, was succeeded by Mr. Charles Drummond, in whose family the office still remains.

At the Annual Meeting in 1833 Mr. N. A. Vigors, who had been elected Member for County Carlow, gave up the Secretaryship the better to discharge his Parliamentary duties. He was then formally thanked for his services, and at the following General Meeting, on May 2, the Council recorded their high sense of his eminent services, and their cordial concurrence in the thanks already given to him. The following paragraphs are from their Report:

> His zeal for the welfare of the Institution to which he has devoted himself during the seven years which have elapsed since its establishment, his scientific acquirements, and his readiness of access and of communication contributed materially in the earlier days of the Society to its success, and have since continued to advance its interests. . . .
>
> In the donation of the first Secretary, and in the liberal present of the Sumatran collection of the first President, the late Sir Stamford Raffles, the Museum originated; and the Council look forward to the day when, in a building worthy of its reception, there may be placed, by the liberality of the members, lasting memorials of its joint founders. As in the case of the

* This is the first—perhaps the only—instance in which the title of Founder is applied to Sir Stamford Raffles, in an official document, without qualification of some kind. It seems to have escaped notice hitherto, for which reason attention is called to it.

Rafflesian collection, the Council have ordered that the several articles of the Vigorsian collection shall be marked with the name of the donor, the extent of whose liberality towards the Society will thus be made evident to every visitor of the Museum.

Vigors died in London in 1840. His remains were taken to Ireland and interred in the ancient cathedral at Old Leighlin, where a monument was erected to his memory. The inscription is given in full by Professor D. J. Cunningham,* and the following sentences are worth quotation:—

With the co-operation of the late Sir Stamford Raffles, he was the original founder of the Zoological Society of London, to which he was Honorary Secretary for the first seven years of its institution. As a member of all the literary and scientific societies of Europe, his name will be long remembered to science.

An appreciative obituary notice appeared in the *Gentleman's Magazine* for December, 1840 (p. 659), in which the following passage occurs:

His long and intimate connection with the Zoological Society is well known; in fact, it is no more than justice to unite his name with those of Sir Stamford Raffles and Sir Humphry Davy as the founders of that useful, interesting, and flourishing institution.

Edward Turner Bennett succeeded Vigors, and filled the post till his death in August, 1836. He founded the library, with a donation of something over 200 volumes, and in their record of his services the Council referred to his skill in conducting the negotiations for acquiring rare and valuable animals, and his accurate attention to the carrying out of all works at the Gardens and Museum. With regard to the latter, one of the centres of the Society's scientific usefulness, it was said that "he left no means unemployed to maintain this most important department on the scale contemplated by its Founders, Sir Stamford Raffles and Mr. Vigors." The Council considered that the state of the Society's published papers was the chief cause of its high reputation. This they attributed to the unwearied diligence and comprehensive acquirements of their late Secretary—as shown in the numbers of papers he had contributed, and his judicious supervision of the production of the *Proceedings* and *Transactions*.

* "Origin and Early History of the Royal Zoological Society of Ireland," p. 29.

The first scientific meeting that occurred after his death was adjourned as a mark of respect; and at the monthly General Meeting immediately following it was unanimously resolved:

> That this meeting deeply lament the announcement which has been made in the Report of the death of the late Secretary, Mr. Edward Turner Bennett; and they desire to record their deep sense of the loss which the Society and science have sustained in the decease of so excellent and amiable a man.

Bennett was succeeded by Yarrell, who held office for two years, when he was compelled to resign owing to his business engagements. His services to the Society, from its foundation till his death, thirty years later, can hardly be overrated. In accepting his resignation the Council spoke in high terms of his zoological attainments and the general acquaintance with business details which enabled him "to fill the responsible office of Secretary in a manner equally creditable to himself and advantageous to the Society."

The Rev. John Barlow then became Secretary, and was followed in 1839 by Ogilby, who retained the post till 1847, and was the last Honorary Secretary.

In 1833 Gould was appointed Superintendent of the ornithological department of the Museum, over which he presided for four years, when he resigned in order to go to Australia in search of material for his great work on the birds of the island continent. He did not, however, leave England till the following year; and before embarking wrote thus to the Council:

> With regard to the Society's ornithological collection, as I have at all times taken a great interest in it, and have ever done my utmost to increase its value, I hope that on my return to England, I may be allowed to resume the care of it, should I be desirous of so doing.

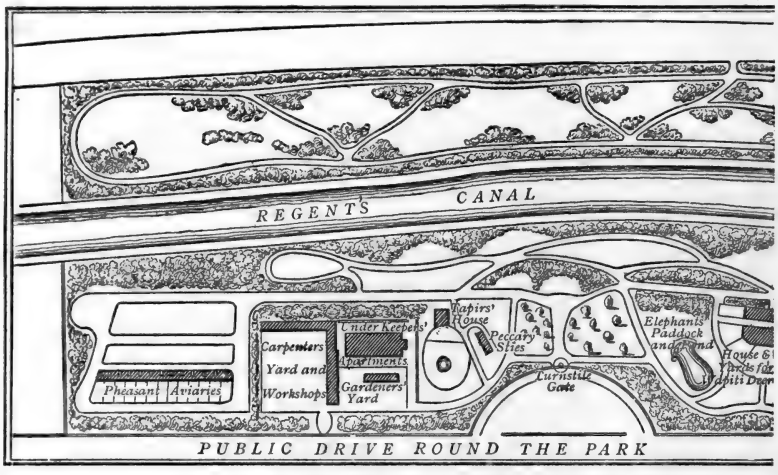
To this application a favourable reply was sent, and Gould was elected a Corresponding Member of the Society.* On that occasion the Council recorded their sense of the great scientific value of his work, and expressed the earnest hope that his present undertaking might be crowned with that success which had hitherto accompanied his efforts.

On his return, however, he did not take up his old duties,

* Gould took up the Fellowship in 1840, and was afterwards a Member of Council and Vice-President.

but devoted his energies to the production of his famous books. Mr. G. R. Waterhouse was appointed Curator of the Museum in 1836, and fulfilled the duties of that post till 1843, when he obtained an assistantship in the British Museum. Mr. Louis Fraser succeeded him, and after his resignation in 1845 the Museum was in charge of subordinate officers.

In 1831 there was an extension of the ground held on lease by the Society from the Crown. This consisted of five acres and a half on the west side of the South Garden, about an acre



WEST END OF NORTH GARDEN AND NORTHWARD EXTENSION, 1834.

on the west of the North Garden, and a strip on the north bank of the canal, containing about three acres and a half, and extending in front of the whole length of the grounds on the south side of the canal. This northward extension is shown on the plan above and on the opposite page. An additional ten acres, along the south-western verge of the South Garden, was leased from the Crown in 1834. This area was separated from the Park by a wire fence, and, for a time, used as pasture land. The rent paid for the whole was £740, but an abatement was made in 1839, which reduced the amount to £503 7s. 8d.

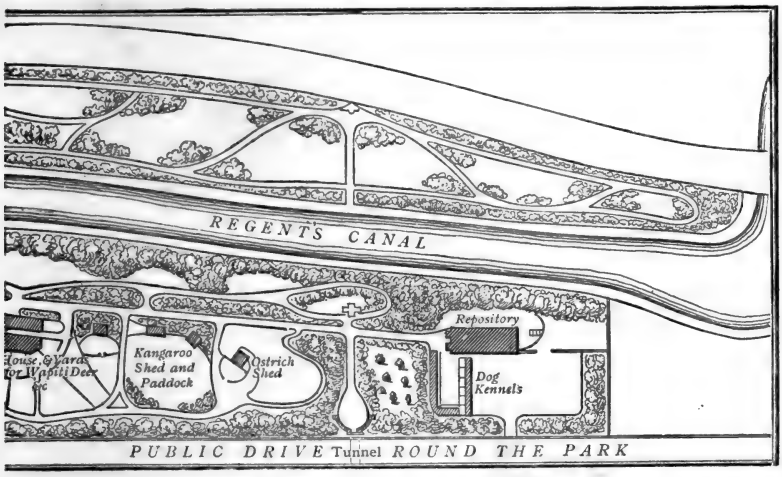
A good deal of building went on during this decade, and the most important structures are given in order of time. In the North Garden an elephant paddock was formed just west of the

THIBAUT.

PLATE 11]

THIBAUT'S HERD OF GIRAFFES. (*See p.* 63.)

wapiti house. South of this, the exit turnstile was put up, and the carriage sweep in front of it was made. In the west end of the Garden the pheasant aviaries, removed from Kingston Hill, were erected. Then the first elephant house was built, on the spot where the mouflons' enclosure now stands. The paddock contained the pond, which has since been somewhat altered in shape; and two dry yards were formed "for the use of the animals when the ordinary paddocks would be too wet for their reception." The house was warmed on a novel plan, "the



EAST END OF NORTH GARDEN AND NORTHWARD EXTENSION, 1834.[1]

chimney being carried round the building beneath the incombustible floor, and the whole of the heat being thus given out within the house itself." In 1834 the well was bored near the repository, and a pumping engine erected; this considerably reduced the cost of the water supply.

The giraffe house at first consisted of the central part, the wings being built later. The space allotted to the animals received in 1836 was divided into two compartments of 40 ft. by 20 ft. and 20 ft. by 20 ft. respectively, while visitors passed through the house. Paddocks were added, and a mound was thrown up in front, and fenced and planted so as to hide the animals from the view of people in the Public Drive. A cage at the west end was constructed in 1837 for the orang.

In the South Garden the ha-ha and glacis along the western boundary were formed; the Three Island Pond was made, and others were dug in the newly acquired area; a house with outside cages for parrots, later used for small mammals, was built; and a good deal was done in the way of embellishment, by laying out flower-beds and planting ornamental shrubs. A system of deep drainage was carried out, and check turnstile gates were erected at the entrance in 1834. Two years later an exit gate was made into the Mall, as the Broad Walk was then called; the site of this turnstile was near the present entrance from the Park.

Soon after the first monkey house was opened the following letter was received by the Council:

> The front of the monkey house is constructed with taste and judgment; it is everything that could be wished for the exercise of the animals and the amusement of the company, but the house or back part of the building is low and defective, it is unhealthy and inconvenient; there is not room enough for the company; they are suffocated from the confined air and the stench of the animals, and the animals suffer in return. Ladies have frequently their veils and dresses torn by being pressed too near the dens.

A writer (not improbably Owen himself) in the *Zoological Magazine* (1833, p. 96) suggested that Cross's plans should be followed:

> His monkeys, for example, instead of being confined by twos and threes in close cages, are preserved in a large space, well ventilated and heated, and defended by a glass frame; and here they can disport and exercise themselves throughout the whole winter.

Eventually a new house was erected on the site of the present eagles' aviary in 1839, and outside cages were added in the following year.

An Indian elephant, a quagga, and a moose deer, with some other animals, were purchased in 1831; while the Society acquired by presentation a young Indian elephant from Ceylon, and a "wild ass from Thibet," which figures in the List as the *Equus hemionus* of Pallas. This last-mentioned animal lived for about seven years in the Menagerie; the ass was attacked by a wapiti stag, which broke down the door between the stalls and gored the animal so terribly that it was necessary to slaughter it. Special interest attaches to this wild ass. If

properly described, it was a true kiang, and it has been generally thought that the first example received by the Society was that presented by Major Hay in 1859.*

The larger elephant cost £420, and was a great attraction. One visitor wrote to the Assistant Secretary suggesting that the keeper should be dressed "in something of an Asiatic costume," which could be made at a small cost, and put off and on in a minute. The material was to be cloth or calico and a sketch was enclosed to elucidate the description. "The elephant thus attended," said the writer, "and placed in (what will by-and-bye be) your beautiful North Garden, will fancy himself at home, and visitors suppose themselves transported into Asia." The wife of a helper was "allowed to sell, for the use of the elephant alone, rolls, cakes, and fruit, under the direction of the keeper in charge of the animal," but she was not permitted to vend any fermented or effervescing liquor. According to a paragraph in the *Times* of November 23, she sold in one day to various visitors cakes and buns which amounted to 36s., "all of which the elephant devoured."

About this time the Council must have had some trouble owing to interference with the animals by visitors, for copies of the following notice were set up in the Gardens:

> LADIES ARE RESPECTFULLY REQUESTED NOT TO TOUCH ANY OF THE ANIMALS WITH THEIR PARASOLS, CONSIDERABLE INJURY HAVING ARISEN FROM THIS PRACTICE.

In 1831 the King presented the Royal collection in the Tower menagerie to the Society, but the animals were not all cleared till the spring of 1832. In accordance with His Majesty's wish, duplicates were sent to the Dublin Gardens; others were offered to Cross, who accepted some of them. On April 4 there were still in Mr. Cops's charge, at the Tower, two Arctic bears,† a Bengal sheep, a female leopard, two emus, and a cinereous eagle, which he was asked to accept, on condition that

* *Proceedings Zoological Society*, 1859, p. 353, Mamm. pl. lxxiii.

† Not, as one would suppose, polar bears, but brown bears (*Ursus arctos*). This species is called the Arctic or European brown bear in early Guides.

no charge was made for their keep from the time at which they became the property of the Society. To this Mr. Cops agreed.

No list is given in the Council's Reports of the animals constituting this Royal gift to the Society. The following, taken from "The Tower Menagerie" by E. T. Bennett, enumerates the species represented in that collection in November, 1828:

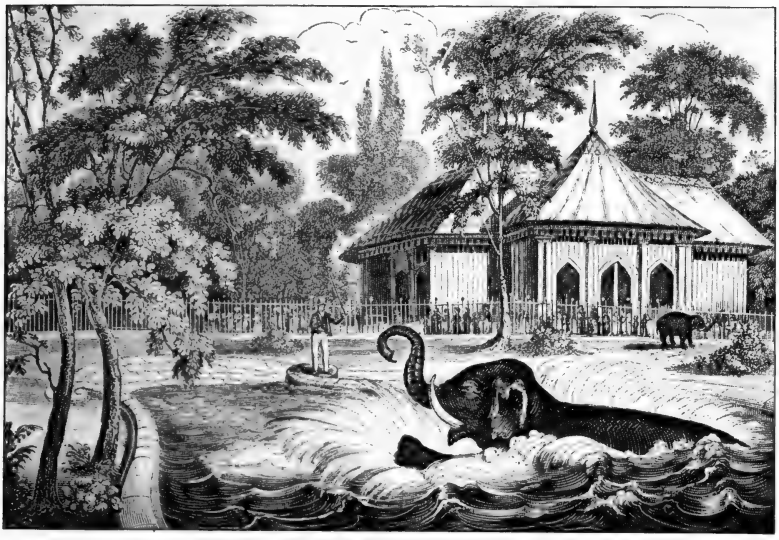
A Bengal lion, lioness and cubs, Cape lion (sold), Barbary lioness, tiger leopards, jaguar, puma, ocelot, caracal, cheetahs (sold), striped and spotted hyænas, hyæna dog, African bloodhound, wolves, jackals, civet cats, ichneumons, paradoxure, coati, raccoon, black and grizzly bears, Thibet bear (sold), Bornean bear, macaques and baboons, mongoose, great kangaroo, porcupine, Indian elephant, Burchell's zebra, llama, sambur, Indian antelope, golden and sea eagles, bearded and griffon vultures, secretary-bird (killed), deep-blue macaw (sold), blue-and-yellow macaw, yellow-crested cockatoo, emu, crowned crane, pelicans, alligator, Indian python, anaconda, and over a hundred rattlesnakes.

The words in parentheses show how some animals were disposed of before the Menagerie was given up, and it is doubtful if all the rest—notably, the elephant and the reptiles—came to the Gardens. Two facts, noted by Bennett, have not found their way into general zoological literature. The pelicans* nested, and the hen bird sat on three eggs, being assiduously fed by the male; and the python incubated fifteen eggs unsuccessfully.†

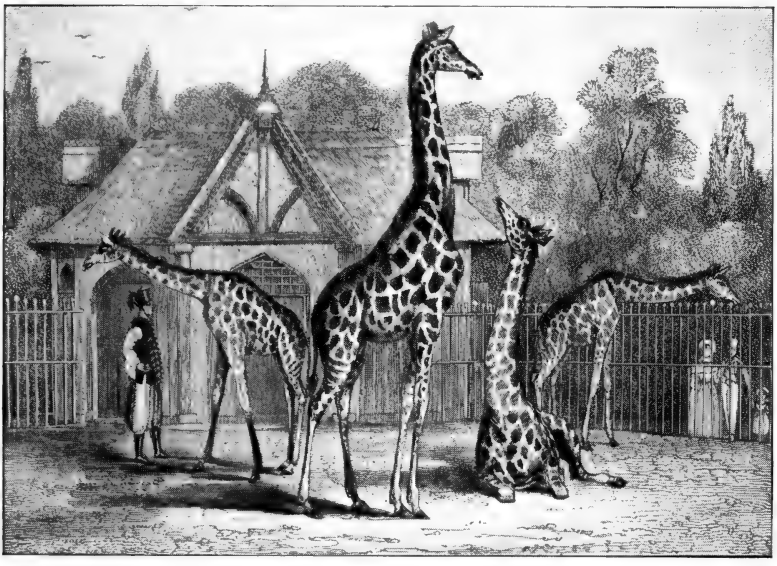
The Sandwich Island goose must be mentioned, for this species bred pretty freely in the Gardens and at the Farm, and at Knowsley. Lord Stanley then said: "I have little doubt but that these birds may be easily established (with a little care and attention), and form an interesting addition to the stock of British domesticated fowls." That hope, like so many others with regard to the domestication of new species, has been disappointed. The last examples exhibited at the Gardens were a pair received in 1887 from Mr. Scott Wilson, the author of "Aves Hawaiienses," who says that "this interesting species, almost entirely confined as it is to one district of the

* Pelicans have brought off young in the Rotterdam Zoological Garden (see *Der Zoologische Garten*, 1872, s. 264, and *Proceedings Zoological Society*, 1899, p. 827.

† The incubation of the African python in the Jardin des Plantes in 1841 is usually cited as the first instance in Europe. The same species incubated in the Zoological Gardens in 1862, and an account by Dr. Sclater appeared in the *Proceedings* (pp.365–8) for that year.



ELEPHANT IN HIS BATH. (*See p.* 44.)
From the "Mirror," Sept. 6, 1828.



GIRAFFES. (*See p.* 63.)
From the "Saturday Magazine," Sept. 3, 1836.

PLATE 12.

island of Hawaii, is clearly doomed to extinction before many years are past."

One report respecting the Lake has been preserved, from which it appears that in October, 1832, there were on that water common and wild swans; Chinese, Canada, white-fronted, bean, barnacle, and Egyptian geese; Muscovy ducks and hybrids, sheldrakes, pintails, wigeon, gadwalls, teal, and wild duck. With the exception of the last-named species, only one or two pairs of each were kept. The season was bad; and at that time there were sixteen goslings and about forty wild ducklings, exclusive of those which had flown away, but would return in the winter.

The gallinaceous birds kept on the islands for breeding and crossing were duck-winged game, Indians, silkies, and bantams. More than a hundred chicks were hatched out, but the rats took heavy toll of them. Benjamin Misselbrook, who was afterwards head-keeper, and retired on a pension in 1889, had charge of the birds.

Mr. Bryan Hodgson, the British Resident in Nepal, made an extensive collection of the splendid and interesting pheasants of that country, as well as of other birds. Nearly a hundred were despatched from Katmandu; "many perished in the sultry plains of India, and nearly the whole of the remainder died in Calcutta." Of the few that were shipped to England not one survived the passage. Although greatly disappointed, Mr. Hodgson did not lose heart, and later attempts were more successful.

In 1834 an Indian rhinoceros was purchased for a thousand guineas. It was said to be about four years old; the length from the root of the tail to the tip of the snout, in a straight line, measured 10 ft. 6 in., and the height at the loins was 4 ft. 10½ in. The Council reported that it "was scarcely inferior in its dimensions to the largest specimen yet recorded as having existed in Europe."

Late in the autumn of 1835 a young chimpanzee was imported from the Gambia. No example of this anthropoid had as yet been exhibited by the Society. Having received information of the arrival of the animal at Bristol, the Council sent down one of the chief keepers to purchase it. In this he

succeeded; but found some difficulty in conveying his charge to London, owing to objections on the part of coach proprietors. After some delay he obtained two inside places in a night coach. The chimpanzee proved a good traveller, and reached the Gardens in excellent health and spirits.

The arrival of this small anthropoid created a great deal of excitement, quite comparable to that aroused when the hippopotamus came, some fifteen years later. Theodore Hook made it the subject of some verses from which the descriptive lines are quoted:

> The folks in town are nearly wild
> To go and see the monkey-child,
> In Gardens of Zoology,
> Whose proper name is Chimpanzee.
> To keep this baby free from hurt,
> He's dressed in a cap and a Guernsey shirt;
> They've got him a nurse, and he sits on her knee,
> And she calls him her Tommy Chimpanzee.

Tommy's span of life in captivity was short—just six months, as is stated in the Council's Report for 1837. Broderip wrote an interesting account of its habits for the *Proceedings* (1835, pp. 160–8), from which it is evident that the chimpanzee lived in the keeper's apartments, and was allowed a considerable amount of liberty. In an article in the *New Monthly* (January, 1838) he included what may be called an obituary notice:

> Poor dear Tommy, we knew him well, and who is there who was not at least his visiting acquaintance? . . . . Peace be with him! Everybody loved him; everybody was kind to him. In his last illness he was suffered to come forth for a closer enjoyment of the kitchen-fire; and there we saw him sit, "leaning his cheek upon his hand," watching the gyrations of a depending shoulder of mutton, as it revolved and hissed between him and the glowing grate—no, not with the prying mischievous eyes of ordinary monkeys; but with a pensive philosophic air that seemed to admit his own inferiority, and to say—"Ah! man is, indeed, *the* cooking animal."*

Gibbons were exhibited in 1839, so that before the end of the first decade three of the four anthropoid apes had come into the possession of the Society.†

* This animal was the subject of Owen's paper "On the Morbid Appearances observed in the Dissection of the Chimpanzee," in *Proceedings*, 1836, p. 41.

† *Proceedings*, 1839, p. 148.

In the Report issued on April 29, 1836, reference is made to the expected arrival of the giraffes obtained by M. Thibaut, and to previous attempts to obtain examples:

> In the earlier years of the Society's existence the acquisition of this singular and rare animal was among the most important objects to which the attention of the Council was directed, and they made many inquiries as to the most probable means of effecting it, and even named a price which would be paid for one or two of them on their being delivered in good health at the Society's Gardens.

These efforts go back, at any rate, to 1831, and Mr. Money Wigram, a Fellow of the Society, had a hand in the negotiations. On March 28 he wrote to Mr. Vigors to the effect that he could give no particulars as to the price of the giraffe then daily expected to arrive, since the owner was absent from England. He offered to use his best endeavours to obtain a preference for the Zoological Society in having the refusal, but expressed his own opinion that, "provided he [the giraffe] arrives in London in perfect health, the price to be paid for him ought not to be a consideration, under the difficulty of obtaining such an animal in this country at all." Five days later Mr. Vigors was informed, by another hand, that the "Geraffe on board the *Lady McNaughten* is dead, but they reserved the skin of it." At the same time the writer offered an Indian elephant for four hundred guineas, stating that "Mr. Yates, of the Adelphia," was "rather urgent to get it." The animal was purchased by Mr. Yates, and in Broderip's "Zoological Recreations" (p. 320) there is a reference to "the sagacious acting of the elephant at the Adelphi."

In September, 1833, Mr. Charles Phillips made overtures to the Society, on behalf of Messrs. Phillips and King, with respect to a giraffe shipped from the Cape of Good Hope. An agreement was signed by which the Society consented to pay £500 for the animal, if on arrival it was approved by the Council. A building was to be erected for it in the Gardens, where it was to form a special show, for which all visitors other than Fellows and holders of privileges were to be charged one shilling each. For the space of a twelvemonth this money was to be paid over to Messrs. Phillips and King.

The agreement, however, was not carried out. On Sept. 27

Mr. Phillips received news that the giraffe had died when the vessel was a few days out from Cape Town. "Its appetite was good till within half an hour of its death, and until then it appeared quite healthy." Information was at once given to the Council, by whom Mr. Phillips was formally thanked "for the kind and cordial manner in which he had acted."

Messrs. Cannell and Wright offered a giraffe in November, 1834, on behalf of a correspondent then at Genoa. In their letter the animal was described as being six years old, fifteen feet high, with a beautiful figured skin, acclimated, and in excellent health, strong, and vigorous. It was said to live on beans and barley mixed, green herbage, bread, and fruit. The price was 10,000 Spanish dollars, with delivery in Genoa. Taking the dollar at a little under four shillings, this amounts to nearly £2,000, probably the largest sum ever asked for a giraffe. An endorsement on the letter shows that the Council were "unwilling to treat for the purchase at a high price of an animal at a distance from London."

At the close of 1833 an arrangement was made with M. Thibaut, then at Cairo, to proceed to Nubia to procure giraffes for the Society. The animals were to be delivered in Malta, "and it was not until his landing of them in that island that he was entitled to receive the stipulated price, which was fixed at a rate for each individual, diminishing in proportion to the number that he should succeed in bringing with him."

The story of his expedition is told in a letter addressed by M. Thibaut to the Secretary, which was read at the meeting of February 9, 1836, and printed in the *Proceedings* for that year (pp. 9–12). He left Cairo in April, 1834, for Kordofan, where he obtained five giraffes, four of which were killed by the cold weather on the return route to Dongola. Another journey into the desert resulted in the capture of three more giraffes, which, with that left at Dongola, were sent down the Nile from Wadi Halfa to Cairo and Alexandria, whence they were shipped to Malta, where they arrived on November 21. After a quarantine of twenty-five days they were removed to convenient quarters, and the stipulated sum of £700 was paid to M. Thibaut. The Council determined to avail themselves of his experience with respect to the treatment of these valuable animals, and arranged

PLATE IV.

THREE ISLAND POND.

(*See p.* 56.)

that he should take charge of them till their arrival in England, when he was to have "a handsome present proportioned to his success."

The steamer *Manchester*, with its interesting freight, arrived at the Brunswick Wharf, Blackwall, on May 24, 1836. On the following morning at daybreak the giraffes were landed in the presence of several naturalists and friends of the Society. The following account of their journey through London is from the *Morning Herald* of May 26:

> These interesting animals were conveyed yesterday morning from Blackwall to the Zoological Gardens. They left the former place at three o'clock, attended by Mr. Bennett, the Secretary of the Society; M. Thibaut, who was attired in an Arab dress; the Nubian and Maltese attendants; and a detachment of the Metropolitan police to keep the road clear of obstructions, and they arrived at the Gardens about six o'clock. The cavalcade had altogether a very novel appearance; but it appeared that the precautions were absolutely necessary, as the animals started at the slightest noise, and the different cabs and other conveyances on the line were solicited to remove into the adjacent streets, which was in every case attended to without objection. Some alarm was occasioned to the animals in passing a field in the Commercial Road, where a cow was grazing; and it required some inducement to cause them to go forward, but they were conducted to the Gardens without much difficulty. The Gardens were yesterday visited by great numbers of persons, with whom the animals were great sources of attraction from their stately appearance, the beauty and symmetry of their neck and ears, and striking prominence of their eyes. The oldest is about twenty months, and none have attained their full size, which is ordinarily eighteen feet. They appeared to be quite reconciled to their situation in the elephant-house, and to be not at all incommoded by visitors.

Owen and his wife witnessed the arrival of "the most lovely procession imaginable." The animals were brought in through Gloucester Gate, and when they caught sight of the trees they became excited, and M. Thibaut directed that they should be allowed to browse. In her Diary, under the date of May 25, Mrs. Owen wrote: "They were delighted apparently to get into the Gardens, and were soon safe and unhaltered in the elephants' new house."*

In the following table the history of the herd is set out. Seventeen calves were born in the Gardens, and of these one

* "Life of Richard Owen," i. 99.

(No. 8) lived for nearly twenty-one years in confinement, which is probably a record:—

No.	Sex.	How Obtained.	How Disposed of.
1	♀	Imported May 24,* 1836 . . .	Died October 15, 1852
2	♂	„ „ „ . . .	„ October 29, 1846
3	♂	„ „ „ . . .	„ January 14, 1849
4	♂	„ „ „ . . .	„ January 6, 1837
5	♂	Born in Menagerie, June 19, 1839	„ June 28, 1839
6	♂	„ „ May 24, 1841	Pres. to Dublin Zool. Soc., June 14, 1844
7	♂	„ „ Feb. 25, 1844	Died December 30, 1853
8	♂	„ „ April 22, 1846	„ January 22, 1867
9	♂	„ „ Feb. 12, 1849	Sold April 27, 1850
10	♀	Presented by Ibrahim Pasha, June 29, 1849	Died November 3, 1856
11	♀	Purchased June 29, 1849 . .	Sold October 29, 1853
12	♂	Born in Menagerie, March 30, 1852	„ March 29, 1853
13	♀	„ „ April 25, 1853	Died May 21, 1872
14	♀	„ „ May 7, 1855	„ November 6, 1866
15	♀	„ „ July 16, 1859	„ December 2, 1859
16	♀	„ „ May 26, 1861	Sold May 1, 1863
17	♂	„ „ October 7, 1861	Died December 18, 1861
18	♂	„ „ May 8, 1863	„ November 18, 1863
19	♂	„ „ Sept. 24, 1863	„ April 21, 1864
20	♀	„ „ March 31, 1865	„ April 3, 1865
21	♀	„ „ April 20, 1865	Sold May 31, 1866
22	♂	„ „ Sept. 14, 1866	Died November 6, 1866
23	♂	„ „ March 17, 1867	„ June 20, 1881

As soon as Cross heard of the probable arrival of the giraffes he applied to the Council to be allowed to purchase one on their own terms. They did not accede to his request, and he instructed Mr. Warwick, who had gone out, to procure some at all risks; and three arrived in July. In a pamphlet, written by Mr. Warwick, he says the giraffes were removed from the place where they were captured to Cairo "in boats and on the backs of camels, a distance of thirty-five days' journey."

The first recorded instance of the birth of a giraffe in captivity took place in the Gardens in June, 1839. The animal was

* The Occurrence sheets are made up in the morning of the day following that for which they are dated. The giraffes arrived some hours before the sheet for May 24 was filled in, and were consequently entered thereon. This accounts for the discrepancy between the date in the table, compiled from the sheet, and that given in Mrs. Owen's Diary and the *Morning Herald*.

a male, and, like other ruminants, came into the world with the eyes open and the hoofs disproportionately large.

> The skin was marked as distinctly as in the adult, with large angular spots, which were somewhat darker than those of the mother; and the hair of the legs was of a deeper fawn colour. It sucked some warm cow's milk from a bottle with avidity, and once or twice uttered a low, gentle grunt or bleat, something between that of a fawn and a calf. The young creature made several efforts to stand, raising itself on the fore knees; and was able to support itself on its vacillating and out-stretched legs about two hours after its birth.*

It was necessary to feed the young animal on warm cow's milk, for the dam would not allow it to come near her. It gambolled actively about when a day old, and continued with no appearance of illness till June 28, when it was attacked by convulsions and died.

In 1837 the first orang was exhibited in a cage at the west end of the giraffe house, where it lived till May 7, 1839. Jenny was about three years old when she arrived, and attracted a large number of visitors to the Gardens. Broderip described her as "apparently amiable, though grave and of a sage deportment."

In the last year of this decade Captain Belcher presented a babirusa, the strange "pig-deer" of Celebes, the first to reach England alive. The Argus pheasant—the plumage of which, with its wonderful ball-and-socket eye-spots, was investigated and described by Darwin† in his "Descent of Man"—and the fire-backed pheasant, from Malacca, were also introduced to the Menagerie. The first example of this "fire-back" was obtained in Sumatra by Sir Stamford Raffles. It appears to be fairly common in the neighbourhood of Malacca, but, according to Mr. W. R. Ogilvie-Grant, nothing is known of its eggs or nesting habits.

The Council called special attention in their Report for 1836 "to a donation by H.R.H. the Princess Victoria of two musk deer." ‡ In the following year the Princess ascended the throne, and signified her pleasure to become the Patroness of the Society,

* Owen, in *Proceedings*, 1839, p. 109.

† Elected a Corresponding Member in 1831 and a Fellow in 1839.

‡ These were Stanleyan chevrotains. See p. 142.

in which she took great interest, and which she enriched by many valuable gifts and deposits.

It was proposed in 1834 to engage a military band as an additional attraction, but the Council did not think it expedient. By way of protest, one Fellow wrote, in strong terms and with a good deal of underlining, to the Secretary, declining to continue his subscription to the Museum Fund "in consequence of the Council refusing, in a most extraordinary manner, to attend to the wishes of the Society twice voted at their meetings this year, *that they should try the experiment* of having the band once or twice on week-days." The writer suggested that the Museum Fund might well be increased "by voluntary contributions while the band played."

Thomas Landseer's designs for the medal were approved by the Council in 1837, and the dies made by Mr. Benjamin Wyon. The work was much admired; and Dr. Cox wrote from Naples asking for impressions "to show to some of the artists of Italy," as he was sure that the design and execution would be "honourable to the Art of England." The application was granted: there could only be one answer to such a flattering request.

It will be convenient to consider the practical work in London and at Kingston together. Early in the 'thirties the Society, being anxious "to do all in their power towards the promotion of the best kinds of poultry and domestic animals," sought the advice of breeders on the subject. A circular containing the following questions was sent out, in the hope that the replies would be of service "in the choice of subjects that would deserve to be encouraged by premiums." It is noteworthy that fancy points are disregarded, and stress is laid on the qualities now distinguished as "utility."

1. What kind of Poultry do you consider the best for the table and the most kindly to fatten?

2. Are the Poultry which principally fall under your notice consisting of any particular pure breed, or are they mixed breeds?

3. What kind of Fowls do you consider are the most productive layers, and which are the best sitters?

4. What race do you consider it most proper to encourage, as combining the three properties of beauty of form and plumage, good layers, and careful nurses—and which are most esteemed in the neighbourhood in which you reside?

OBVERSE.

REVERSE.

PLATE 13.

MEDAL AND SEAL. (*See p.* 66.)

5. Have you any race of Game Fowl which is celebrated for courage, beauty, and productiveness; and is there any other race which is deserving of special attention?

6. What race of Ducks do you particularly recommend; and are they of a large kind, early and prolific breeders, as well as of good flavour?

7. Is there any particular race of Geese, Turkeys, Guinea-Fowl, or any other kind of Poultry which is peculiar to your neighbourhood, or which you consider desirable to make known, and state the race?

8. Do you know of any Society in your neighbourhood which offers Premiums for the finest kinds of Poultry which is open to competition for any person, whether Member or not?

9. Do you believe that any benefit would arise from offering Premiums for fine kinds of Poultry? Do you think it would tend to excite more attention to breeding pure races, and that it would be likely to multiply good and valuable breeds?

10. Do you think that under the present state of the Game Laws the domestication of Pheasants and other Game will be more generally attempted, and is it your opinion that this would be promoted by offering Premiums for that object?

A Committee was appointed, which recommended that premiums should be offered (1) for the importation of living animals of value not hitherto introduced into this country; (2) for breeding and rearing stock from those introduced, which had not yet bred freely. The following species were enumerated under the two classes:

EUROPE.—(1) Any non-British grouse. (2) Bustard, eider-duck, any species of grouse.

AFRICA.—(1) Mitred guinea-fowl, any of the bustards. (2) Little bustard, ostrich.

ASIA.—(1) Crested guinea-fowl, any Nepaul pheasant, Argus pheasant, fire-backed pheasant. (2) Crowned pigeon, Indian fowl, Javan pea-fowl, mandarin duck.

NEW HOLLAND.—(1) Lyre-bird, duck-billed platypus, and spiny anteater.

AMERICA.—(1) Any of the grouse, turkeys, canvas-backed duck. (2) Mocking bird, any of the wild swans or snow geese.

All animals that received premiums were to be exhibited, under certain conditions, at the Gardens. It does not appear that this scheme was carried out; and poultry shows were not instituted till the next decade. Many varieties of fowls were bred and exhibited, and broods were distributed by sale and exchange. In the collection were some interesting hybrids—

Reeves's pheasant × common pheasant (no hen bird of the first-named species was as yet imported); common × golden pheasant, guinea-fowl × pheasant, and duck × sheldrake; but these were acquired by presentation.

Instructions were given by the Council to the Superintendent that "arrangements should be made to train the dragon pigeons to fly long distances." In turn the Superintendent recommended that the two half-bred zebras, the offspring of a common ass and a mountain and a Burchell zebra respectively, "should be trained to draw the small cart belonging to the Garden." The use of them, he suggested, would be appropriate to the character of the Society, "besides which, they would attract attention." These animals were bred at Windsor, and presented to the Society by William IV. They were afterwards trained to draw a light cart, used to bring vegetables from Covent Garden market. In 1838 Youatt wrote to the Council with respect to the risk incurred in using entire animals for draught, adding that it was dangerous "both to man and beast to go into their paddock." One sentence in his letter is of interest, as showing that, in his opinion, equine hybrids might be used for stud purposes: "If you intend to keep the younger hybrid for the purposes of breeding, or to experiment with him in any way, well and good." If, however, the animal was to be used for draught, Youatt advised that it should be treated in the ordinary way; failing this, "he will be ten times more vicious than either of the quaggas."*

Records with respect to breeding were not then kept as carefully as they are now, when every instance, small or great, is entered on the "Occurrences," and the aggregate summarised in the Annual Report. Towards the close of 1837 or early in 1838 a wish was expressed by someone at a monthly meeting that details should be furnished of the results attending the Society's efforts in the breeding of animals. In the Report presented at the Anniversary Meeting, April 30, 1838, the following record, "selected from a more extended list," and showing the number of young in each case, was printed:

MAMMALS.—Dromedary (1), Burchell's zebra (1), nylghaie (9), Stanley musk deer (2), Napu musk deer (1), bush kangaroo (2), greater kangaroo (7),

* A stallion hybrid is always a terror.—Major Birkbeck, Remount Department, Johannesburg, in *Proceedings*, 1903, i. 2.

peccary (2), African porcupine (1), six-banded armadillo (5), puma (3), Persian cat (8).

BIRDS.—Emu (12), gold pheasant (5), silver pheasant (1), cross-bred Reeves's (1), Sonnerat's jungle-fowl (16), American quail (18), bronze-winged pigeon (4), white-crowned pigeon (2), black-swan (12), cereopsis goose (1), Sandwich Island goose (8), Egyptian goose (34), Canada goose (3), Chinese goose (5), summer duck (34), mandarin duck (9).

The following letter shows how species, then rare, were distributed, as well as the influence possessed by Yarrell, even after he resigned the secretaryship:

Woburn Abbey, July 2, 1838.

The Duke of Bedford presents his compliments to Mr. Yarrell, and begs to know whether he can spare him a Cereopsis male goose from the Zoological Gardens.

The Duke of Bedford had his birds originally through the kindness of Lord Derby; but he is now in want of a male, and knows not where they are to be procured, unless the Zoological Society should have one to spare.

This is endorsed, but not by Yarrell: "The breeding season is over this year; if we can spare one next spring we will."

The only available literature for the Farm is the Report bearing date March, 1832, of which very few copies exist. It is not a very satisfactory document, dealing largely in generalities when details would be welcome. From it, however, one can learn something about the extent of the housing and the character of the stock. There were places for the "roosting, laying, and sitting of poultry," hutches for rabbits, and lofts for fancy pigeons; covered shed with paddocks, aviaries and pheasantries; an extensive range of sheds and yards, the former constructed from materials brought from Windsor, used for animals from the Royal menagerie; ponds with lawns for aquatic fowl, and open sheds for animals at grass. At this time the staff consisted of a Superintendent, a head-keeper, an assistant who looked after the Windsor animals, a keeper for the mammals and one for the birds, two labourers, and a night watchman. Owing to the constant exchange of animals between the Park and the Farm the head-keeper at the Gardens occasionally went down to Kingston Hill, and the Committee acknowledged much benefit to both branches of the establishment from his advice and assistance.

Among the stock were wapiti, red, sambur, axis, Virginian, and fallow deer. Of the last-named, specimens had been "recently

obtained in order to carry on certain experiments in physiological inquiry, at the suggestion of one of the Fellows of the Society." One would like to know what these and other experiments were. The wapiti were to be "trained for drawing and riding," but it does not appear that anything was done. There was a small stock of zebus, and it was proposed to utilise the Brahmin bull at the Park. Nylghaie and mouflon bred there; foreign varieties of sheep were kept; a Wallachian ram was crossed with Dorset ewes, and "at the desire of some of the Fellows" a trial was made "of crossing Southdown ewes with the goat as well as with axis deer." Lord Stanley was specially interested in sheep × goat and goat × sheep hybrids. A note from him to Dr. J. E. Gray is printed in the "Gleanings from Knowsley," p. 53: "I intend to try to produce the *Tityrus-Musimon*, according to the quaint distich given in Griffith's translation of Cuvier (iv. 311)."* Kangaroos bred freely, and the observations of Joseph Fuller, the head-keeper, on the period of gestation and the condition of the new-born fœtus were included in Owen's paper on the subject.†

Great hopes were entertained of the results of crossing zebras with asses. To this end a Maltese jack was purchased for £80 in 1831. This animal was described as possessing "every quality to induce the recommendation of breeding from him extensively." It was hoped that in this way a useful stock of hardy and more powerful beasts of draught might be procured; but in this respect, as well as in the projected trials of the capability of reproduction in mules, no definite information is given.

* The "quaint distich" consists of the fourth and fifth of the following hexameters:—

DE AMBIGENIS.

Hæ sunt ambigenæ quæ nuptu dispare constant.
Burdonem sonipes generat commixtus asellæ.
Mulus ab Arcadicis et equina matre creatus.
Tityrus ex ovibus oritur hircoque parente.
Musimonem capra ex vervegno semine gignit.
Apris atque sue setosus nascitur Ibris.
At lupus et catula formant coëundo lyciscam.

These verses are attributed to Eugenius, Bishop of Toledo, and are printed in the "Anthologia Veterum" of Peter Burmann the Younger (ed. 1759, ii. 453).

† *Proceedings*, 1833, pp. 128–132.

Experiments in dog-breeding were proposed, but nothing practical seems to have been done. There was a suggestion that fox cubs and terrier puppies should be reared together, and kept loose in an enclosed place. A similar proposal was made with respect to hares and rabbits, the object in each case being to produce hybrids. The possibility of the hare × rabbit cross was not doubted at that time; and at the meeting of May 10, 1831, a letter was read giving the history of a supposed hare × rabbit hybrid that had been kept at the Farm, though not bred there. The evidence of parentage is not convincing; it is, however, of interest to know that the cadaver was examined by Owen, who reported that the size and colour were those of the hare, but the hinder legs were shorter than in that species, agreeing rather with those of the rabbit. The length of its small intestines corresponded with that of the hare; its cœcum was seven inches shorter; while its large intestines measured one foot more than those of the hare.

The struthious birds consisted of three pairs of emus and a pair of ostriches. The hen ostrich laid two eggs, one of which was placed under a sitting emu, but the result is not recorded.

Under the heading "Gallinaceous Birds" there is some information about the curassows. Those turned out in the previous summer "soon acquired all the habits of domestic fowls, remaining quiet in the yards, and roosting with the turkeys." It was not, however, till 1834 that three were hatched at Stubton Hall, Lincolnshire, from eggs laid by birds belonging to the Society, and sent down to Sir Robert Heron's place. These were probably the first reared in England.

Peafowl, turkeys, and guinea-fowl were kept. Observations were made on various breeds of poultry to discover the best foster-mothers, as they were then called. Other points investigated were "the comparative quality of the different kinds as layers, and the different qualities of their eggs." A good many crosses were obtained, and the birds were "upon trial, as nurses, as being ornamental, or of utility for the table." Even at this early date there was a desire to obtain pheasants from Nepal; grouse were to be kept, and an attempt made to breed partridges and stock-doves in confinement.

There is little to note concerning aquatic birds. Cereopsis

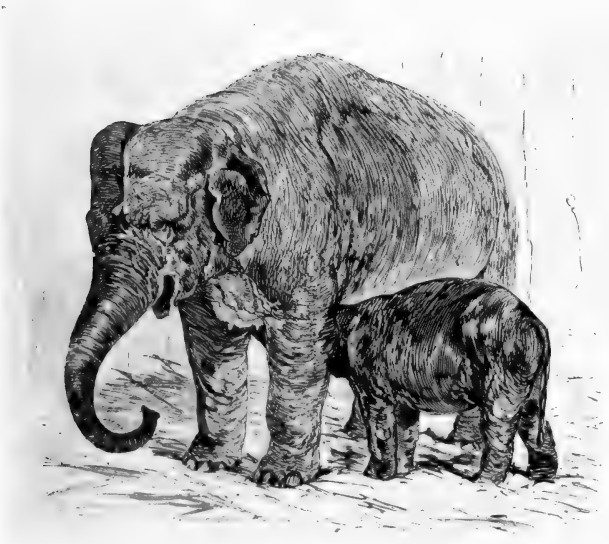
geese bred, and so did a good many of the fancy ducks. The difficulty of reconciling the conditions necessary for breeding with those requisite for exhibition were felt. Thus the mandarin ducks did not increase at the Park as it was hoped they would do, and it was proposed to send them to the Farm. They were, however, a great attraction to visitors, for, though examples had been introduced into England in the first half of the eighteenth century,* the birds were unknown to the general public.

One reason why the breeding lists at the Farm were not greater will probably be found in the influx of visitors. Some Fellows seem to have looked upon the establishment at Kingston Hill as a convenient place for picnics. A little light is thrown on this subject by the subjoined letter from Mr. Papps, the Superintendent, to the Assistant Secretary, who had asked for information as to the refusal, on the previous Sunday, to admit a party furnished with a Fellow's order. The rule appears to have been that personal introduction was necessary, though it was not always enforced. Mr. Papps wrote:

> The orders of the Council were perhaps more strictly followed than usual, in consequence of the conduct of a party of seventeen persons introduced by a Lady of Title on Sunday week, and who dined on the lawn and amused themselves with hunting the zebras and kangaroos about—upsetting the coops, and carrying the ducks about in their arms, and afterwards pouring Punch or something similar into their pans. The Men were kept till past 10 o'clock searching for the ducks after the Party had left, and seven ducks died the next day in consequence of the treatment they had received.

This evil was, no doubt, soon remedied. A more serious drawback to the usefulness of the Farm, inasmuch as it caused an alteration in the system, was the introduction of the large stock of animals from Windsor, "the keep and accommodation of which were of considerable magnitude, so far as relates to expense." Nevertheless, the Committee were of opinion that the additional expenditure had essentially conduced to the well-being of the Society. They concluded their report with a recommendation of "patient perseverance in one uniform system,

* The figure in Edwards's "Natural History of Uncommon Birds" (pt. ii., London, 1747) was drawn by him at Richmond, in Surrey, from the living bird kept in the gardens of Sir Matthew Decker, Bart. The species was then known as the "Chinese teal."



ELEPHANT AND CALF. (*See p.* 110.)
From the "Illustrated London News," April 26, 1851.

DEATH OF JACK. (*See p.* 88.)
From the "Illustrated London News," June 19, 1847.

PLATE 14.

being fully convinced that unsteadiness of purpose and frequent change of plan are the certain means of preventing success."

The Council considered the recommendations very carefully, and requested the Committee and Mr. Yarrell to continue their superintendence at Kingston Hill, fixing the annual expenditure at a sum not exceeding £1,400. To render this possible, reductions were made in the stock and the number of persons employed.

ZOOLOGICAL GARDENS.

A Catalogue

OF

DUPLICATE SPECIMENS

OF MANY OF THE ANIMALS IN THE COLLECTION OF THE ZOOLOGICAL SOCIETY, AT THEIR GARDENS, IN THE REGENT'S PARK,

INCLUDING

Several Head of Wapiti, Sambur, and Corsican Deer,

AND TWO FALLOW BUCKS,

A FINE BRAHMIN COW, AND A VARIETY OF SHEEP,

A VALUABLE MALE MALTESE ASS,

RABBITS, &c.

An Emu, Chinese & Canada Geese, Muscovy Ducks, Pigeons, and Poultry of various kinds, and some Hybrids;

Which will be Sold by Auction, by Messrs.

RUSHWORTH AND JARVIS,

SUCCESSORS TO MR. SQUIBB,

At the ZOOLOGICAL GARDENS,

Regent's Park,

On THURSDAY, March 20, 1834, at 1 o'Clock,

BY ORDER OF THE COUNCIL.

May be viewed at the Gardens on the usual Terms of Admission, where Catalogues may be had, at the Society's Office, Bruton-street; and of Messrs. RUSHWORTH & JARVIS, Auctioneers and Land Surveyors, Saville Row.

No later Report seems to have been printed. The leasehold land was given up in 1834, and an agent was instructed to dispose of the rest. Some years, however, elapsed before this was done, and not till then did entries respecting the Farm disappear from the balance-sheet. Surplus stock from Kingston Hill, and duplicates from the Park, were sold by public auction. In the Report presented at the annual meeting on April 29, 1833, the

Council stated that the practice was "not only impartial towards those who were desirous of becoming purchasers, but advantageous also to the Society." It was not, however, of long continuance, probably because the Farm stock was soon disposed of. The first sale took place on June 28, 1832, and the last known catalogue is that of which the title-page is reproduced on the previous page.

There were thirty-six lots ; and, despite the optimistic views of the Council, the prices cannot be considered high. A pair of Chinese geese went for 10s., two gold-spangled Polish fowls for 19s. ; a ram and two ewes, bred between a Wallachian ram and Dorset ewes, for £3 3s. ; a wapiti hind for £4 4s., and two fallow bucks for £6 6s. The Maltese jack was bought in for £23.

The premises in Bruton Street soon became crowded, and it was determined to look out for a building suitable for a Museum, or a site whereon one might be erected. When the Council made known their wants in this respect, many replies were received. On March 31, 1831, Marc Isambard Brunel wrote thus:

> It has been reported in the papers that the Zoological Society had in contemplation of purchasing the Colosseum ; if so, *which it is to be hoped will be the case*, I beg to suggest that, instead of the Panorama of London, the Society may substitute the *Georama* in true and classic proportions. It will be the most splendid Exhibition that can be offered to the country ; it will be the university for some of the most useful sciences of ours and of future days—Zoology, Geology, Mineralogy, Geography, etc., etc., commercial, military, and political relations.

Mr. Brunel offered to go into details of his scheme if the Society wished for further information. Apparently there was no such wish, and the matter dropped. Mr. C. Willson's offer of the Egyptian Hall was also declined.

Donations for the Museum came in rapidly, and the collection soon acquired larger dimensions than that in the British Museum. The Government sent many valuable contributions ; the Secretary of State presented specimens of the different species collected by Sir John Franklin's expedition, to which Dr. (afterwards Sir John) Richardson was naturalist; while from the Lords of the Admiralty were received the greater portion of the zoological collections made by Captain Foster,

of the *Chanticleer*, and the whole of that brought home by Captain King, of the *Adventure*, during the three years' survey of the southern coast of Patagonia. Darwin, too, was a generous donor, though he seems to have had some difficulty in placing his collections. He wrote, somewhat despondingly, to Henslow :

> I do not even find that the Collectors care for receiving the unnamed specimens. The Zoological Museum [in Bruton Street] is nearly full, and upwards of a thousand specimens remain unmounted. I daresay the British Museum would receive them, but I cannot feel, from all I hear, any great respect even for the present state of that establishment.*

All the prominent Fellows contributed liberally, and it was the custom to chronicle donations in the annual Report, in the same way as gifts to the Menagerie were recorded. Two skins of the kiwi presented by the New Zealand Association in 1837, and the body of a bird of the same species, sent by Lord Derby in the same year, deserve special mention.

The house had to serve as offices; meetings were held there, and it was also used as a prosectorium. In Mrs. Owen's Diary, under date January 5, 1836, there is the entry: "Richard went to Bruton Street to cut up an ostrich."† And from the Council's Report presented at the Anniversary Meeting in that year it appears that the crowded condition of the rooms where the specimens were exhibited gave them "rather the confused air of a store than the appearance of an arranged museum." As a consequence the exhibition was less attractive than it had been in the early years of its establishment.

A larger house, No. 28, Leicester Square,‡ was taken, in 1836, for offices and the Museum, and the transfer was made by the end of June. The house was formerly occupied by John Hunter, and contained his famous museum, now in the keeping of the Royal College of Surgeons. Of that great collection Owen and Flower were both Conservators, though not in direct succession, for Quekett's short term of office intervened; and both had charge of the national zoological collections, the one as Superintendent, the other as Director.

* "Life and Letters of Charles Darwin," i. 273.
† "Life of Richard Owen," i. 92.
‡ The Alhambra stands on the site.

The ticket, here reproduced, is of about this date; and the small-type extract below the signature is evidence of a change with regard to the admission of persons other than Fellows on Sundays.

ZOOLOGICAL SOCIETY OF LONDON.

ADMIT AND PARTY,
TO THE GARDENS, REGENT'S PARK,
OR
TO THE MUSEUM, 28, LEICESTER SQUARE,
BY ORDER OF Richd Owen.

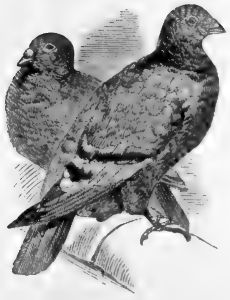
Extract from Regulations.—'Strangers may be admitted either to the Gardens or Museum, by Orders from Fellows, upon payment of 1*s.* by each Person.—Fellows with two Companions, Persons holding named Tickets with one Companion, and Honorary, Foreign and Corresponding Members, only can be admitted on Sundays.'—The Gardens are open from Nine o'clock, A.M. to Sunset; the Museum from Ten to Five.

Just about the time when the offices at Leicester Square were opened, an article on the Society appeared in the *Quarterly Review* which contained some interesting references to the Museum and the literature describing the collections:

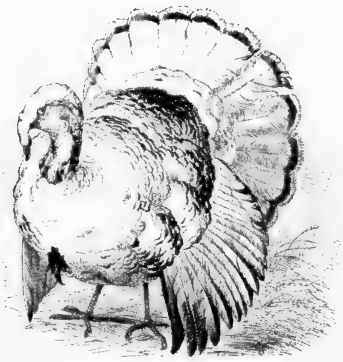
We well remember the first public meeting for forming such an establishment [the Zoological Society] in England. It seems but yesterday—how the *fugaces anni* have sped along!—that Davy drew attention to the subject, and Raffles so powerfully seconded the proposition. These great men have since passed away to the house appointed for all living, but the Garden and Museum of the Zoological Society of London are not to be forgotten in the catalogue of their public services.

The author quoted the *Annales des Sciences* of November, 1835, and the instructions of M. de Blainville for the voyage of *La Bonite* to show that the Zoological Museum possessed "many specimens wanting in the French collections" (*i.e.* of the Jardin des Plantes), and continued:

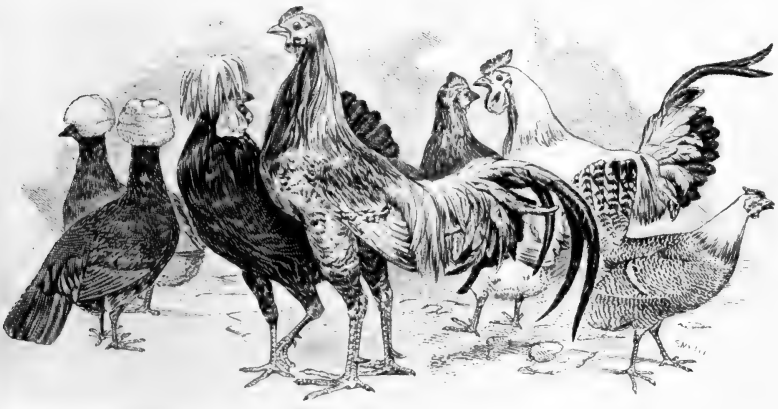
That these materials have not been neglected is proved by the five volumes of *Proceedings* already published, containing the descriptions of



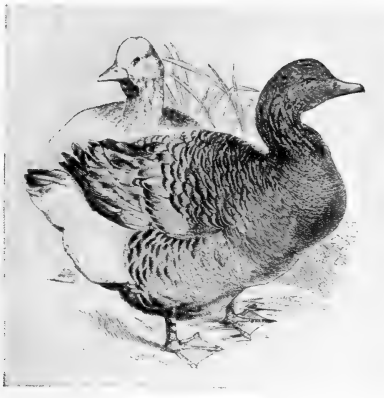
ROMAN RUNTS.



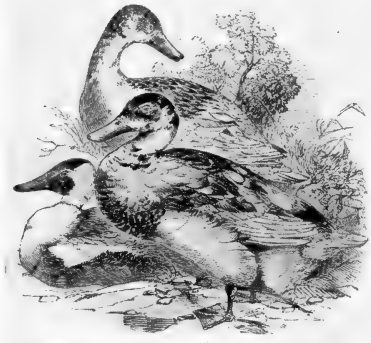
SPANGLED TURKEY.



POLISH FOWLS. FOWLS FROM CHINA. SILVER SPANGLED FOWLS.



COMMON GOOSE.



DUCKS.

SOME WINNERS OF THE FIRST POULTRY SHOW. (*See p.* 95.)

From the "Illustrated London News," June 21, 1845.

PLATE 15.

hundreds of new species, and a vast miscellany of zoological and physiological information set forth by some of our ablest pens.

In 1838 the Catalogue of the Mammalia in the Museum, which had been compiled by Mr. G. R. Waterhouse, was published, and went into a second edition. It is an excellent piece of work, as a short extract will show:

> 293. THE CRYPTOPROCTA . . From *Madagascar.*
> Cryptoprocta ferox . . *Bennett.*
> Presented by Charles Telfair, Esq., Corresponding Member.
> Original of Mr. Bennett's description and figure in Trans. Zool. Soc., vol. i. p. 137, pl. xiv.; see also Proc. Zool. Soc., 1833, p. 46.

Thus, for new or rare species the visitor had references to the literature, which he could look up on the premises if he were a Fellow. As Curator, Mr. Waterhouse was responsible for the labels; British species were distinguished by the popular names being printed in red ink.

The Council inserted the following notice of the Museum in the Report presented to the annual meeting in 1839:

> Under this head may be included a notice of the acts by which the Society, as one of the scientific associations of this country, has contributed to the advancement of zoology during the past year. The Museum is, in fact, essential to the well and profitably-conducting of the business of the evening meetings: in the Museum are performed the greater part of the dissections of the rarer animals . . . .;* and lastly, to the Museum the zoologist from abroad or at home resorts for the solution of his doubts and inquiries, and for the comparison of his own varieties with the rich and well-arranged series of specimens which now constitute so important and valuable a department of the property of the Society.

In the closing year of this decade the collections included 1,794 mammals, of 800 distinct species; 5,418 birds, of about 3,000 species, with rather more than the same number in reserve. Of reptiles, 1,034 specimens, and 1,260 of fishes were exhibited. The osteological collection consisted of 386 perfect skeletons, and 700 mammalian skulls; of the former there were 300 in store, and the rest were exhibited.

* Owen acted as an unpaid prosector. Under date of June 3, 1840, there is an entry in the minutes of Council to the effect that the Hunterian Professor should be allowed to dissect whenever and whatever he liked, when deaths occurred at the Gardens, and he was to have precedence over everyone else.

The meetings of the Committee of Science and Correspondence were held periodically till December 11, 1832. On January 3, 1833, new bye-laws were passed, by which the General Meetings for the transaction of scientific business were instituted. These were open to the Fellows and their friends. The first was held on January 8, when Mr. Joseph Sabine was in the chair, and papers were read by Messrs. Bennett, Broderip, Grant, and Yarrell. At the Anniversary Meeting in April the bye-laws were confirmed, and the first Publication Committee appointed. The *Proceedings* were carried on; and in August, 1833, the first part of the first volume of the *Transactions* was published.

Numerous interesting communications were made at the scientific meetings by the foremost zoologists of the time. The following were the chief contributors: T. Bell, E. T. Bennett (61) Blyth, Broderip, Joshua Brookes, J. E. Gray (59), John Gould (74), Marshall Hall, Bryan Hodgson, Rev. W. Kirby, W. Martin (44), W. Ogilby (29), Owen (78), John Richardson, Andrew Smith, W. H. Sykes, N. A. Vigors (20), G. R. Waterhouse (29), and Yarrell (46). The figures in parentheses show the number of communications made during the decade. Owen heads the list, with anatomical work at that time unrivalled; Martin's papers dealt chiefly with morbid anatomy; Gould's were concerned with birds, and included valuable field notes; Gray's were systematic; while those of Bennett, Vigors, and Yarrell were more general in scope. Some papers by the last-named author are worth recalling—notably those on Change of Plumage (1833, pp. 9, 54)—in that they are based on observations on the animals in the Society's Menagerie. Darwin contributed some notes on ground-finches of the Galápagos Islands (1833, p. 49); and in 1839 (pp. 2–4) A. D. Bartlett put in his first paper, which dealt with the pink-footed goose and nearly allied species.

The first volume of *Transactions*, issued in 1835, contained forty-three memoirs, the most important being by Bell, E. T. Bennett, G. Bennett, Broderip, Gould, Lowe, MacLeay, Owen, and Rüppell. In a notice that appeared in the *Annales des Sciences* for June, 1835, this volume was characterised as "un recueil également remarquable par l'intérêt des mémoires qui s'y publient et par le luxe avec lequel il est imprimé."

The first two of the following Tables show the total number of animals in the Menagerie, with the number of new species introduced for each year of the decade; the character of the last table is indicated by its title:

Year.	Mammals.	Birds.	Reptiles.	Total.	Mammals.	Birds.	Total.
1831	No returns.			—	27	43	70
1832				—	25	26	51
1833	Total not analysed.			1,002	9	12	21
1834	296	717	21	1,034	12	26	38
1835	269	704	22	995	11	10	21
1836	307	704	14	1,025	9	8	17
1837	268	645	18	931	8	7	15
1838	303	592	38	933	10	18	28
1839	303	587	20	910	22	21	43
1840	352	524	18	894	14	11	25

Fellowship Roll, Visitors, and Finance.

Year.	No. of Fellows.	Admissions to Gardens.	Income. £	Expenditure. £
1831	2,048	258,936	17,663	15,913
1832	2,309	218,585	15,493	13,006
1833*	2,470	211,343	14,843	13,154
1834	2,781	208,583	16,833	12,980
1835	2,941	210,068	16,033	13,330
1836	3,057	263,392	19,123	19,637
1837	3,106	173,778	13,960	14,350
1838	3,081	179,197	14,094	12,588
1839	3,038	158,432	13,431	13,637
1840	2,994	141,009	12,732	11,838

* The subscription was raised to £3 for Fellows elected after December 6, 1832.

CHAPTER IV.

1841—1850.

EARLY in January, 1847, Mr. Ogilby tendered his resignation to the Council, which was accepted with reluctance. In their Annual Report they expressed their appreciation of "his disinterested and energetic exertions on behalf of the Society throughout the long period of his official career," and their deep regret at the loss of his valuable services. At the same time the fact was recognised that they could not expect from their Secretary that degree of responsibility to the Society and constant attention to its affairs, which were then of vital importance, so long as the appointment was an honorary one. The matter was discussed at two Council meetings, and the following resolution was passed:

> That it is expedient to supply the present vacancy in the Secretaryship by the appointment of a paid officer; and, assuming that the whole time of the future Secretary shall be at the disposal of the Council, they consider that his salary cannot with propriety be fixed at less than £250 per annum.

In pursuance of this determination, Mr. David William Mitchell, F.L.S., was provisionally elected with unanimity, and the choice of the Council was ratified at the Annual Meeting.

Some minor changes also took place. In 1845 Mr. Rees, the Assistant Secretary, was succeeded by Mr. Charles S. Bompas, who performed the duties for two years, when the post was abolished. The only change of importance at the Gardens was that Professor Youatt ceased to have medical charge of the animals. Hunt became head-keeper, replacing Devereux Fuller, who entered the service of the Society in 1827.

Some anxiety was felt, at the commencement of this decade, with regard to the action of the Crown Office in dedicating to public use that part of the Park lying to the south and south-west of the South Garden. Strange rumours were current, and

PLATE V.

THE PARROT AND ELEPHANT HOUSES.

(*See pp.* 106, 130.)


Charles E. Flower

the following paragraph appeared in the *Times* of January 23, 1841 :

> It is stated that it is the intention of the members of the Zoological Gardens (*sic*) in the Regent's Park to remove their extensive and valuable collections of animals at the latter end of March next (the lease being expired), as the Commissioners of Woods and Forests intend raising the rent for the grant of another lease, which the members of the Society will not agree to. It is not known for the present to what locality they will be removed.

There was a long correspondence on the subject between the Council and the Commissioners of Woods and Forests, and Lord Melbourne's resignation occasioned a further delay.

Eventually it was arranged (1) that the Society should surrender the slip of ground on the north bank of the canal which they held from the Crown—that is, the present North Garden; (2) that they should exchange a piece of ground at the eastern end of what is now the Middle Garden, required by the Commissioners for their proposed extension of the Broad Walk to the canal, for an equal portion of new ground at the other end of that garden; and (3) that the ten acres of pasture ground adjoining the South Garden, hitherto held from year to year, should be conceded to the Society for general purposes. In addition, permission was granted for the erection of buildings and for landscape gardening in these ten acres, and the Commissioners agreed to fence that side exposed by the opening of the Park. Refreshment Rooms were erected in 1841, and the present much larger buildings occupy the site.

In 1843 the New Carnivora Terrace was constructed. This formed part of the plan of Decimus Burton, but was not then adopted by the Council from a fear lest the animals should suffer from exposure. In the *Quarterly Review* of June, 1836 (p. 318), Broderip wrote :

> There was one plan which, if it had not been considered impracticable on account of the health of the animals, would have had a grand effect. It was proposed by the architect to continue the terrace entirely along the southern line, and to build beneath it the *carnivora dens:* it would have been the finest terrace in Europe.

The walk was extended for about 150 feet from the bear pit over the roof of the dens, of which there were originally six on each side. Each cage was 24 ft. long, capable of division into

two or four compartments, with an inner sleeping den two yards square for every 12-ft. cage, properly ventilated, but at the same time carefully contrived to exclude cold and retain the natural heat. The only protection at first was an awning to shield the animals from the direct rays of the sun or from storms or rain in winter. In September the animals were removed to their new quarters; and, according to the Council's Report presented at the Anniversary Meeting in 1844, the effect of more air and greater exercise became visible almost immediately.

> The African leopards, which were emaciated and sickly before their removal became plump and sleek in a fortnight after; in most instances the females began to exhibit symptoms of breeding, and the appetites of all were materially increased. This phenomenon, which was not altogether unforeseen, produced the only two casualties among the larger feline carnivora which could be fairly attributed to the new building, and to the bold experiment which it was intended to carry out. Shortly after the removal of the animals a tigress and female puma respectively killed, and in the latter case partly devoured, their companions; this led to an immediate increase in their allowance of food, since which no further accidents have occurred, nor has there been a single instance of sickness of any kind.

A lion died in the new terrace dens shortly before the meeting; but the Council believed the fatal disease had been contracted in the old close den, and that he "fell a sacrifice, like most of his predecessors, to the mistaken practice of confining these animals in heated rooms and small apartments."

From the Guide published in 1844 it appears that the cost of the terrace extension and the new dens was £3,000. The tenants of the new quarters were: a young lion from the Cape; lionesses, one of which was deposited by the Queen; two tigers; pumas, which had bred; African and Asiatic leopards; a spotted hyena; striped hyenas (male and female); a Cape hunting dog, a Malayan sun-bear, a Polar bear, and a Syrian bear.

In 1844 the Polar bears' den and bath were constructed. At that time it was not considered necessary to carry the bars over the top; they were bent inwards, at what was deemed a sufficient height above the coping, and so they remained for some years, when there was convincing evidence that they did not fulfil the purpose for which they were intended.

The improved health of the animals in the terrace dens was

a proof that artificial heating was not so necessary as had formerly been thought. The result was that the use of the hot-water apparatus in the giraffe house and monkey house was discontinued. In both the only means of heating was a common open fire; and under this system "phthisis and catarrh, the former fatal pestilences of the monkey house almost entirely disappeared."

In 1848 a shed was built, with a paddock attached, just west of the giraffe house, for the European bison. The area was well drained, and an artificial raised surface constructed of brick-rubbish and gravel which gave no lodgment to water in unfavourable weather. The wants of the gardener were considered, and for his benefit a small stove house for propagating plants was erected.

In the South Garden the pheasantries that now stand just east of the cattle sheds were put up; the absence of any proper place for the conservation of tropical species of gallinaceous birds rendered this building not only desirable but indispensable. Near this an enclosure was made for wading birds. A new entrance gate from a design by the architect of the Crown Office was opened into the Broad Walk, on the site of the South Entrance. This was much appreciated by the Fellows and the public; over 50,000 people entered the Gardens by that gate in the first nine months. At the other end of this garden the Great —or, as it is now called, the Western—Aviary was commenced.

The abandoned carnivora house in the North Garden was converted into a room for reptiles in 1849, and this was the first instance of a special building being devoted to animals of the order; the west wing of the giraffe house was built, and the east wing begun, though it was not finished till the following year. This last work was undertaken in anticipation of the arrival of the hippopotamus.

In 1841 the donations to the Menagerie were very numerous, and the name of the President occupies a conspicuous position in the list of contributors. Mr. J. Brooke, afterwards Rajah of Sarawak, sent home five orangs, one of which was an adult female.* In a letter to Mr. Waterhouse, read at the meeting of

* In the summer of 1904 six nearly adult orangs were shipped to France. Of these two died early in the voyage, two just before reaching Marseilles, one soon after its arrival at the Jardin d'Acclimatation in Paris, where the survivors were deposited, and the last two days afterwards. Dr. P. Chalmers Mitchell went to

July 13, Mr. Brooke naturally expressed the hope that the animals would reach England. He was, however, quite aware of the dangers of the passage: for if they died the captain had directions to put the bodies into spirits "so that the members might have an opportunity of seeing them."

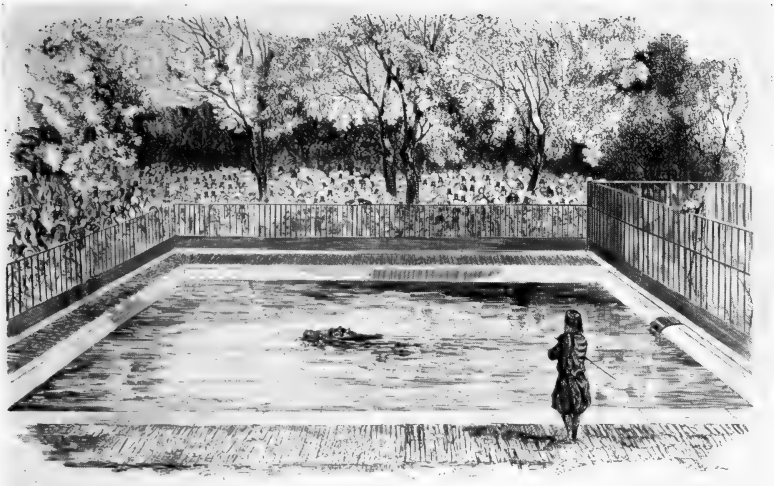
Unfortunately, not one of these anthropoids reached England alive. Mr. Brooke's donations must have greatly enriched the Museum collection, for in the following year he sent home fourteen skeletons and forty-five skulls. The Council gratefully acknowledged their indebtedness to "the zeal and good wishes of their valued correspondent."

A male giraffe was born in May, 1841. In consequence of the former failure to rear the fawn, "judicious arrangements were adopted." The omission of details is irritating; but it is satisfactory to know that the dam immediately noticed her offspring, permitted it to take its natural nourishment, and reared it successfully. There was a justifiable note of jubilation in the Report presented on April 29, 1842: "The Society has thus happily succeeded in rearing the first giraffe which probably ever reached the adult state out of Africa, or in a state of domestication." Without being hypercritical, it may be suggested that the expression "adult state" is scarcely applicable to a giraffe not yet a twelvemonth old. This animal was presented to the Dublin Gardens in 1844.

The ursine colobus received in 1842 deserves mention. This fine West African monkey was described by Ogilby from skins at the scientific meeting on July 14, 1835, and the species is figured in Fraser's "Zoologica Typica," which was planned for the description and illustration of the new forms exhibited in the Gardens, but unfortunately it came to an end with the first volume. It seems to have suggested to D. W. Mitchell and Joseph Wolf the idea of the "Zoological Sketches,"* for which Dr. Sclater wrote the letterpress after Mitchell's resignation.

Paris on behalf of the Society, and saw the two orangs, but their condition precluded any idea of purchase. They were the largest animals of this species he had ever seen. This is probably the only shipment of orangs larger than that made by Mr. Brooke.

* Through the care of Mr. Mitchell no rare specimen has died within the last five years without previously sitting for its portrait.—*Quarterly Review*, Dec. 1855, p. 245.



OBAYSCH IN HIS POND. (*See p.* 91.)
From the "Illustrated London News," June 14, 1851.

OBAYSCH AND ARAB KEEPER. (*See p.* 91.)
From the "Illustrated London News," June 1, 1850.

PLATE 16.

Among the birds exhibited for the first time was a roseate spoonbill, a fact overlooked when three others were purchased in August, 1870, for they are described as "the first received alive by the Society."

Jenny the orang—Lady Jane she is called in the "List" of 1844—was a famous animal, but there were two orangs living in the Menagerie within a short period of each other and known by these names. The animal purchased on November 25, 1837, lived till May 7, 1839, and was probably the Jenny of Broderip's article in the *New Monthly Magazine* of January, 1838; and must certainly be the orang referred to in Mrs. Owen's Diary, under date of March 11, 1838, as having been brought out for inspection by the Duchess of Cambridge, as there was such a crowd round the cage. There is, however, some confusion as to sex. Another, purchased in May, 1838, only lived till the following October. The Jenny to which the name properly belongs was bought on December 13, 1839, and proved a great attraction during its captivity, which was ended by death on October 10, 1843. This orang was a special favourite with Owen and his wife, who were constant visitors at the Gardens. In her Diary,* in the summer of 1842, Mrs. Owen wrote:

> We saw Jenny have her cup of tea again. It was spooned and sipped in the most ladylike way, and Hunt, the keeper, put a very smart cap on her head, which made it all the more laughable. Hunt told me that a few days ago the Queen and Prince Albert were highly amused with Jenny's tricks, but that he did not like to put the cap on the orang, as he was afraid it might be thought vulgar!

They paid the animal a Christmas visit in 1842, and recorded its affection for Hunt. An entry of February 8, 1844, shows that this was reciprocated. Hunt, then looking after some of the carnivora, told Mrs. Owen that "he would far sooner have his poor Jenny." The diarist added a note: "He was so much cut up about her death that he could hardly pronounce her name."

The Council's Report for 1843, in recording her death, remarked that she was "an old favourite with most visitors to the Gardens, where she was an inmate for [nearly] four years,

* "Life of Richard Owen," i. 193, 194.

and lived longer than any animal of the same species was ever known to do in this country."

In 1845 the white-headed eagles nested. The female began to sit on her eggs on April 8, and the pair were seen by hundreds steadily persevering, notwithstanding the gaze of the visitors, from day to day, in a close incubation till June 6, when the worthless eggs were removed. The male was very attentive to the female, and both took their regular turns in sitting. "Their entire want of success seems, however, to have disgusted them with the whole proceeding, for we cannot learn that the female has produced an egg since."*

At the Annual Meeting in that year the Council announced that they had just added to the collection an echidna, or porcupine ant-eater, "the first specimen of that animal which has been exhibited alive in Europe, and one of very great interest to naturalists." According to Owen, who watched the creature closely, it was then "active and apparently in sound health"; but it only lived a few weeks.

From his paper presented to the scientific meeting of July 22 we learn that the animal was placed in a large shallow box having a deep layer of sand on one half the bottom, and the top covered with crossbars. It manifested more vivacity than could have been expected from a quadruped which, in the proportions of its limbs to the body, as well as in its internal organisation, makes the nearest approach, after the ornithorhynchus, to the Reptilia. It commenced an active exploration of its prison soon after it was encaged; the first instinctive action was to seek its ordinary shelter in the earth, and it turned up the sand rapidly by throwing it aside with strong strokes of its powerful fossorial paws, repeating the act in many places, until it had assured itself that the same hard, impenetrable bottom everywhere opposed its progress downwards. Then it explored every fissure and cranny, and poked its long slender nose through the interspaces of the crossbars above. To reach these it had to raise itself almost upright, and often overbalanced itself, falling on its back, and recovering its legs by performing a somersault.

When seized by the hind leg and lifted off the ground the echidna offered but little resistance, and "made not the slightest

* Broderip, "Note-book of a Naturalist," p. 93.

demonstration of defending itself by striking with its hind spurs." Its only action, when irritated, was to roll itself into a ball, like a hedgehog, the bristles then being erect.

It was fed on bread and milk, into which some mealworms had been put. "The tongue came more than once in contact with the larvæ, which were sometimes rolled over by it, but no attempt was made to swallow them." The present method of feeding on finely minced meat mixed with the bread and milk would probably have given the animal a better chance of life.

The European bison was introduced in 1847. Through the influence of Sir R. I. Murchison, who had recently taken part in the Geological Survey of Russia, the Czar Nicholas I. presented a pair of young animals. These were obtained by driving in the forest of Grodno, and fifty foresters with three hundred beaters, were employed. A keeper was sent from London to Memel to receive them, and they arrived in fairly good condition. M. Dolmatoff, the Master of the Imperial forest of Grodno, contributed some interesting notes on the species to the *Proceedings* for 1848. From his own experience he dissipated the erroneous view that these calves would not take nourishment from a domestic cow; and this was confirmed by their taking readily to foster-mothers at Regent's Park. He suggested that it would not be difficult to obtain a cross with ordinary cattle, but there was no opportunity for that experiment; and recommended that the animals should be kept in a paddock that would afford them a wide range. To M. Dolmatoff and Sir R. I. Murchison the Council awarded the Silver Medal, to commemorate the introduction of the species; and this was the first occasion on which it was presented.

In the same year the condor nested. In his "Note-book of a Naturalist" (p. 13), Broderip made this fact the text for a pleasant little disquisition on the treatment of the animals in the Menagerie:

> It affords pregnant evidence of the care and attention exerted by the authorities and keepers of the animals confined in the garden of the Zoological Society of London in the Regent's Park, when we find that so many of them have not only shown a disposition to breed in their captivity, but that not a few have actually reared healthy offspring under all the disadvantages which a life so different from that intended by Nature must under any circumstance produce.

Between March 4, 1844, and May 7, 1847, the female condor laid seven eggs. The last was put under a Dorking foster-mother, which sat for fifty-four days, and on June 30 the chick began to chip the wall of its procreant prison; but it was not released till the following morning, when the keeper had to break the shell, for the membrane had dried round the nestling. "Thus," said Broderip, with due remembrance of "Candide," "came into this best of all possible worlds the first condor hatched in England."

The chick, after thriving well, to all appearance, died on July 21; and the foster-mother, which had been most attentive to it to the last, missed it a good deal.

Jack, the fine Indian elephant purchased in 1831, died early in June. He suffered from extensive disease of the knee-joint and from an abscess in the throat. Broderip, who visited the Gardens on Whit Sunday, with Owen and Murchison, in attendance on the Grand Duke Constantine, left the following notes:

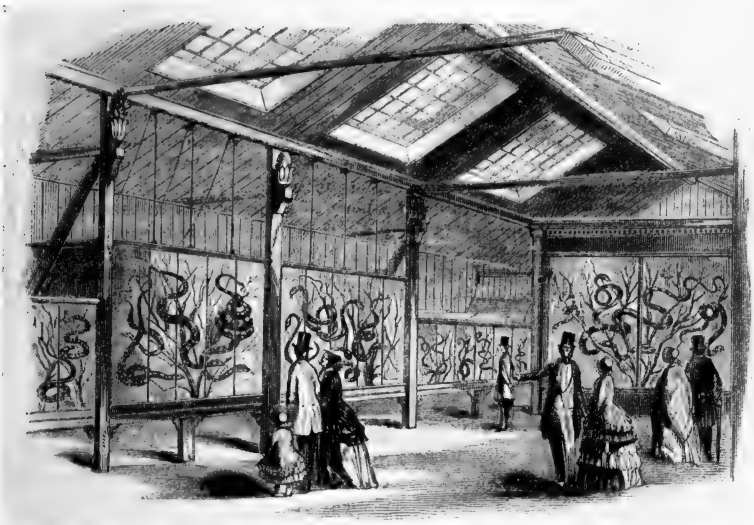
> The elephant was miserably fallen away, and stood, as he had long previously remained, supporting himself by laying his huge trunk along the bar that fronted his apartment. He was evidently suffering much, and the keeper warned me not to go near, his temper having become ferocious. I knew him well, however, and ventured to approach; and he threw up his trunk and showed his molar teeth in his open mouth at my usual signal. I had nothing to give him but bran, and that he took from my hand.

The animal was secluded for a short time; and when the end was near, sank back upon his haunches, with his forelegs extended, and remained motionless for about two hours. Then his trunk dropped and he expired, stiffening in the upright position, not even his head sinking.

Owen wanted to secure the brain, and sent some students to saw the skull and take it out. The task was beyond their powers, and they gave it up. Owen undertook the business, and in the course of the work was wounded in the hand by two spicula of bone. These punctures excited some alarm in the minds of his friends; but the places were at once cauterised, and a day or two after he was well enough to show the treasures of his museum to the Grand Duke.

The tree-kangaroo of New Guinea, a form that, from the nature of its habitat, has taken to an arboreal mode of life, figures

SERPENT CHARMERS. (*See p.* 92.)
From the "Illustrated London News," June 15, 1850.



FIRST REPTILE HOUSE. (*See p.* 83.)

PLATE 17.

in the List for the first time in 1848. From the same quarter of the globe came the brush-turkeys and the maleo—mound-birds that make no nest, but bury their eggs respectively in masses of decaying vegetation or in pits in the sand, thus avoiding the duty of incubation. It seems strange that no example of the latter had been imported before; for Professor Newton shows* that Pigafetta, one of the survivors of Magellan's voyage, recorded in his Journal, under date of April, 1521, the existence of the mound-bird of the Philippines.

To these must be added a pair of silky bower birds, from New South Wales. The anomalous architecture of this species was discovered by Gould, and described by him in the *Proceedings* (1840, p. 94). In the following year the birds constructed a bower in the aviary in which they had been placed, and it was thus described in the *Illustrated London News* of July 14, 1849:

> The bower is composed of twigs woven together in the most compact manner, and ornamented with shells and feathers, the disposition of which the birds are continually altering. . . . The extreme shyness of the birds, who retire from the bower on the first approach of a spectator, accounts for the origin and object of these structures remaining so long unknown, even to the settlers. They have no connection with the nest, and are simply playing-places, in which the birds divert themselves during the months which immediately precede nidification.

The birds were extremely lively, and the writer expressed a hope that they would "eventually make a nest, and thus elucidate the only point in their interesting history which Mr. Gould was unable to solve during his researches in Australia." The nest and eggs were not found till about 1876, and the story may be read in the first volume of A. J. Campbell's "Nests and Eggs of Australian Birds."

A fine lion and the male European bison were lost by inflammation of the lungs, attributed by Owen to the cold fogs incident to the undrained soil. "The records of medicine," he said,† "bear testimony to similar ill effects upon the mucous tract of the respiratory organs of the human inhabitants of the Regent's Park whose habits and strength of constitution

* "Dictionary of Birds," *s.v.* Megapode.

† *Proceedings*, 1848, p. 126.

do not enable them to control and overcome this pregnant, but happily remediable source of ill-health."

Ibrahim Pasha sent a magnificent donation in 1849, consisting of two giraffes, two dromedaries, two leucoryx and two addax antelopes, two ostriches and two gazelles, which were brought home by Henry Hunt, who went out to Cairo to take charge of them. The Pasha intended to send all the animals in pairs, but the bull giraffe unfortunately died. The Queen deposited a lioness, a leopard, a pair of ostriches, and a pair of gazelles. By the influence of the Hon. C. A. Murray, Consul-General at Cairo, Abbas Pasha obtained for acceptance by the Society a young hippopotamus from the White Nile. The animal was brought to Cairo in November and placed at the disposal of Mr. Murray, who described the valuable present:

> The Hippopotamus is quite well, and the delight of everyone who sees him. He is as tame and playful as a Newfoundland puppy; knows his keepers, and follows them all over the courtyard; in short, if he continues gentle and intelligent as he promises to be, he will be the most attractive object ever seen in our Garden, and may be taught all the tricks usually performed by the elephant.

It was said that the feeding of the young hippopotamus caused a shortage of milk in the city. Mr. Murray thought a fresh importation of cows into Cairo would be necessary—"our little monster takes about thirty quarts of milk daily for his share already."

As a small return for this munificent gift the Council sent to His Highness a stud of greyhounds and deerhounds under the care of an experienced trainer. The animals were greatly admired by the Pasha, who expressed his satisfaction with the course adopted by the Council.

Losses were heavy this year. Three American bison and the female of the European species succumbed to pleuro-pneumonia. The death of the Indian rhinoceros is thus accounted for by Broderip* in describing another rhinoceros in the Gardens:

> His predecessor, who departed this life full of years, was constantly forced upon his belly by a pugnacious elephant [Jack], who pressed his tusks upon the back of his neighbour when he came near the palings which separated their enclosures. This rough treatment appears to have led to

* *Quarterly Review*, March, 1856, p. 240.

his death, as Professor Owen found, on dissecting the massive brute, which weighed upwards of two tons, that the seventh rib had been fractured at the bend near the vertebral end, and had wounded the left lung.

Owen ascribed the broken rib to "some clumsy fall, or otherwise inexplicable process"; and the Council, in chronicling the death, say that as the animal had been upwards of fifteen years in the Menagerie its "longevity rather than its decease" was matter for remark.

The great event of 1850 was the arrival of the hippopotamus, the first living specimen seen in Europe "since these creatures were last exhibited by the third Gordian in the Amphitheatre of Imperial Rome." This young male was but a few days old when it was captured by a party of hunters sent out by the Viceroy. They met with it on the island of Obaysch, in the White Nile, and from that spot the animal was named. It was sent down to Cairo in a boat constructed for the purpose, and kept in that city through the winter, and was brought home in the spring on board the Peninsular and Oriental Company's steamer *Ripon*, where a bath was fitted up for it, and other arrangements made for its comfort, justifying Frank Buckland's remark that it travelled *en prince*. It was landed at Southampton on May 25, and brought by special train to London, "every station yielding up its wondering crowd to look upon the monster as he passed—fruitlessly, for they only saw the Arab keeper, who then attended him night and day, and who, for want of air, was constrained to put his head out through the roof." The same night it was safely housed in the Gardens.

Owen saw it on the following morning (Sunday), and recorded his impressions in the *Annals and Magazine of Natural History* (v. 2nd ser., pp. 515–18). He estimated the animal to be ten months old, and says that it was 7 ft. long and $6\frac{1}{2}$ ft. in girth at the middle of the barrel-shaped trunk, which was supported, clear of the ground, on very short thick legs. In walking the head was depressed, and then the hippopotamus gave him the impression of a huge prize hog, while in the water it swam and plunged about "with a cetaceous or porpoise-like rolling from side to side, taking in mouthfuls of water, and spurting them out again, raising every now and then its huge grotesque head, and biting the woodwork at the margin of the bath." It

would come at the keeper's call, and follow close at his heels, like a dog; and at the absence of its favourite attendant—Hamet Saafi Cannana, for his name deserves to be recorded—it became very impatient, rising on its hind legs and pushing at the wooden fence with a force that threatened to break it down.

The hippopotamus was a wonderful attraction, and an exceedingly good advertisement for the Gardens. This was recognised by the Council, who said in their Report:

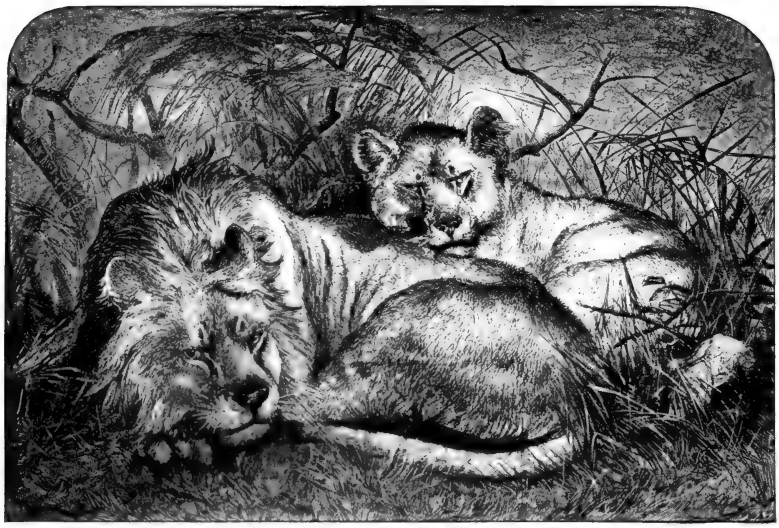
> Independently of the peculiar claims on public attention which exist in this extraordinary animal, the renown which the possession of him secures to the Society has been the means of placing the value, usefulness, and beauty of the general collection rightly before the public.

The Press devoted as much space to Obaysch as it did, later, to Jumbo, on his departure. At least half-a-dozen times before the end of the year the hippopotamus formed a subject for *Punch* artists; and one illustration depicted the rush of people to the Gardens. In *Household Words* for September 28 there appeared an amusing skit, which, on Mrs. Owen's authority,* may be attributed to "Orion" Horne. It represents the older inhabitants resenting the popularity of the newcomer—which the fox disrespectfully calls a "water-pig"—and appealing to the authorities for redress. A meeting was convened, at the Gardens, and the animals made their protests. These all agreed with that of the lion, who expressed his opinion that the ridiculous adulation of public levees by the hippopotamus should cease, and a general apology by the Council and the visitors at large be made to all the other animals.

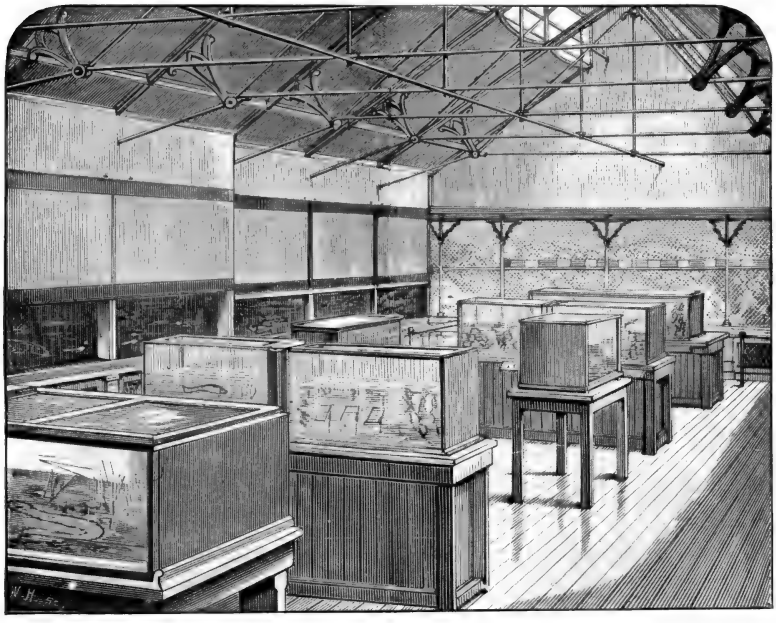
With Hamet came two other attendants, who were also snake charmers, and the elder, then an old man, had collected reptiles for Geoffroy, in Bonaparte's Egyptian expedition. Broderip, who witnessed their feats on the day that he first saw the hippopotamus (May 26), gives the following account of it in his "Note-book of a Naturalist" (p. 201 sqq.):

> The charmers took up a position at the end of the house, opposite to the lodgings of the great Pythons, of whose size the old Arab had heard with something very like incredulity. The company stood in a semicircle, and at a respectful distance. There was not much difficulty in getting a

* "Life of Richard Owen," i. 361. The title, however, is wrongly quoted. It was "Zoological Session," not "Zoological Meeting."



MESOPOTAMIAN LIONS. (*See p.* 115.)
From the "Illustrated London News," April 12, 1856.



FISH HOUSE. (*See p.* 107.)

PLATE 18.

front place, but those behind pressed the bolder spectators rather inconveniently forward.

Standing in the open space the old Arab said something to the young one, who stooped down under the reptile cases at the north side of the room, and took out a large deal box with a sliding cover, which looked like a box for stowing away a set of Brobdignag chessmen, drew off the cover, thrust in his hand, and pulled out a large long naia haje.* After handling it and playing with it a little while, he set it down on the floor, half squatted close to it, and fixed his eye on the snake. The serpent instantly raised itself, expanded its hood, and turned slowly on its own axis, following the eye of the young Arab, turning as his head, or eye, or body turned. Sometimes it would dart at him as if to bite. He exercised the most perfect command over the animal.

Then the old Arab took part in the performance, fixing his eyes upon the snake, with his face on a level with the raised head of the serpent, which seemed to be in a paroxysm of rage.

Suddenly it darted open-mouthed at his face, furiously dashing its expanded whitish-edged jaws into the dark hollow cheek of the charmer, who still imperturbably kept his position, only smiling bitterly at his excited antagonist.

Broderip, who was in front, watched very narrowly, but though the snake dashed at the old Arab's face, and into it more than twice or thrice with its mouth wide open, he could not see the projection of any fang.

A cerastes, or horned viper, was next brought out, but proved to be sluggish. More snakes, including a second naia, were then taken out of the box. One of them bit the boy on the hand, and brought the blood, but he only spat on the wound, and enlarged it with his nail, which made the blood flow more freely. Broderip concludes thus:

The Arabs, holding the snakes by the tails, let their bodies touch the floor, when they came twisting and wriggling on towards the spectators, who now backed a little upon the toes of those who pressed them from behind. Sometimes the charmers would loose their hold, when the serpents, as if eager to escape from their tormentors, rapidly advanced upon the retreating ring; but they always caught them by the tails in time, and then made them repeat the same advances. I kept my position in front throughout, and had no fear, feeling certain that Mr. Mitchell, and those under whose superintendence this highly amusing and instructive establishment is so well conducted, would not have permitted the exhibition to take place if there had been the least danger. Besides this I observed that the

* The Egyptian cobra, which has no spectacle-mark on the back of the neck.

charmers only used their own serpents, which they had, I presume, brought with them; and I confess that the impression upon my mind was that they had been rendered innoxious by mechanical means.*

The Queen presented a gigantic land-tortoise, which was said, no doubt with truth, to be nearly two hundred years old, but it did not survive the winter. While the reptile was at Buckingham Palace Owen was summoned thither to see it. In the presence of the Prince Consort he proceeded to take its measurements, and to obtain the girth conveniently he bestrode the animal, which walked off with the Professor on his back. As he rode along he continued his measurements, to the great amusement of the Prince, and the circumference came out at 12 ft. In his tortoise ride in the garden of Buckingham Palace Owen was more successful than Darwin in the Galápagos, for the latter "found it very difficult to keep his balance."

A pair of thylacines were presented by Mr. Ronald Gunn and Dr. Grant of Van Diemen's Land, as Tasmania was then called. The extreme rarity of this species and the difficulties of transport had prevented any previous attempt to obtain examples of this carnivorous marsupial—the zebra-wolf of the colonists, who set a price on its head, because of its ravages among their sheep. The Cape hyrax was another introduction of this year.

In the spring the wedge-tailed eagle laid four eggs. Two were successively put under a common hen, but both proved addled after an incubation of about three weeks. The old birds destroyed a third egg, and though the fourth was taken out by the keepers, there was no attempt to get it hatched.

Although not a rare species, the black stork in the aviaries must not be omitted. It was famous in its day for its dexterity in catching young sparrows. This "black philosopher," as Broderip called it, stood for its portrait to most of the ornithological writers of that period. Its likeness illustrates the works of Bennett, Gould, Meyer, Selby and Yarrell, and of course finds a place in the indispensable "Manual."

* In a later chapter (p. 388) the author says that "there is no longer a shadow of doubt" that these snakes had been deprived of their fangs. In Bartlett's "Life Among Wild Beasts in the Zoo" (p. 268) is an account of his removing the fangs of cobras for some Indian snake-charmers. From the *entrepreneur* he received a few cobras which would not feed, and soon died. On examination it was found that their mouths had been neatly sewn up.

In 1842 the attendance of a Fellow to introduce friends to the Gardens was dispensed with. Owen raised the question, and a committee was appointed to consider the subject. On their recommendation a book, indexed alphabetically, was kept at the office, and in it any Fellow might inscribe his name and those of the persons he wished to introduce on the following Sunday. The book was taken to the Gardens on the Saturday evening for use by the gatekeepers. The plan had not the merit of simplicity, and was soon dropped.

The band question was discussed the next year. The Council had received suggestions that :

> The addition of a military band to play in the Gardens on certain Saturdays in the months of May, June, and July might be the means of maintaining and even increasing the interest which the public have so long manifested in the Gardens.

A committee reported in favour of the proposal, which was not carried into effect till 1844, when the Promenades were made more attractive. A "Promenade" was a day reserved for Fellows and their friends, and from this time onward a band was engaged. The price of admission was 3s. 6d., and to obtain a ticket it was necessary to have an order from a Fellow, who could himself purchase tickets for his friends at 2s. 6d. These Promenades were important; they increased the revenue and led eventually to the provision of a military band. In many of the Continental Gardens an excellent band form part of the staff, as it does at the Gardens at Manchester. The Promenades continued, during the season, for five years, and then were dropped.

Poultry shows were begun in 1845. Prizes were offered for "domestic fowls, bantams, turkeys, pigeons, ducks and geese bred in the previous year; and for pheasants and any species of gallinaceous bird not hitherto bred in this country."* The

* The classes were divided into sections. As no schedule of the first show is known, the following are taken from the first prize-list, signed by John Baily, George Fisher, and William Yarrell. Class I. Domestic Fowls: Speckled Dorking, Surrey, Kent, Gold-spangled Hamburgh, Silver-spangled Hamburgh (called Bolton Grey), Black Spanish, Polish, Malay, China, Madeira, Spangled muffled fowls. Class II. Bantams: Gold-spangled, Silver-spangled, Black, Gold-hackled, Feather-legged. Class III. Ducks: Aylesbury, cross with Rouen, large variety called Essex. Class IV. Geese: Common, Grey lag, Half-bred (wild and domestic), Bernacle. Class V. Pigeons: Roman and Spanish runts. Class VI Pheasants: No entries. Class VII. Turkeys: Spangled male.

weather was unusually stormy and unsettled, and "seriously affected the success of the experiment." But on the whole the Council were satisfied, and for some few years the poultry shows were carried on. In addition to money prizes, medals were awarded for the best birds, but Fellows of the Society, if prize-winners, received only an honorary certificate. At the first show, A. D. Bartlett, afterwards Superintendent of the Gardens, obtained a first prize and bronze medal for a turkey, and three second prizes—one for Surrey fowls and two for geese. According to Yarrell (iv. 254), one of the geese was a wild grey lag, sent from India by Blyth to Bartlett, who exhibited the bird.

Some additional privileges were granted to Fellows, in 1847, by the issue of six tickets for the admission of two friends to the Gardens, except on Promenade days. The public were admitted on Mondays and Tuesdays, without an order, on payment of a shilling, and at Easter and Whitsuntide this privilege was extended for three days more. Soon after Whitsuntide visitors were admitted on any week-day on payment of a shilling, except when the Gardens were reserved for Fellows and their friends—that is, on Promenade days. It is difficult to fix the date at which this change took place; but that it must have been in May of this year is shown by the following extract from the circular announcing the poultry show:—

ADMISSION TO THE GARDENS AND MUSEUM, REGENT'S PARK.

Open from 9 o'Clock in the Morning to Sunset.

Visitors are admitted upon payment of 1s. by each person, except on Sundays, when Fellows with two Companions, Persons holding Named Ticket with one Companion, and Honorary, Foreign, and Corresponding Members only can be admitted; or on the days set apart for the Fellows and their friends, viz., Saturdays, May 29; June 12 and 26; July 10; for which days, in addition to their usual privileges, Fellows may, on or before the 8th of May, obtain by personal application or written orders any number of Tickets, not exceeding Twenty at 2s. 6d. each, at the office, 11, Hanover Square; and any number at 3s. 6d. each at any time, either at the office, or at the Gardens.

CLOUDED LEOPARDS. (*See p.* 115.)

From a Drawing by Joseph Wolf.

PLATE 9.

In April, 1848, the Council resolved to admit the public on Mondays, and children at any time, for sixpence each. This policy was justified by results. The *Athenæum* of May 20 said:

> We hear that the experiment of reducing the admission to the Zoological Gardens on Mondays from 1s. to 6d. has thus far been attended with perfect success. The numbers of visitors on that day already have been more than double the former average. Children, now charged only sixpence at all times, throng the Gardens. With such results, the Society will probably see it judicious to carry the experiment further.

From 1841 there had been a gradual decrease of income till (as will be seen from the tables at the end of the chapter) the lowest point was reached in 1847. With the change of policy matters began to improve. The attention of the Council had been aroused by the circulation of a printed "Letter to the President," of which no copy exists in the Society's Library or that of the British Museum. Its purport, however, may be gathered from the following extract from the *Literary Gazette* of September 21, 1850:

> It went to expose the vicious system of forming Councils of men of wealth and station, unaccustomed to habits of business, possessed of every desirable qualification, except an acquaintance with the matter in hand, and contented to place themselves in the hands of an honorary secretary, while incurring the mismanagement that insensibly arises out of a compact, in which one party takes all the power, the other all the homage.

This occurred in a review of some of the Society's publications. The reviewer approved of the matter contained in the "Letter," but condemned the style. The purpose, however, was attained; the policy of exclusiveness came to an end, and the Council sought to attract visitors by making known the means of access to the Gardens, "feeling that in affording facilities to all the intelligent classes, they were taking the most effectual course for diffusing that true and comprehensive taste for Natural History which was the principal object of the Founders of the Society." As a natural consequence the number of visitors increased; and in 1849 the Council were authorised to express the approval of the Queen of the efforts which they had made "for the restoration of this Institution, and for the diffusion of intellectual recreation, by its resources, among the great masses of the people."

The accumulation of valuable objects in the Museum, far exceeding the space available for their preservation, to say nothing of display, caused the Council a good deal of anxiety. In 1841 the lease of the house in Leicester Square was given up, the collections were stored in a warehouse in Dufour's Place, Broad Street, Golden Square, and the offices were transferred to 57, Pall Mall. The collections were valued by J. O. Westwood and John Gould, the former taking the insects, and the latter all the rest. In round numbers the valuation came out at £11,000, of which the insects counted for £1,000. Gould appended a short report, to the effect that the prices affixed were those of the various objects or groups from a scientific point of view; adding:

> Their value is of course greatly enhanced by the many nearly complete series of interesting and rare animals, and from their being in numerous instances the originals of the species characterised in the Society's *Transactions* and *Proceedings*, besides comprising the entire collections of the founders of the Society, Sir Thomas Stamford Raffles and Mr. Vigors, to which have been added the invaluable collections formed by Mr. Darwin and others.

This report, together with a statement of the history of the Museum, was presented to a Special General Meeting at Willis's Rooms on May 20, 1841, convened "to take the whole subject of the Museum into consideration, for the purpose of determining upon its ultimate destination." The attendance was very large, and the subject was fully discussed. Several resolutions were passed by an overwhelming majority; the principal were:

> That the Society cannot divest itself of its scientific character, so essential to its dignity and respectability, without violating the Charter of Incorporation.
>
> That the Museum is a necessary and intrinsic part of the Scientific Establishment, which it is essential should be perpetuated, the origin of which is contemporary with that of the Society itself, which was formed by the munificence of our original founders,* enlarged by the donations of numerous correspondents in all parts of the world, and heretofore invariably recognised by every successive Council as an indispensable object of the Institution.

A committee was appointed, which reported to a Special Meeting on July 10, and the recommendations were published in the Council's Report of April 29, 1842. Their purport may

* Sir Stamford Raffles and Mr. Vigors. See Gould's report, *ante*.

be gathered from a paragraph in the *Literary Gazette* of August 20:

> The resolution to preserve the Museum, and with it the scientific, *versus* the mere wild-beast-show part of the Society, has been fully confirmed, and a design by Mr. Elmslie provisionally adopted for the building. Towards erecting this in the Gardens £5,000 have been recommended out of the permanent fund.

Difficulties were encountered with regard to a site; the design was abandoned, and it was resolved to convert the old carnivora house, "enlarged by a new building of equal dimensions on the south," into a Museum. By this means the Museum and Carnivora Terrace were completed for less than the sum voted for the Museum alone. In 1843 the work of transferring the preserved specimens to the Gardens was begun, and completed in the following year. It was found that the collections had suffered little injury during their storage in Dufour's Place, and they were provisionally arranged in the new building, which was opened to visitors to the Gardens without further payment.

The change was not a success. Moreover, the financial condition of the Society precluded any expenditure beyond what was absolutely necessary for the conservation of the specimens. At the Annual Meeting in 1848 the Council announced that they felt the less regret on this account because the National Collections now provided a great increase of materials for the study of zoology, as far as it could be prosecuted from preserved specimens. In the following year the distribution of duplicates began on a large scale; and hereafter the only additions to the mounted specimens were rare species that had died in the Menagerie and were not represented in the Museum. There was a change of policy in 1850, and a special Committee of the Council recommended that the specimens should be offered to the Government for a fair equivalent.

An important move was made in 1843, when the offices were transferred to No. 11, Hanover Square, which was taken on lease. The Council Room was fitted up to receive "the more valuable and ornamental portions of the Museum collections," and the Secretary's room served also as a library, but the books did not number a thousand till 1848. With this removal to more commodious quarters there came a revival of interest in

the scientific meetings, and on some evenings the rooms could scarcely contain the audience. This seems to have been specially the case when Owen's papers on the extinct birds of the genus *Dinornis* were read, and at Falconer's demonstration on the fossil tortoise, with a carapace 6 ft. long, from the Sivalik Hills. A great number of huge fragments, derived from all parts of the skeleton except the neck and tail, were exhibited on the table, illustrating a diagram by Scharf of the animal restored to the natural size.

A "List of Animals in the Gardens" was published in 1844. In addition to the English names and descriptions, there is a Scientific Index, which shows, on analysis, that the Menagerie contained 335 species, thus distributed: Mammals, 134; birds, 197; reptiles, 3; and fish, 1. A note on the two-toed sloth, said to have been the first imported, is worth insertion here: "In fine weather this animal is allowed to range on the large trees outside the building"—that is, the giraffe house.

In the *Proceedings* for 1843 a letter from the Rev. W. C. Cotton is printed, in which a curious story about the dinornis is told on the authority of the Rev. Mr. Williams, who sent some bones to Dean Buckland:

> Strangely enough, after Mr. Williams had obtained the bones he heard of the bird as having been seen by two Englishmen in the Middle Island. They were taken out by a native *at night* to watch for the bird which he had described to them; they saw it, but were so frightened that they did not dare to shoot at it, though they had gone out expressly to do so. After this I should not be surprised if the Zoological Society were to send out an army to take the monster alive, for alive he most certainly is in my opinion.

A letter from Gilbert on the mammals and birds of Australia appeared in the following year; and in 1846 came the news of his tragic death. A curious note on the kakapo occurs in a letter from Mr. F. Strange to Gould in 1847: "This," the writer says, "is one of the birds the natives set great store by, the head being cut off, strung by the nostrils, and worn in the ears on their grand feast days." The same year James Hunt's observations on the breeding of the otter in confinement appeared.

A new series, with coloured plates, was commenced in 1848; Joseph Wolf furnished many of the illustrations, and this was his first connection with the Society. A cheap edition, consisting

only of the text, was also issued. In the first volume there were twenty-three plates, each illustrative of a new species. Owen described the Notornis, then supposed to be extinct, though living specimens have since been taken; and Dalmatoff published interesting notes on the European bison. Huxley's first contribution—On the Anatomy of *Trigonia*—presented by Professor E. Forbes on his behalf* was printed in the following year, and, strange to say, the author is entered as "G. Huxley." The Secretary described a hybrid chick between the common and the Victoria crowned pigeon, hatched in the Gardens; and a hybrid bull belonging to the President, that had been deposited for some time in the Gardens. There was no history of the animal, beyond the fact that it had been imported from India about 1845. It appeared to be the produce of a yak sire and a zebu dam, and the influence of yak blood was visible in the tail and the long hair on the limbs, though the pendent hair was absent from the sides. Notable papers in the last year of the decade were those by Mantell, on Notornis, and Westwood on the tsetse fly, which he described and named.

Two volumes of *Transactions* were published: the second, completed in 1841, contained twenty-six memoirs. Those of Owen treated of the osteology of the orang, the anatomy of the Nubian giraffe and the apteryx; the striped ant-eater and the sable antelope were described respectively by Waterhouse and Harris, and there were also contributions from Bell, Westwood, and Yarrell. The third volume appeared in 1849: it contained eighteen memoirs, of which the most important were those by Owen on Dinornis, the dodo, and the gorilla, or, as it was then called, the great African chimpanzee; and the papers on the apteryx and the marsupials were continued. In this volume is a figure of the femur from New Zealand, on which Owen founded the genus *Megalornis*, for so at first he designated the great wingless bird, to which the thigh bone, resembling that of an ostrich, belonged. This name, however, was preoccupied, and it was accordingly changed to *Dinornis*.

The returns of the number of animals in the Menagerie are incomplete, those for 1846, 1847, and 1848 being the only ones

* Huxley did not become a Fellow till 1860, and of course till then could not present a paper.

recorded. The respective totals are 905 (mammals, 341; birds, 557; reptiles, 7); 1,086 (mammals, 359; birds, 714; reptiles, 13); and 1,335 (mammals, 383; birds, 851; reptiles, 101). Nor are there any returns of the species exhibited for the first time in 1841. For the remaining years of the decade, the figures are given below:

EXHIBITED FOR THE FIRST TIME.

Year.	Mammals.	Birds.	Reptiles.	Total.	Year.	Mammals.	Birds.	Reptiles.	Total.
1842	12	14	—	26	1847	15	45	3	63
1843	18	5	4	27	1848	13	33	9	55
1844	22	24	—	46	1849	16	28	22	66
1845	1	2	—	3	1850	18	26	7	51
1846	5	11	1	17					

FELLOWSHIP ROLL, VISITORS, AND FINANCE.

Year.	No. of Fellows.	Admission to Gardens.	Income. £	Expenditure. £
1841	2,819	132,616	11,611	10,931
1842	2,630	107,459	10,087	9,721
1843	2,410	98,280	9,137	12,858
1844	2,217	101,527	8,658	10,999
1845	2,067	104,908	8,831	9,290
1846	1,939	94,049	8,304	8,611
1847	1,844	88,582	7,765	9,710
1848	1,735	143,630	8,165	9,822
1849	1,665	168,895	8,771	9,580
1850	1,652	360,402*	14,957	13,186

* This was the "hippopotamus year," and the number of visitors was more than doubled.

PLATE VI.

THE MONKEY HOUSE.

(*See p.* 129.)

CHAPTER V.

1851—1860.

In the opening year of this decade the Society sustained a heavy loss by the death of the President, the Earl of Derby, whose interest in the Garden establishment was shown by his many donations and the frequent exchanges effected between Regent's Park and Knowsley. He was one of the original members, and acted on the Farm Committee; and his communications to the scientific meetings were always of a practical nature, in this respect following the lines of work which Sir Humphry Davy is credited with having laid down. To him was due the introduction of the eland and some other species into this country; and he always hoped that these fine antelopes might be turned to practical account as park animals and for the table. His death took place on July 2, and the Council were so fortunate as "to obtain the assent of H.R.H. Prince Albert to their request that he would honour the Society by accepting the vacant office." As the Prince was not a Fellow he was admitted at a special meeting of the Council on July 19, as a necessary qualification for the Chair, which he repeatedly occupied, and his firm signature, "Albert," was in due form appended to the minutes.

The change was announced to the Society at the Annual Meeting in 1852; when the Council put on record the following appreciation of their late President:

> The late Earl of Derby was intimately connected with the Society from its first foundation, in which Sir Humphry Davy, Sir Stamford Raffles, the late Earl of Auckland,* and other friends of science co-operated with him. On the retirement of the Marquess of Lansdowne from the President's chair, the Earl of Derby, at the solicitation of the Council,

* To this distinguished nobleman the Society was indebted for the most efficient support from its earliest foundation, in which he bore an active share with Sir Stamford Raffles, Sir Humphry Davy, and the late Earl of Derby.—D. W. Mitchell's Guide (1852), p. 8.

consented to accept the vacant office, and he continued to take an active part in the management of the Institution until the state of his health compelled him to reside at Knowsley during the greater part of the year.

At the same meeting the Secretary's salary was raised to £500 a year—"to include travelling and other incidental expenses." He held office till the Anniversary in 1859, when he retired in order to take up the appointment of Director of the Jardin d'Acclimatation, then just founded at Paris. In consideration of his services to the Society the Council presented him with a gratuity of £500, and put it on record that "the present prosperous and satisfactory position of the Society was chiefly, if not entirely, owing to the great ability and zeal of Mr. Mitchell." For the seven years previous to his appointment in 1847 the average number of visitors to the Gardens had been 111,500, and the income £9,199; for the seven years ending December 31, 1858, the respective averages rose to 350,620 and £15,062. Mr. Philip Lutley Sclater, who had served on the Council for two years, was elected to the post thus rendered vacant. Mitchell died soon after having entered on his new duties.

Yarrell died on September 1, 1856, and though there is no official tribute to his memory in the Council's Report, enough of his work has been here chronicled to show that he played no unimportant part in the foundation and management of the Society. One need only look at the *Transactions* of the Linnean Society to see how much of his work at the Zoological Club appeared therein, and some of it was afterwards amplified for the scientific meetings of the Zoological Society, of which he was an original member. He served on the Council almost uninterruptedly from 1831 till his death, and was Vice-President for two terms—1839–44 and 1845–51. He owed this appointment to Lord Derby, with whom he had been closely associated in the management of the Farm.

At the Gardens Mr. Alexander Miller, who had been Superintendent since 1829, was pensioned in 1852; he was succeeded by Mr. John Thompson, at whose death in 1859 Mr. Abraham Dee Bartlett was appointed. In the same year James Thomson succeeded Hunt as head-keeper.

The drainage of the Gardens and adjacent portions of the Park, begun by the Crown Office in 1851, was completed in the following year, and "operated as one of the counteracting causes to the extension of disease among the animals." The Council were also of opinion that it had an appreciable effect in raising the number of species that bred in the Menagerie.

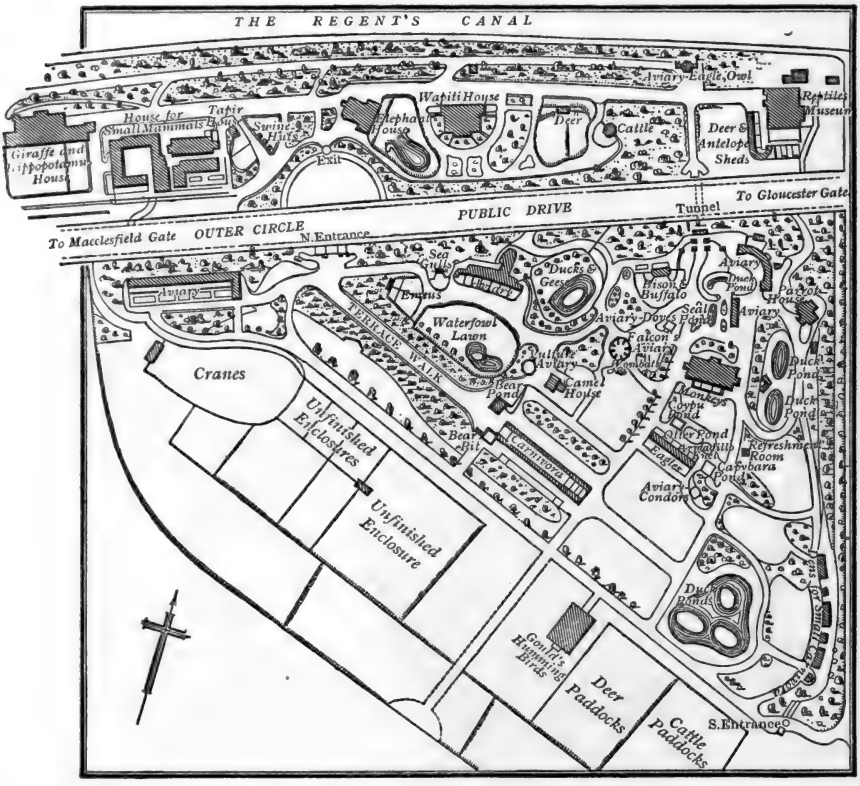
The first work of importance was the provision of an enclosure and tank for the hippopotamus, and platforms were added so that visitors might see the animal in the water. Concurrently with this the west wing of the giraffe house was erected, the eagles' aviary on the lawn—now done away with—was completed, and platforms made on the south side of the Carnivora Terrace. About the same time the house on the south side of the Museum was built, and divided up to serve for pythons and anthropoid apes. Here it was that the famous Sally lived. As originally constructed, the house for the exhibition of Gould's collection of humming birds stood on the site of the present plovers' aviary, at the back of the lion house. In describing its position the *Illustrated London News* (May 31, 1851, p. 480) said that it was "on the left of the walk which leads from the south entrance of the Society's gardens towards their splendid collection of Carnivora."

This collection was one of the great attractions during the year of the Great Exhibition. On June 10 the Queen and Prince Albert, accompanied by the Princesses, the Duke and Duchess of Saxe-Coburg, and Duke Ernest of Würtemberg, visited the Gardens. The *Times* of the following day said:

> Her Majesty occupied a considerable period of her visit in inspecting the celebrated collection of humming birds which has been placed in the Garden by Mr. Gould. The admirable manner in which this beautiful group is illustrated, and the extreme rarity of several of the species, have rendered the building in which they are contained a most important addition to the previous attractions of the establishment, and supplied in the only possible manner a great *desideratum* in the ornithological part of the Society's collection. The visitors who have repaired to the Gardens for the purpose of examining the humming birds include the most distinguished names in science and in art, as well as in rank, and they have universally expressed their surprise and admiration at the unexpected extent of the

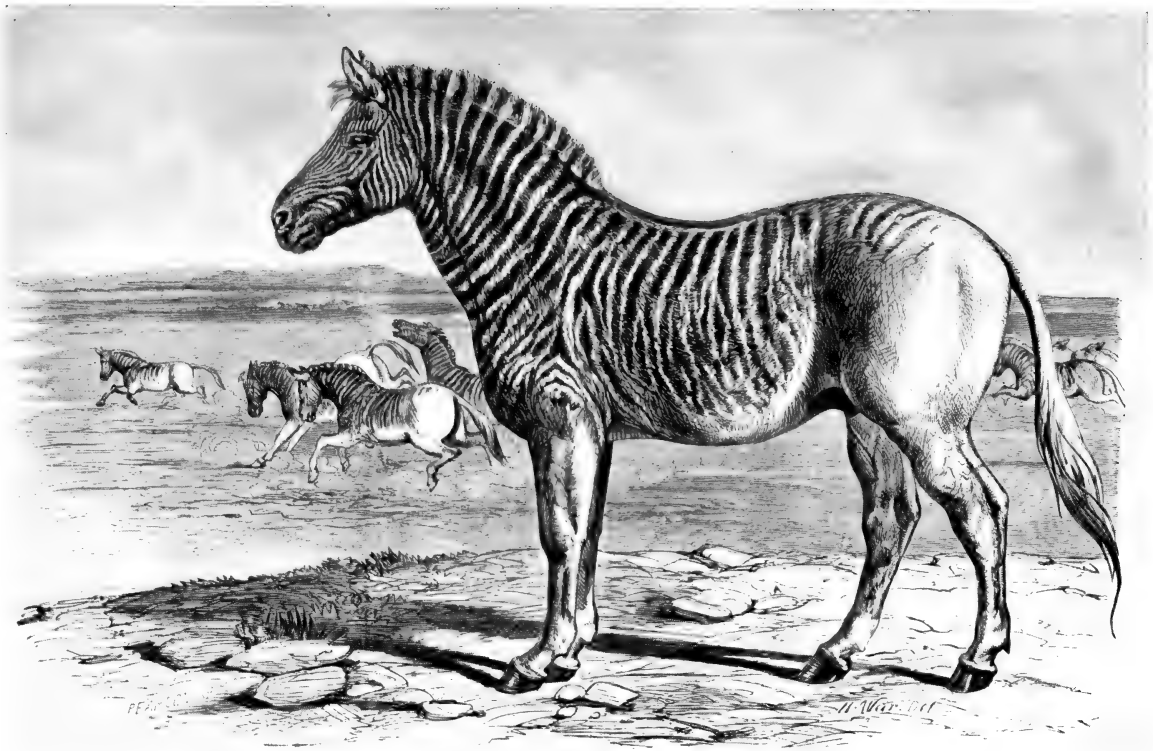
species, the peculiar forms of their plumage, and the intense brilliancy of colour for which they are remarkable above every other part of the animal kingdom.

At the end of the season this house was taken down and re-erected in what is now the Middle Garden, where, till the



PLAN OF THE GARDENS, 1851.

end of 1852, it served to contain the humming-bird collection. For this exhibition a separate charge of sixpence was made to the general public, which was taken by Gould. After being put to various uses the structure was made into the parrot-house, and the birds were removed thither in 1854 from the older building in the South Garden, which was



GREY'S QUAGGA. (*See p.* 119.)

From the "Illustrated London News," November 7, 1858.

PLATE 20.

then fitted up for the small carnivora, and they tenanted it till it was pulled down in 1904, and the New Small Mammals House erected on the site.

In the Exhibition year the Western Aviary was completed, presenting a front 168 feet long, with nineteen divisions, containing in all about two hundred birds of various species.

The Aquarium—or Aquavivarium—was opened in May, 1853, and at once became popular, no doubt owing to the writings of Gosse, Bowerbank, Warrington, and others. The tanks were stocked with sea and river fish, and marine and fresh-water invertebrates—from cuttle-fish to sponges. In his second Guide, published in 1858, D. W. Mitchell claimed that the success which attended the public exhibition of fish and the lower aquatic animals, then first attempted on a large scale, had promoted the study of these creatures, not only at home but on the Continent.

There was, however, an intention to do practical work. At the Anniversary Meeting in 1854, the Council were able, "through the kindness of Count Montizon, to exhibit the first photograph of a living fish which has been produced in England, and probably in Europe," and they pointed out the great advantage "to the study of Ichthyology deducible from this application of the art."

Neither ichthyology nor pisciculture was much advanced by this Aquarium, but the establishment of tanks for marine and fresh-water invertebrates, and the observations made on molluscs, crustaceans, polyzoans, worms, starfish and sea-urchins, and hydroids, added something to human knowledge. As a case in point, Mr. Holdsworth's studies on *Cladonema radiatum*, the "slender coryne" of Gosse's "Devonshire Coast" (p. 257, pl. xvi.), may be mentioned. With regard to these Hincks said in his "British Hydroid Zoophytes" (i. 64):

> My friend Mr. E. W. H. Holdsworth has been fortunate enough to procure several specimens of the free zooid from the tanks in the Zoological Gardens, and has succeeded in keeping them, so as to trace almost the entire course of the reproductive history, while his own aquarium has yielded the polypites in considerable numbers. His notes enable me to supply an original account of the species, which corroborates, and in one or two points corrects, that which we have from Dujardin.

More important even than this was the influence of the Aquarium in preparing the way for the foundation of biological stations, fresh-water and marine, where systematic work could be carried on by trained observers.

The basement storey of the giraffe house was fitted up in 1854 to afford sleeping accommodation for six keepers. Three years later the wire fence on the south-west boundary was strengthened to keep out dogs, which "in some instances had occasioned actual loss of life in specimens of value." There is a record of a fallow deer having been killed by leaping against a fence in the grazing land when pursued by a dog belonging to a stranger in the park.

In 1859 that part of the antelope house which faces the south entrance was opened, and stocked with the zebras and wild asses, which were kept here for some time. The cost of this section was £1,100. The swine sheds are of the same date, and a walk was made thence to the reservoir, which stood near the site of the present reptile house; this joined another walk leading to the south entrance. One great improvement was introduced—the labelling of the houses to correspond with the headings in the Guide.

There was general satisfaction with the housing; but suggestions were made for improvements. In 1855 a writer in the *Quarterly Review* (Dec., p. 233) pleaded for some kind of open-air arrangement for the carnivora:

> With half an acre of enclosed ground strewn with sand, we might see the king of beasts pace freely, as in his Libyan fastness, and with twenty feet of artificial rock might witness the tiger's bound. Such an arrangement would, we are convinced, attract thousands to the Gardens and restore to the larger carnivora that place among the beasts from which they have been so unfairly degraded. We commend this idea to Mr. Mitchell, the able secretary to the Society, who has shown by his system of "starring" how alive he is to the fact that it is to the sixpenny and shilling visitors who flock to the Gardens by tens of thousands on holidays that he must look to support the wise and liberal expenditure he has lately adopted.

By bequest of the late President, the eland herd, consisting of two bulls and three cows,* passed from the

* The bulls, under a year old, were received at Knowsley in June, 1851; two of the cows, probably born in 1849, were imported in 1850, and the other was bred at Knowsley in 1844.

Knowsley menagerie into the possession of the Society. These were the first examples of this species received at Regent's Park; and in their report presented at the Annual Meeting on April 29, 1852, the Council said that the magnificent stature of these animals, their intermediate form between the antelopes and cattle, the quality of their flesh, and the prospect of their not infrequent reproduction in this country, rendered the possession of them in every respect an object of the highest interest.

Elands were introduced into England by Lord Derby, who sent out a collector for that purpose. This agent obtained two bulls and a cow, which he landed at Liverpool in October, 1842. As soon as possible they were utilised for breeding, for the distinctive note of the management at Knowsley was the propagation of animals likely to be serviceable to man. Of two calves thrown by this cow, it was noted that the sires were prepotent. Attempts were made to produce hybrids between this species and domestic cattle. An eland bull was introduced to an Ayrshire and a shorthorn cow, but no calf was born. In the "Gleanings from the Knowsley Menagerie," Lord Derby recorded his fears that the experiment of a cross would not succeed, and no other trial seems to have been made.

By March 3, 1855, six calves had been produced—one male and five females—at Regent's Park. A young bull and two cows were sold to Viscount Hill in 1855, for his park at Hawkstone, and in the following year the Marquess of Breadalbane also purchased three calves for the purpose of establishing these animals in Scotland. In the Annual Report for 1859 a table was given showing that up to June, 1858, sixteen calves had been born in the Gardens, and there was an increase of four in the Hawkstone herd. In 1855 it was proposed that the President should admit elands into the Royal domains, but the matter was not carried further. The private herds were dispersed in the 'sixties, and there the question of acclimatisation rested till it was taken up by the Duke of Bedford.

In the *Times* of January 21, 1859, a letter from Owen appeared on the subject of eland meat. He had received from Lord Hill a joint answering to the short ribs of beef. After being hung

ten days it was simply roasted with part of the loin-fat or suet, some of which was used for a suet pudding. Three brother naturalists formed with Owen a "committee of taste," to test the qualities of this joint of the first eland fattened for the table. When carved the meat presented the appearance of pork, and the committee were unanimous that in texture it was the finest, closest, most tender and masticable of any. In taste, the first impression was of its sweetness and goodness without any strongly marked flavour, which the committee thought might be due to the fact that the animal was young. It was compared with veal, with capon; finally the suggestion that it was (mammalian) meat, with a *soupçon* of pheasant flavour, was adopted. And their final conclusion was "that a new and superior kind of animal food had been added to the restricted choice from the mammalian class at present available in Europe."

Another great attraction was the elephant with her calf, purchased of Mr. Batty, the well-known equestrian. The dam was obtained by a dealer at a fair in Cawnpore at the end of August, 1850. On the journey down to Calcutta her owner made a halt for three weeks, during which she gave birth to the healthy little calf. The fatigue of the journey diminished the mother's supply of milk, and the young one was fed with zebu's milk, which agreed with it very well. The natives who saw the baby on the march to Calcutta regarded it with interest, as elephants seldom breed in the state of semi-domestication in which they are kept in India; consequently a sucking elephant was as rare a sight there as Obaysch was at Alexandria. This was certainly the first instance in which so young an animal of this species had been brought to England. Indeed, its small size led to the erroneous belief that it was born in the Gardens. It sucked daily till the dam was sold to the Dublin Gardens in 1854, and grew till within a year of its death, which occurred from tuberculosis, in 1875; and it was then just 8 ft. high at the withers.*

In 1853 rheas bred for the first time in the Gardens, though emeus had been hatched in this country many years before. The rhea chicks were figured in the *Illustrated London News*

**Proceedings*, 1875, p. 542.

SHOE-BILL STORKS. (*See p.* 120.)

From a Drawing by Joseph Wolf.

PLATE 21.

of July 23, and in describing the novelties at the Gardens, the writer said:

> Among these are three young American ostriches (*Rhea americana*) which have been hatched at the Gardens with the aid of Cantelo's machine.* They are growing very rapidly, and appear to thrive as well under the artificial treatment to which they have been subjected as if they had been produced on the Pampas. They are attended during the day by a little boy, for whom they evince the most lively attachment.

The second quagga to come into the possession of the Society was obtained from Jamrach this year. It lived in the collection till 1872, and was the last example exhibited in England. In a list of the quaggas that have lived in the Menagerie, given in the *Proceedings* (1901, i. 165, 166), it is stated that the specimen was "sold to Mr. E. Gerrard, and is now in the Zoological Museum at Tring." There is the best authority—that of Mr. Gerrard himself—for stating that the Tring quagga was purchased by him from Mr. Franks of Amsterdam. He remounted the skin, which had been badly stuffed, and sold the specimen to the Hon. Walter Rothschild.

In October, 1851, the Knowsley menagerie stock was sold by auction on the ground by Mr. Stevens. There were about 650 lots, comprising over 1,600 animals, of which 345 were mammals and 1,272 birds, representing 94 and 318 species respectively; 207 mammals and 549 birds had been bred at Knowsley, the former representing 39 and the latter 45 species. At this sale the Society purchased 160 animals, representing 62 species, at a cost of nearly £1,000. Among these were four black-necked swans, a species introduced by Lord Derby, who received four of these birds from Valparaiso a few months before his death. They were bought by A. D. Bartlett, on behalf of the Society, for £160. In the copy of the catalogue in the Hanover Square library is a manuscript note to the effect that the swans were "probably 1 male and 3 females." Two were sent to Queen Victoria; the two retained for the Gardens were a pair, for they made a nest, and hatched out four cygnets in June, 1857—the first reared in Europe—and another clutch of four in 1858.

Two birds introduced this year deserve mention—the southern

* This was an early form of incubator, in which the heat was applied from above.

apteryx and the weka rail; the former was presented by Governor Eyre and the latter by Captain Stokes, R.N. Attempts were made to send examples of the kakapo, the large ground parrot of New Zealand, to this country, but they were unsuccessful. One, however, did well till within 600 miles of the coast, when it was killed by an accident.

If one looks down from the terrace on to the polar bears' den, the old railing and the new may be differentiated. The latter, covering in the top, was added this year. A male and a female were kept here. The former, not always on good terms with his mate, sometimes had the worst of their not infrequent encounters, but at length escaped by scaling the wall and climbing over the bars that were bent inwards. The bear was soon recaptured; but the incident led to an order that the whole of the yard should be caged over.

The next year the red river-hog from the Cameroons was added to the collection. There is a notice in the *Illustrated London News* of October 9, 1852, which shows that the policy of introducing new animals likely to prove valuable from an economic point of view was pursued. Having remarked on the industry with which the world has been searched for forms that add to or improve the races of domestic animals, the writer proceeds:

> The Society have already produced a very interesting and shapely cross between the Indian wild hog and the Berkshire breed. It will be desirable to ascertain in what degree the admixture of this new blood may hereafter tend to improve the somewhat overbloated candidates for porcine honours at the critical board of the Smithfield Club in Baker Street.

In October a keeper in the reptile room was killed by the bite of a cobra. Unfortunately, the result was due to his own folly. He had been drinking overnight with a friend who was about to sail for Australia, and in the morning he wanted to show some companions his skill in handling venomous reptiles. At last he took a cobra out of its cage, and swung it round his head, claiming that he was a serpent-charmer. The reptile was irritated and struck at him, inflicting a wound on the nose. The man at once realised his terrible position; he was removed to the hospital without delay, but died in a few hours.

The following remarks on the subject are quoted from the *Times* of October 23, 1852:

> The accident occurred in the serpent-house, which, as everybody who has visited the gardens will recollect, is fitted up in such a manner as, with the most ordinary precautions, to ensure perfect safety from casualties of the kind. By means of an iron rod, hooked at the end, and inserted through the small aperture at the top of each compartment, the reptiles are easily removed into the compartment next their own, and made secure there while the keepers place food in, and clean out the empty one. Visitors are enabled to see the serpents in perfect security, through the thick glass fronts of the compartments, and nothing can be better than the arrangements of the Society in this portion of their display, the keepers having the strictest orders never on any account to lift the glass slides or to attempt doing anything in the compartments without first removing their occupants.

An inquest was of course held, and the jury found that the poor fellow's death was the consequence of his own rashness and indiscretion.

The first great ant-eater exhibited was obtained in an unexpected way. While passing a shop, occupied temporarily by a showman, the Secretary was attracted by the doorman's invitation: "Come and see the great antita heat a hegg!"* He paid his money, and the result of his report to the Council was that the animal was purchased. The *Literary Gazette* of October 8, 1853, said:

> The specimen now exhibiting at the Zoological Gardens was one of a pair captured near the Rio Negro in the Southern Province of Brazil, and shipped for England by some German travellers. The male died on the voyage; the female arrived about a fortnight ago, and was exhibited in Broad Street, St. Giles, until purchased by the spirited administrators of the Zoological Society's funds for the sum of £200. The Council in effecting this purchase have shown that they comprehend their duties in a wide and liberal sense, and that not the least of these is to secure for exhibition, when possible, every rare animal which has not before been seen alive in England, irrespective of difficulties or expense in maintaining such acquisitions.

It was stated in the *Gazette* that this example was the first to reach Europe alive. Thereupon J. T. Pettigrew wrote calling

* *Field*, February 10, 1900. The form "antita" occurred in more than one contemporary newspaper description of the animal, and was intended to represent the pronunciation of the Germans.

attention to a plate (ii.) and description in Sir John Talbot Dillon's "Travels through Spain," published in London in 1780, of a stuffed specimen in the Cabinet of Natural History at Madrid.

The great ant-bear from Buenos Ayres, the Myrmecophaga Jubata of Linnæus, called by the Spaniards *Osa Palmera*, was alive at Madrid in 1776, and is now stuffed and preserved in this cabinet. The people who brought it from Buenos Ayres say it differs from the ant-eater, which only feeds on emmets and other insects; whereas this would eat flesh, when cut in small pieces, to the amount of four or five pounds. From the snout to the extremity of the tail this animal is two yards in length, and his height is about two feet. The head very narrow, the nose long and slender. The tongue is so singular that it looks more like a worm, and extends above sixteen inches. His body is covered with long hair of a dark brown, with white stripes on the shoulders; and when he sleeps he covers his body with his tail.

Crowds flocked to the Gardens to see this strange creature—almost as great an attraction as was the hippopotamus on its arrival. Then, the other animals were feigned to be jealous of Obaysch; now, *Punch* (October 22, 1853) represented him as a deserted favourite:

A HOWL FROM THE HIPPOPOTAMUS.

I'm a hippish Hippopotamus, and don't know what to do,
For the public is inconstant and a fickle one too;
It smiled once upon me, and now I'm quite forgot,
Neglected in my bath, and left to go to pot.
And it's oh! oh! out of joint is my nose,
It's a nasty Ant-eater to whom everyone goes.

He is my abhorrence, I think him quite a hum,
He's worse than that marine Vi-va-ri-um;
He beats the Knowsley beastesses* of the Derby dilly,†
And makes the baby Elephant look small and silly.
And it's oh! oh! pity my woes!
An American Ant-eater has put out my nose.

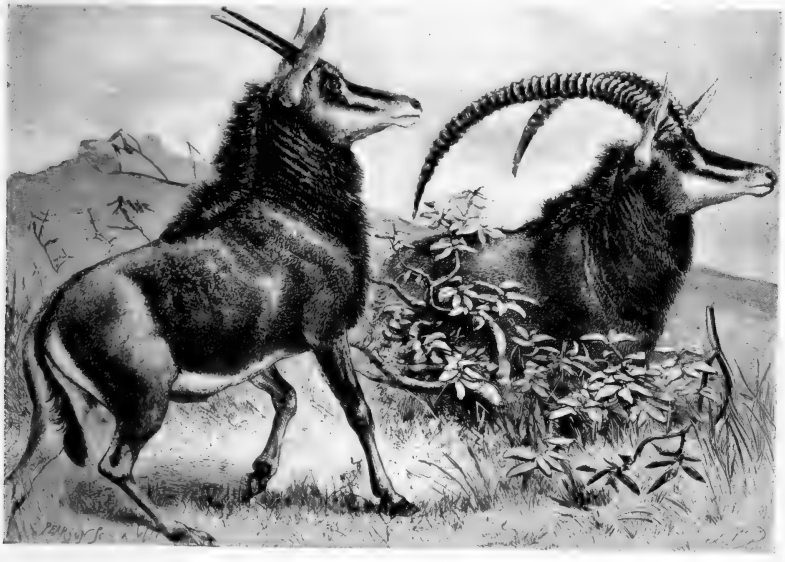
A Gujerat lion was presented by the Rajah of Jahnuggur; and the presence of this animal in the Menagerie dissipated the belief that Asiatic lions were maneless. From the Guide of 1858

* The eland herd bequeathed by Lord Derby. See *ante*.

† So down thy hill, romantic Ashbourn, glides
The Derby dilly carrying three insides.
Poetry of the Anti-Jacobin, No. xxiv.

ANTELOPE HOUSE. (*See p.* 127.)

From the "Illustrated London News," August 3, 1861.



SABLE ANTELOPES. (*See p.* 128.)

From the "Illustrated London News,' October 12, 1861.

PLATE 22.

it appears that this animal was as fully maned as the Nubian lion, of which there was then a seven-year-old example in the Terrace dens. In 1856 Alderman Finnis presented a pair from Mesopotamia, and in 1858 the male was "more fully maned in proportion to his age than the Cape lion next to him."

One would imagine that sending bears to Berne was something like sending coals to Newcastle; but in March, 1853, two young ones were consigned to the Government of that Canton, in exchange for "chamois or other animals of Switzerland."

The difficulty of finding a mate for Obaysch was solved in 1854, when the Viceroy of Egypt presented a young female (Adhela) to the Society, and a keeper was sent out to take charge of the animal. She was brought home on one of the Peninsular and Oriental Company's boats, and the experience gained in the transport of Obaysch proved of great service. It is not certain whether the two-toed ant-eater was exhibited; but the Secretary reported to the Council Meeting on September 24 that an example of this very rare animal "had been sent for purchase to the Menagerie, but that it had died within two days of its arrival." Thereupon it was ordered that £3 should "be paid to the importer, the species never having previously been in the Society's collection."

Sir Stamford Raffles brought home, in 1816, the first clouded leopard seen alive in England. Two were shipped; one died on the passage home, and the survivor was sent to Cross's menagerie at Exeter 'Change. In 1854 two males were obtained for the Gardens, and this was the first time the species figured in the list. The native pheasant, or mallee hen, one of the mound-builders, was also exhibited for the first time; and a moribund young walrus was received on deposit, the price asked being too high to justify purchase, even had the animal been in good health. Mrs. Owen thus referred to the matter in her Diary* under the date of October 15:

> R. busy dissecting the walrus which lately died at the Gardens. The man who had it to sell did a foolish thing in asking an unreasonable price for it in the first instance—£750. The Society allowed the walrus to have a place in the Gardens at the man's own responsibility, but would not listen to such a sum. The animal died, and the man only gets the price of a skeleton and skin.

* "Life of Richard Owen," pp. 403, 404.

A mound was formed by the brush-turkeys, and in it ten eggs were deposited between May 16 and June 21. The first was hatched out on July 18; four others subsequently came to maturity, but three of the chicks died soon after exclusion, and the fourth was accidentally killed when about a fortnight old. This chick was quite as strong and promising as the first which came out of the mound and was successfully reared. It was said in the Report that if the parent birds bred again, there would be little room for doubt as to establishment of the species in this country, "if not wild, at all events in a semi-domesticated and artificial state." Two Impeyan chicks were hatched under a bantam from eggs laid by the Queen's birds; and ten Japanese pheasants were reared from a pure imported cock and a three-quarter hen. The chicks of both these pheasants lived through the winter in a slight shed, and had access to the open every day, even when snow was on the ground.

In the *Quarterly Review* for December, 1855, there was an article on the Gardens. The following quotation shows that the management was mindful of the purposes of the Society, as defined in the charter—the advancement of zoology and animal physiology, and the introduction of new and curious subjects of the animal kingdom:

> One of the objects of the Gardens, under the enlightened management of the Secretary, is to make it what Bacon calls in his "Atlantis" "a tryal place for beasts and fishes."* For centuries a system of extermination has

* This quotation, from memory, hardly does justice to Bacon, who contemplated things more important than acclimatisation. In the belief that the fancy of the "New Atlantis" will be one day translated into fact, the paragraphs which the Quarterly Reviewer had in his mind are given in full from the "Works" ((ii. 159, edited by Spedding, Ellis, and Heath:

"We have also parks and enclosures of all sorts of beasts and birds, which we use not only for view or rareness, but likewise for dissections and trials; that thereby we may take light what may be wrought upon the body of man. Wherein we find many strange effects; as continuing life in them, though divers parts, which you account vital, be perished and taken forth; resuscitating of some that seem dead in appearance, and the like. We try also all poisons and other medicines upon them, as well of chirurgery as physic. By art likewise we make them greater or taller than their kind is; and, contrariwise, dwarf them, and stay their growth. We make them more fruitful and bearing than their kind is; and, contrariwise, barren and not generative. Also we make them differ in colour, shape, activity, many ways. We find means to make commixtures and copulations of different kinds, which have produced many new kinds, and them not barren, as

been adopted towards many indigenous animals; the wolf and buzzard* have quite disappeared. . . Noxious animals have been replaced by the acclimatisation of many of the foreign fauna, which are either distinguished for their beauty or valuable for their flesh. This transfer, which adds so much to the richness of the country, can be vastly accelerated through the agency of these Gardens, which are a kind of "tryal ground" for beasts, as the fields of some of our rich agriculturists are for foreign roots and grasses, in which those likely to be of service can be discovered, and afterwards distributed throughout the land.

The Society sustained a serious loss this year by the death of the fine Indian elephant, which was a great favourite with visitors, especially with children, for it was employed for riding. On many occasions it had manifested extreme terror during thunderstorms, and in the tempest of July the fright of the animal was so great that death ensued. The remains were entrusted for preservation to A. D. Bartlett, then naturalist at the Crystal Palace. From figures furnished by him it appears that the weight of the dead elephant was a little over 2 tons 6 cwt.

In 1856 the brindled gnu was added to the Menagerie, as was the pretty Arabian oryx, the smallest of the genus. This antelope was also new to science; and Gray, who described it, named it in honour of the Princess Beatrice, born in that year. The Queen presented a pair of Honduras turkeys, long desired in European collections, and two Manchurian cranes, obtained for Her Majesty by Sir John Bowring, and kept for some years in the gardens of Buckingham Palace. The herd of wapiti increased beyond the means of accommodation; consequently a stag and two hinds were sold to the Marquess of Hastings.

In response to an appeal from Prince Albert, Lord Canning, Governor-General of India, with the assistance of influential

the general opinion is. We make a number of kinds of serpents, worms, flies, fishes, of putrefaction; whereof some are advanced (in effect) to be perfect creatures, like beasts or birds, and have sexes, and do propagate. Neither do we this by chance, but we know beforehand of what matter and commixture what kind of those creatures will arise.

"We have also particular pools, where we make trials upon fishes, as we have said before of beasts and birds."

* This is an error; the buzzard is, as Yarrell said, "the least rare of the larger hawks."

officials, had made a fine collection of Himalayan pheasants. Mr. Thomson, the head-keeper, was sent out to bring them to England. Queen Victoria, the Marquess of Breadalbane, and Viscount Hill each contributed £100 to the cost of the undertaking; and it was agreed that the birds should be divided between the donors and the Society, so as to increase the chances of acclimatisation.

Mr. Thomson returned in 1857. The difficulties of the voyage reduced the number of birds shipped; but notwithstanding that unavoidable misfortune, examples of the cheer pheasant, the black-backed, white-crested, and purple kalij, and the hill partridge arrived safely, and, as the Council believed, "in sufficient numbers to afford a reasonable prospect of acclimatising them in this country." The following table shows the breeding results of the first four species and the Impeyan pheasant up to the end of the decade:

Date.	Species.	No. of Hens.	Eggs Laid.	Hatched.	Reared.
1858	Black-backed Kalij ...	5	184	63	61
	White-crested Kalij ...	1		6	5
	Purple Kalij	1		19	17
	Cheer Pheasant ...	2		26	25
	Impeyan Pheasant ...	2		12	8
		11	184	126	116
1859	Black-backed Kalij ...	3	59	18	16
	White-crested Kalij ...	2	33	12	9
	Purple Kalij	1	22	8	7
	Cheer Pheasant	2	44	19	15
	Impeyan Pheasant ...	2	10	5	3
		10	168	62	50
1860	Black-backed Kalij ...	3	47	27	14
	White-crested Kalij ...	2	24	20	12
	Purple Kalij	1	17	11	8
	Cheer Pheasant ...	1	20	13	7
	Impeyan Pheasant ...	3	33	11	4
		10	141	82	45

ENTRANCE TO ZOOLOGICAL GARDENS IN 1840. (*See p.* 128.)

Photo: Cassell & Co., Ltd.

PRESENT ENTRANCE TO ZOOLOGICAL GARDENS. (*See p.* 128.)

PLATE 23.

With the exception of the Impeyan pheasants, all the chicks of 1860 were disposed of among the Fellows and correspondents of the Society before the issue of the Annual Report in April, 1861. And for the Impeyans there were numerous applicants, who only waited for the sex to be determined. Some of the cheers and kalijs that had been sent to Lord Hill at Hawkstone throve in an open enclosure where shrubs were the only shelter.

Sir George Grey presented a quagga in 1858, which lived in the Gardens for about six years. The mounted skin and skeleton are now in the British Museum (Natural History), and the animal constitutes the type of a sub-species, known as Grey's quagga.* This was the third and last example of the species, now extinct, received by the Society.

In May an entire Burchell's zebra was entrusted to Rarey "for the purpose of being submitted to his process of taming and instruction." The trainer was to give a guarantee that the animal should not sustain any injury. No satisfactory results were obtained, and the zebra is said to have been in poor condition when returned.

Bennett's cassowary and Darwin's rhea were added to the collection this year. Both birds are of great interest; and there is a curious story about the type of the latter told by Darwin in the "Voyage of the *Beagle*" (chap. v.). While in Northern Patagonia he heard of this small "ostrich," and of course sought to obtain specimens. A bird was shot at Port Desire, and considered to be a young common rhea. This was cooked and eaten before it occurred to him that it might be the species he was looking for. And thus he tells the story:

> Fortunately the head, neck, legs, wings, many of the larger feathers, and a large part of the skin had been preserved; and from these a very nearly perfect specimen has been put together, and is now exhibited in the museum of the Zoological Society. Mr. Gould, in describing this new species, has done me the honour of calling it after my name.

A kiang, presented by Major Hay in 1859, has been reckoned the first to be received. If the wild ass from Thibet presented by Captain Glaspoole in 1831 (p. 56) was correctly identified, Major Hay's animal of course takes the second place.

* Lydekker, in *Knowledge*, xxv. p. 221 (1902); Pocock, in *Annals and Magazine of Natural History* (ser. 7, xiv. 314–28, 1904).

The question of the possible existence of the great auk came under discussion at the Council Meeting of March 16, 1859. A letter from Mr. Wolley was read, and the Secretary authorised to state in reply that the Society would expend "a sum not exceeding £70 in obtaining and bringing to England a living specimen of the great auk from Iceland, if Mr. Wolley could succeed in obtaining one."

Professor Newton, in the *Ibis* (October, 1861), in giving a summary of Wolley's researches in Iceland, pointed out that whether the bird were already extirpated or still existing in some unknown spot, extinction, if it had not already taken place, must follow on its re-discovery, which if accomplished should be turned to the best account. Purely in the cause of knowledge he thus urged the claims of England:

> Our metropolis possesses the best-stocked vivarium in the world. An artist residing among us is unquestionably the most skilful animal draughtsman of this or any other period. By common consent, the greatest comparative anatomist of the day is the naturalist who superintends the nation's zoological collection. Surely no more fitting repository for the very last of the Great Auks could be found than the gardens of the Zoological Society of London, where, living, they would be immortalised by Mr. Wolf's pencil, and, dead, be embalmed in a memoir by Professor Owen's pen.

In the last year of the decade two shoe-bill storks* were brought home by Consul Petherick and purchased by the Society. These gigantic birds were the first examples to reach Europe alive; and the only survivors out of six shipped at Khartoum, and out of about a score partially reared. Petherick repeatedly obtained young birds from the nest, but they died in a few days. Then he hatched out the eggs under hens, and the young birds would persist in performing all sorts of unchicken-like manœuvres with their large beaks and extended wings in a small artificial pond, supplied with live fish and offal chopped into small pieces. In Petherick's collection there was a young hippopotamus, which was deposited in the Gardens, and afterwards sold to Barnum.

* This species, *Balæniceps rex*, was described by Gould in the *Proceedings*, 1850, p. 1, from a skin obtained by Mansfield Parkyns on the White Nile. There is a figure by Wolf.

This was captured in the Bahr-Ghazal, where a huge beast "carried off the unfortunate cook from the gunwale on which he was sitting, one bite of the animal's powerful jaws sufficing to sever his body in two at the waist."

Bucheet, the young hippopotamus, did not travel in the luxurious fashion of Obaysch and Adhela. He was brought to England in a structure resembling a miniature horse-box, with an occasional bucket of water thrown over him instead of a bath. The only bad result was a hard, rough skin, which soon disappeared when the animal was treated to warm baths and a frequent application of the scrubbing brush. The hippopotamus in the "Greatest Show on Earth" was kept in a small travelling waggon; yet it was maintained in excellent condition by dint of daily scrubbing and laving.

The giant salamander of Japan, nearly a yard long, was also obtained for the collection. This monstrous tailed amphibian is the largest of living forms, though it was exceeded by the fossil species, which Scheuchzer mistook for the remains of a human being, and in consequence described as "the man that saw the Deluge" (*Homo diluvii testis*). It was the first brought alive to England, but at least one example had previously been exhibited on the Continent.

In February, 1859, the Silver Medal was awarded to Viscount Canning, Lord William Hay, Captain Hay, Major Henry Ramsay, the Rajah Rajendra Mullick, Captain James, and Messrs. Bryan Hodgson and H. G. Keene, for assistance in forming the first collection of Himalayan pheasants. Mr. Richard Green, the shipowner, also received this mark of distinction for his co-operation by giving facilities for transport. Later in the year this medal was given to Mr. W. D. Christie for his many valuable donations, and early in 1860, to Sir George Grey for his numerous donations of South African animals, and to the Hon. Gerald Chetwynd Talbot for his assistance in the introduction of Indian pheasants.

The expenditure of the Society and the decrease in receipts caused some anxiety; and a table was given in the Report presented at the Anniversary Meeting of 1856, to show that the number of attendances also had decreased at the British Museum, where there was no fee for admission. Before this, probably in

1854, a printed Protest had been privately circulated by J. E. Gray of the British Museum. No copy of it is known; but its purport is sufficiently indicated by an article in the *Literary Gazette* of April 28, 1855. The writer complained that for the previous three years the expenditure had exceeded the income by an average of £2,000 a year; and maintained that the outgoings ought not to exceed £12,000 a year. For 1855 the estimates had been calculated at £14,000, and the Secretary asserted that they could not be reduced.

Certain remedies were suggested. One was, that fewer animals should be kept. "The mass of the public," said the Protester, "only require fine specimens of certain popular animals, with occasional new attractions." It was also proposed that no money should be spent on new buildings, that the business of the Society should be conducted at the Gardens, and the Scientific Meetings held in the rooms of some other society. To the possible objection that the latter would not be well attended, the anticipatory reply was that matters could not be worse than they had been of late.

> The number of Fellows attending at these meetings seldom exceeds six or eight, and sometimes there are not more than half as many, the greater part attending as a duty with the view of preventing the meetings from dropping altogether.

It was also proposed that the expenditure should be brought under the control of the Council, and the accounts properly audited.

The following paragraph is editorial comment:

> We quite agree with Dr. Gray that the business premises of the Society should be at the Gardens, and that the scientific meetings should be held in the meeting-room of some other society. But the truth is, that the scientific business of the Society is neglected, and its publications are becoming most inconveniently more and more in arrear.

The question of making Tuesday, as well as Monday, a sixpenny day, was considered in 1854; but the Council decided that it was not possible. During August, September, and October in 1860 the public were admitted on Saturdays at sixpence. There was a natural protest on the part of some Fellows, and the practice was stopped.

Photo: Cassell & Co., Ltd.

EAGLES' AVIARY. (*See p.* 129.)

PLATE 24

Donations were received for the Museum, but in view of the great development of the Natural History Galleries of the British Museum the Council determined to exhibit only generic types. In 1855 the Museum was closed; the types of species described in the *Proceedings* and *Transactions* were handed over to the care of the Trustees of the British Museum, as the Council believed that in this way they would best carry out the wishes of donors and collectors. For the sum of £500 the trustees purchased a valuable series of specimens; the Queen's Colleges of Cork and Galway were buyers to the amount of £700, and smaller sums were received from provincial museums and private collectors.

No volume of *Transactions* was published in this decade, and in 1857 it was recommended that the issue should be discontinued. Fortunately, wiser counsels prevailed. There is much valuable information in the *Proceedings* by the prominent working Fellows. Owen continued his papers on the great wingless birds of New Zealand, and described the anatomy of the wart-hog, the tree-kangaroo, walrus, and great ant-eater. Dr. Sclater, who became a Fellow in 1850, first contributed to the *Proceedings* in 1851, and in the following year Flower read his first paper, which dealt with the dissection of a galago. Crisp's series of pathological papers began in 1853; and in that year J. E. Gray made the deposit of the walrus the occasion for an article, with figures from the works of Gesner, Olaus Magnus, and other writers. In 1855 Dr. Sclater's Descriptive Catalogue of the Tanagers appeared, and an account of the African lepidosiren at the Crystal Palace, by A. D. Bartlett. Wolley's notes on the nesting of the waxwing were printed in 1857, and Meves's description of the "neighing" of the snipe in 1858, when Dr. Günther's name first appeared as a contributor. Major Hay's notes on the kiang were given in the volume for 1859, and the "interesting fact"—the fertility of the hybrids—referred to in the following passage might well be confirmed or refuted by experiment:

> That the kiangs do breed with the horse I was assured in Tibet, and that their produce was highly valued. It was also stated that the produce bred again, which is an interesting fact, and proves that the kiang is more nearly allied to the horse than to the ass.

The volume for 1860 was much larger than any previously published, and contained nearly five hundred pages. Although there was no striking paper, the usual high level was maintained. Owen contributed nothing; but there was an abstract of Kitchen Parker's notes on the shoe-bill stork, which appeared in full in the fourth volume of the *Transactions*. Professor Newton's observations on hybrid ducks, and Bartlett's practical notes on animals in the Gardens, are worth recalling.

A plan (see p. 106), with a list of the houses, was issued in the year of the Great Exhibition, and sold at twopence. Mitchell's first Guide, published in 1852, contains this plan, but Gould's humming-bird house, there shown in its original position in the South Garden, has been erased. The imprint contains the line "Printed for the Author," and it would seem not to have been an official publication. Another edition was contemplated, which was to contain a "List of Animals," probably on the lines of that published in 1844, but there is no record of its publication. In the text is an announcement of the preparation of a work "for which an original series of illustrations have been made from animals in the Gardens by the accurate hand of Mr. Wolf." This refers to the "Zoological Sketches," begun by Mitchell, with the sanction of the Council. The first volume, completed by Dr. Sclater, was published in 1860.

The first Catalogue of the Library was published in 1854; it contained the titles of about four hundred and sixty separate works, including scientific periodicals.

At the Council Meeting of December 16, 1857, it was proposed to publish a Garden Guide. An amendment, moved by Dr. Sclater and seconded by Gould, that, "the Secretary undertaking to complete and have ready for sale a Catalogue of the Gardens before Lady Day next, the publication thereof be left in his hands," was carried. This Guide appeared in 1858, much in the same form as it bore down to the end of 1903, when that series came to an end.

In 1860 Holdsworth's Handbook to the Fish-house was published, but no second edition was called for. It was intended to provide visitors with information about the fishes and invertebrate animals exhibited in the fish house, but not to serve as "a detailed Guide." There was a history of the aquarium, with

the principles to be observed in keeping up a balance between animal and vegetable life; and to this Introduction succeeded chapters on the different classes.

During this decade Gould's "Mammals of Australia" and "Humming Birds" were almost the only important additions to the Library, beyond the *Transactions* and *Proceedings* obtained from other scientific bodies by exchange. In 1860 the periodicals were examined, and in many "there were found to be volumes and portions of series missing." The sum of £39 was spent in binding, and £33 in putting up shelving.

Returns of the number of animals in the Menagerie are only available for two years. On December 31, 1859, there were 364 mammals, 819 birds, and 137 reptiles; the figures for the end of 1860 were 467, 931, and 192 respectively.

	Exhibited for the First Time.				Breeding Species.			
	Mammals.	Birds.	Reptiles.	Total.	Mammals.	Birds.	Reptiles.	Total.
1851	16	59	11	86	17	14	2	33
1852	21	18	11	50	19	15	—	34
1853	8	13	4	25	13	16	—	29
1854	7	8	4	19	16	19	—	35
1855	7	8	4	19	15	18	1	34
1856	6	11	16	33	16	20	—	36
1857	6	15	14	35	27	27	—	54
1858	10	12	11	33	21	28	—	49
1859	7	14	8	29	23	25	—	48
1860	7	16	11	34	23	27	2	52

Fellowship Roll, Visitors, and Finance.

	No. of Fellows.	Admissions to Gardens.	Income. £.	Expenditure. £.
1851	1,641	667,243	26,452	22,380
1852	1,662	305,203	12,802	17,821
1853	1,662	409,076	17,508	17,121
1854	1,744	407,676	16,901	19,043
1855	1,752	315,002	14,088	14,737
1856	1,773	344,184	15,279	15,839
1857	1,736	339,217	14,822	14,352
1858	1,716	333,980	14,034	12,195
1859	1,721	364,356	15,194	14,345
1860	1,716	394,906	16,863	15,949

CHAPTER VI.

1861—1870.

THE death of the Prince Consort on December 14, 1861, deprived the Society of an able and sympathetic President, whose powerful influence had been continuously exercised in furthering the objects it was established to promote. As a token of respect the monthly meeting that, under ordinary circumstances, would have been held on December 19, did not take place. A committee, consisting of Admiral Bowles, Sir J. E. Tennent, and the Secretary, was appointed to prepare an address of condolence, which was presented to Her late Majesty by the Home Secretary.

At the Anniversary Meeting in April, 1862, the Council reminded the Fellows of "the great and undeviating interest ever exhibited by their late President in the objects which this Society have most at heart, and of the many valuable donations which His Royal Highness's patronage was the means of conferring upon them."

It is worth noting that one of the last acts of the Prince in connection with the Society was the appointment of Huxley, "the great and beloved chief," and Wilberforce, Bishop of Oxford, Vice-Presidents of the Society.*

At the Council Meeting of February 5, 1862, Sir George Clerk was elected into the Council, and then chosen as President till the next Anniversary, when the choice was approved. He held office till his death on December 23, 1867, and his services to the Society are thus recorded:

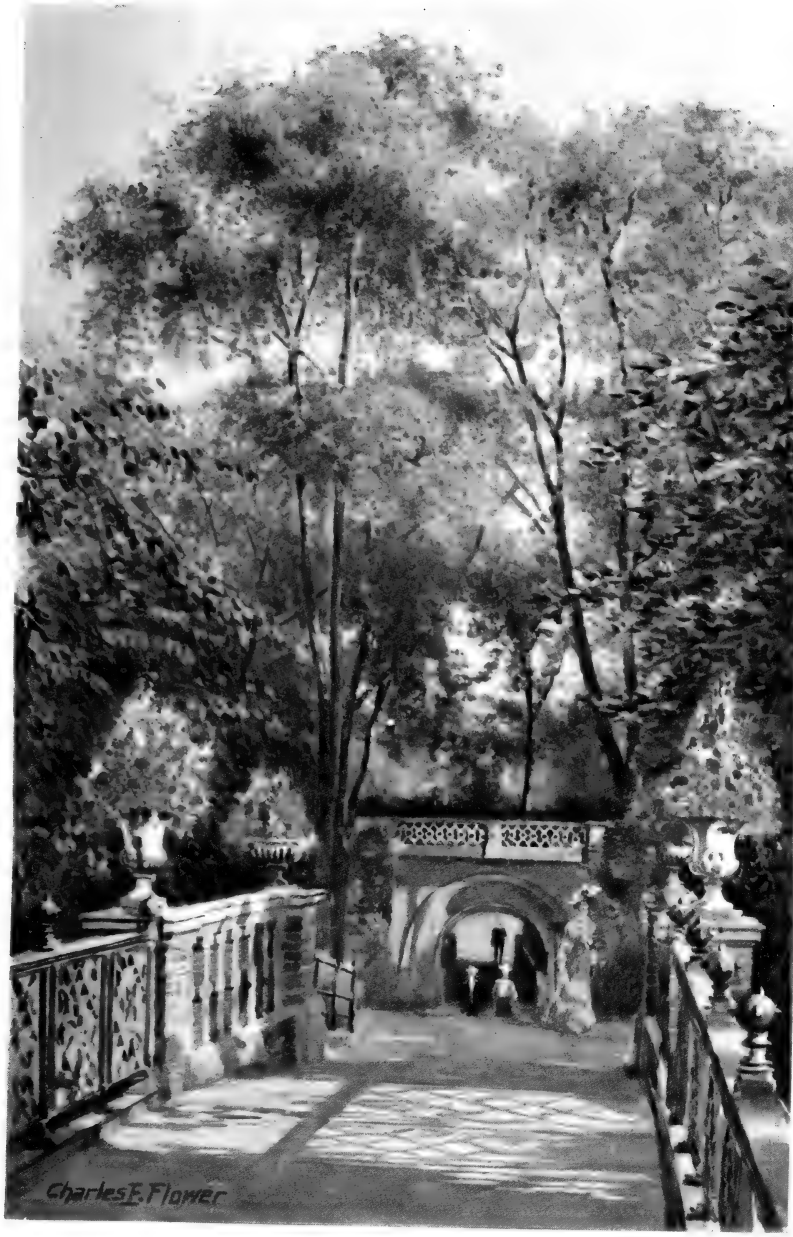
The late Sir George Clerk had been a member of the Society since 1830, and, before his election as President in 1861, had frequently served on the

* The story of the "too venturesome" Bishop's attack on Huxley, and, through him, on the "Origin of Species," at the Oxford meeting of the British Association, in 1860, was told in brief by Professor E. Ray Lankester in *Natural Science* (vii. 120), in his memorial notice of Huxley. Fuller details will be found in the "Life and Letters of Charles Darwin" (ii. 320–3).

PLATE VII.

THE TUNNEL, FROM CANAL BRIDGE.

(*See p.* 153.)


Charles F. Flower

Council, of which he was for many years a most active and efficient member. As President he was unremitting in the discharge of the duties of his office, and ever anxious to promote the interests of the Society.

On January 16, 1868, Viscount Walden (afterwards the Marquess of Tweeddale), a well-known ornithologist, was elected President till the Annual Meeting, and Professor Huxley was chosen to fill the vacancy thus caused in the Council.

In 1865 a new office, that of Prosector, was created, for the reasons thus stated in the Council's report:

1. As likely to lead to a better knowledge of the diseases of animals, a subject of which we are at the present time lamentably ignorant, and by the knowledge thus acquired to induce a better treatment of them when alive; and
2. In the interests of zoological science, in order that a more perfect and systematic record may be kept of the internal structure of the many rare and valuable animals that from time to time die in the Society's menagerie.

Dr. James Murie, who had been an assistant in the Museum of the Royal College of Surgeons and medical officer and naturalist to Petherick's expedition, was selected from a number of candidates for the new post, as being "in every way qualified for this arduous situation, and likely at once to advance the interests of the Society, and those of zoological science." Dr. Murie filled the post till March, 1870, when he tendered his resignation on account of ill-health. In accepting it the Council requested him to continue in office, without discharging any of the ordinary duties, in order to finish certain papers for the *Transactions*.

James Thomson, the head-keeper, was pensioned in 1869, and was succeeded by Misselbrook, who held the post for twenty years.

In 1861 the antelope house was completed at a cost of over £4,000, and the animals were transferred thither. It was fitted up with heating apparatus, which was also adapted to supply the hot-water pipes in the Terrace dens. The new part, facing the porpoise pond (afterwards used for sea-lions), contains fifteen stalls, each communicating by sliding doors with those adjoining, and opening on to a small yard. One defect, however, is that the animals cannot be turned into the grazing paddock; but it is

intended to obviate this by increasing the area of the yards, and laying them down in grass. The structure, including the part previously stocked with zebras, was described in the Press as "the most commodious and suitable building for animals yet erected in the Gardens, and by no means deficient in architectural merits." At first the stock consisted of:

1 Blesbok	1 Hartebeest	2 Nylghaie
1 Lechée	2 Addax	1 White-tailed, and
1 Sable Antelope	3 Leucoryx	1 Brindled Gnu

It was, however, largely increased before the end of the year, chiefly by the valuable donations of Sir George Grey.

This year it was decided to lay out about £1,500 in providing better accommodation in the refreshment-rooms, at that time occupying part of the present site. The Council believed that the result of this expenditure "would greatly increase the attractions of the Gardens as a place of public resort."

In the North Garden the Superintendent's house was practically rebuilt; the old deer sheds by the hippopotamus house were replaced by the present brick houses, with slated roofs, and a new platform was erected on the south side of the hippopotamus pond.

Sheep sheds were put up in 1862 on the small lawn opposite the cattle sheds; the small pheasantry for the Himalayan chicks was made on the ground afterwards turned into paddocks when the ostrich house was built; and another gate and money-taker's lodge was constructed at the south entrance.

New lodges replaced the old wooden boxes for money-takers at the main entrance in 1863. They were said to be "ornamental adjuncts to the Society's premises," with "the further advantage of giving shelter from the weather to persons entering the Gardens whilst they paid the entrance fees or wrote their names in the visitors' books."

The New or Eastern Aviary was rebuilt, of larger dimensions and on different principles. The Council described it as "in several respects superior to any other building for the care and exhibition of birds yet erected in this country. The elevation of the floor was better for display, in addition to improving the drainage and affording more air and light."

The monkey house replaced, on another site, a building long recognised as defective, and on this it was a vast improvement. But the old house possessed one advantage not to be found in the new one—open-air cages to which ready access might be allowed to the animals at the will of the keeper. Many of the baboons and hardier monkeys are now kept in the open but in the matter of an outdoor *annexe* the monkey house in Regent's Park is, for the time being, behind Manchester and Clifton. The erection of a row of cattle sheds enabled the authorities to exhibit the collection of bovine animals in a connected series.

The whale pond or porpoise basin, afterwards used for sea-lions, was built this year. A beluga, or white whale, had lived for two years in a tank in the Aquarial Garden, Boston, U.S.A., and this seems to have inspired the idea of providing accommodation for cetaceans in Regent's Park.

In the spring of 1865 the Council were able to announce that after the long and severe winter the deaths in the monkey house had been very few, and the greater number of the animals remained in excellent health. The cost of the house and laying out this western corner of the South Garden, making it one of the best-arranged and most attractive portions of the grounds, was very little short of £5,000. Railings and gates were put at the main entrance, the paddock of the antelope house was securely fenced, and the first dissecting room built. In the North Garden the beaver pond was made, and the sheds, close by, erected for the smaller deer.

The old eagle aviary in the centre of the Garden was pulled down and the site added to the lawn in 1866. With the material and some from the outside cages of the old monkey house the existing eagle aviary was constructed on the site of the last-named building. The rest of the wire work was utilised for the vultures' cages in the walk leading to the right from the south entrance. Wolf's famous water-colour drawings were exhibited in the upper part of the old Museum building, which had been fitted up for that purpose.

In 1867 sheds for rodents were added to the north end of those used for the swine; and in the North Garden the walk eading from the kangaroo sheds over the tunnel to the parrot

house was made, as were the wombats' pens, since cleared away to afford space for the kangaroo paddock.

The next year the deer sheds were finished, and the animals transferred thither from the wapiti house, which was then demolished to allow of the erection of the elephant house on the site. This structure was to have been ready for occupation in November, but the animals were not removed to the new quarters till late in the following summer. It contains eight roomy stalls, four opening into one paddock, and four into another, each having a large bathing pond. In the upper storey are four good rooms for keepers, and excellent forage lofts. The old house was then cleared away. The paddocks, the terrace walk in front of the house, and the eastern pond date from the following year; the western pond dates from the 'thirties, but was slightly altered in shape.

The stock consisted of two young African elephants (♂ ♀), two Indian elephants (♂ ♀), two Indian rhinoceroses (♂ ♀), an African rhinoceros (♂), and an American tapir (♂). This the Council believed to be "by far the finest and most nearly complete series of the larger living representatives of the Cuvierian order of pachyderms that had ever been brought together in Europe."

New dining-rooms, kitchens, and cellars were provided at the refreshment-rooms in the South Garden, for which the lessee agreed to pay an increased rent; and in the North Garden the gazelle sheds were put up.

Several applications had been made by the Council for an extension of the area devoted to the Gardens; but they could only obtain permission to re-enter on the strip north of the canal which had been surrendered to the Crown in 1841. This change, which took place in 1869, made the total area 30 ac. 2 r. 34 p., for which the yearly rent is £358 0s. 8d.

In 1861 two valuable collections of animals were received from Sir George Grey, Governor of Cape Colony. These were brought home by Mr. Benstead, a collector employed by the Society. One consignment arrived in May, and included the first koodoo and steinbok brought alive to Europe; the first grysbok and rehbok to come into the possession of the Society, and a zebra mare, entered as a Burchell. Attention was called to this animal, as being different from ordinary specimens "in having

AFRICAN ELEPHANTS. (*See p.* 136.)

From a Drawing by Joseph Wolf.

PLATE 25.

the stripes further extended down the legs, and rather different markings on the back." There the matter ended till 1865, when E. L. Layard wrote to J. E. Gray, sending figures and descriptions of what he called a new species of zebra. "I wish," he said, "to name the animal *Equus chapmanni*, after its discoverer, my friend James Chapman, who has done so much for African discovery, and who has hitherto reaped no reward." This letter was read at the scientific meeting of May 9, when Dr. Sclater exhibited a drawing of the animal by Wolf (*Proceedings*, 1865, pl. xxii.), and said that it must be referred to this new species, providing that should stand. The name has stood, but the form has now only sub-specific rank.

A new bird, the island-hen gallinule, from Tristan d'Acunha, was also received. This species has lost the power of flight, and with the shortening of the wings there has been a corresponding development of the hind limbs. Part of the notice in the *Illustrated London News* of July 6, in which issue Chapman's zebra is well figured, is worth quoting:

> To the large and daily increasing number of naturalists of the "Darwinian" School this bird is most interesting as showing the way in which animals are modified in accommodation to circumstances. The organs of flight would be of little use to a moor-hen on the dry, bush-covered rock of Tristan d'Acunha, while speed in running becomes doubly valuable where there are no sedgy, fresh-water ponds (such as ordinary moor-hens love) to supply a ready means of escape.

The second collection, calling for no special remark, was brought over in November. Mr. Benstead went out again to collect for the Society, his special object being to secure a young African elephant and other animals that had long been desiderata. He was received at Government House, and made known his wants by means of an advertisement in the *Cape Argus*. At that date there would seem to have been no apprehension as to the approaching extinction of the quagga. According to Mr. Bryden it disappeared south of the Orange River before 1865, and probably within another score of years it vanished from what was then the Orange Free State, and was as completely lost as the dodo. Yet in 1861 Mr. Benstead expressly barred quaggas. The prices he offered for animals, quoted on the following page, cannot be called high:

ZOOLOGICAL SPECIMENS

FOR THE

ROYAL SOCIETY.*

MR. BENSTEAD having returned to the Colony as Agent to the ZOOLOGICAL SOCIETY OF LONDON, to collect living specimens for their Menagerie, hereby gives notice that he will pay handsome Premiums for all kinds of Animals and Birds. Thus, for a fine healthy pair (Male and Female) of Elephants he will give the sum of £180; the same sum for a similar pair of Rhinoceroses; for a Zebra, £20; for a Young Bull Eland, £15; and for other Animals equally liberal Sums, according to their value.

2 Elephants	**each**	**£90**	**0 0**
Rhinoceros		**90**	**0 0**
A Pair of Koodoo		**31**	**10 0**
„ Ant-Bears		**15**	**0 0**
(A Pair of Dead Specimens in Brine are required.)			
A Pair of Gemsboks		**30**	**0 0**
„ Hartebeestes		**30**	**0 0**
„ Rheboks		**10**	**0 0**
„ Zebras (not Quagga)		**40**	**0 0**
„ Rock Rabbits			
„ Wattled Cranes		**5**	**0 0**
„ Crested Cranes		**5**	**0 0**
A Young Male Eland		**20**	**0 0**
A Pair of Springboks		**5**	**0 0**

Any Specimens of the Antelope Tribe will be paid handsomely for. Application to be made to Mr. Benstead, at Government House.

An official advertisement appeared in the *Field* in November, 1861, offering the following birds of the year, from which it will be seen that the season was a good one for the Himalayan pheasants:

Cheer, one male and two females	£7	
Purple kalij, seven pairs	£12	a pair
Black-backed kalij, five pairs	£10	„
White-crested kalij, eight pairs	£10	„

* The epithet "Royal" is often wrongly prefixed to the title Zoological Society of London. This is sometimes done by Fellows, and in a recent "Life" Sir William Flower is described on the title page as Late President of the *Royal* Zoological Society. The Zoological Society of Ireland is entitled to the epithet. It is evident from the text that Mr. Benstead's "Royal Society" is really the "Zoological Society of London."

The first living aye-aye to reach Europe was presented in 1862 by Mr. Edward Mellish of the Mauritius. In 1859 Dr. Sandwith sent a spirit specimen to Owen, which formed the material for his memoir in the *Transactions*. Sonnerat discovered the species in 1780, and brought a specimen to Paris, probably the only one known in Europe till the subject examined by Owen. The animal is about the size of a cat, clothed in long dark-brown fur, with a woolly coat, and is confined to the forests of Madagascar. "I am told," wrote Sandwith to Owen, "that the Aye-Aye is an object of veneration at Madagascar, and that if any native touches one he is sure to die within the year; hence the difficulty of obtaining a specimen. I overcame the difficulty by a reward of ten pounds."

Great interest centres in this species from the fact that it was formerly classed with the Rodents till Owen settled its true position as an aberrant lemur. As a menagerie animal the aye-aye is not attractive, its nocturnal habits causing it to spend the day in its sleeping-box.

Prior to this one had been kept in confinement in Réunion, as appears from a paragraph in the *Journal du Commerce* translated in the *Literary Gazette* of December 16, 1854:

> The Zoological Gardens have received a specimen—the only one known to exist—of the *monkey-rats* described by De Blainville. It is called the *aye-aye*, and comes from the unexplored forests of Madagascar. From its appearance, its bushy tail, and its teeth, it would be taken for a squirrel. But it is of the size of a large hare ; its colour is entirely black, and on its back is long and thick hair like bristles. Its tail, extremely long, has hair at the end which spreads out bilaterally and horizontally. This tail serves as a sort of parasol to shelter its head, when it lies rolled up in a corner. . . . It is said that the animal digs itself a hole ; but it escaped one day, and was found perched in a tree. It is fed on a certain description of larvæ.

The reference to the food in the last sentence is interesting, since Bartlett recorded the fact that the aye-aye in the Gardens exhibited no inclination to take any kind of insects, but fed freely on a mixture of milk, honey, eggs, and any thick, sweet, glutinous fluid, rejecting meal-worms, grasshoppers, the larvæ of wasps, and all similar objects. Consequently he was inclined to think that the animal was not insectivorous.*

* *Proceedings*, 1862, p. 222.

Dr. A. R. Wallace brought home two lesser birds-of-paradise, the first exhibited in this country, though, according to the *Saturday Review* (May 17), there was "a kind of zoological tradition that a paradise-bird was once alive at Windsor in the possession of the late Princess Augusta." Dr. Wallace's account of the manner in which he obtained the birds and brought them to England is well known, and forms one of the most interesting portions of his "Malay Peninsula." When the birds arrived they were in good health and very lively; their plumes were only about 5 in. long, the old ones having been shed, while the new ones had not yet grown.

At first they were exhibited in the upper part of the Museum building, a room having been fitted up there, with a cage of wirework 20 ft. long and 11 ft. wide. As both were males it was found necessary to keep them apart, the sight of each other, or even a paradise-plume waved in the air, exciting them greatly. The Superintendent, therefore, had the cage divided by a screen, which excluded the light, and the birds placed in the separate compartments. They were afterwards removed to the new aviary in the South Garden, and the room originally fitted up for them was used for the more tender monkeys.

Examples of the kagu were received from Dr. Bennett, and close observation of its habits in confinement enabled Bartlett to detect its relationship with the sun-bittern. His conclusion was confirmed by the anatomical work of Kitchen Parker and Murie. Both birds are the relics of generalised forms related to the rails. Professor Newton has noted that in moments of excitement both birds abandon their ordinary placid demeanour and execute a variety of violent gesticulations, dancing round and holding the tip of the tail or one of the wings by the tip of the bill.

From this year dates a successful experiment in acclimatisation at the Antipodes. The Council purchased some young red deer and shipped them to New Zealand for Sir George Grey, then endeavouring to introduce this species into the colony. At the scientific meeting of November 18, 1902, Dr. Henry Woodward reported that the herd in the Otago district numbered from four to five thousand, and that there were several similar herds in other parts of New Zealand. Quoting from the current report

WALRUSES. (*See p.* 139.)

From a Drawing by Joseph Wolf.

PLATE 26.

of the Otago Acclimatisation Society, Dr. Woodward said that "quite a number of the heads obtained in the previous season had antlers from forty to forty-six inches long from tip to base, with a width of span up to forty-one inches; and several of the carcases weighed from five to six hundred pounds."

In the reptile room a West African python laid about a hundred eggs, which she incubated, from January 13 till April 4, without bringing off a brood. After she had been sitting about a fortnight Bartlett opened an egg, and found a living embryo inside. "There is no doubt," said a writer in the *Times* of April 5, "that the frequent removals of the blanket in uncovering the eggs, and the occasional partial uncoilings of the snake, caused too numerous sudden changes of temperature for the proper development of the young." Mr. Punch, on April 19, thus addressed the Fellows who had taken the temperature periodically, and made other investigations:

> Like boys, who when they've sowed a seed, still of its progress doubting,
> Will pull it up from time to time to see if it is sprouting,
> So you in your anxiety to see my Pythons small,
> Have poked and pulled and fingered me till you've got none at all.

The Indian collection made for the Society by its Corresponding Members, the Rajah Rajendra Mullick, Mr. A. Grote, Dr. John Squire, and Mr. William Dunn, was brought home in July, 1864, by Mr. J. Thomson, the head-keeper, who had been sent out to Calcutta for that purpose. He was very successful, and there were but few deaths on the passage. A gratuity of £50 and the thanks of the Council were voted to him for his services. The most important animals received were:

2 Indian Rhinoceroses (♂, ♀)*
2 Black Cuckoos
2 Rose-coloured Pastors
1 Rhinoceros Hornbill
2 Concave Hornbills
3 Javan Peafowl
2 Rufous-tailed Pheasants
1 Peacock Pheasant
2 Indian Tantaluses
2 Indian Jabirus
2 Sarus Cranes, and
2 Land Tortoises
3 Lineated Pheasants

In this year the tooth-billed pigeon of Samoa, which had been reckoned as extinct, was received from Dr. George Bennett

* The male was Jim, which lived in the Menagerie till December, 1904; the female was sent to the Jardin des Plantes in 1865 in exchange for Jumbo.

of Sydney. This very curious bird, the nearest living ally of the dodo, lived but a few months in the Gardens. After death, it was sent to the British Museum, and "served to fill an important vacuum in the National Collection of Zoology."

The Saiga antelope was introduced this year, and towards its close a porpoise was exhibited in the pond by the antelope house—the first example of a cetacean shown to the public, though some had been received before. The attempt to keep porpoises was not very successful. This animal lived for twenty-seven days, and "was only lost through the accident of a severe frost coming on somewhat unexpectedly."

The first prongbuck, purchased in 1865, is remarkable as having afforded Bartlett the opportunity of establishing the fact that the horns were shed, as are the antlers of a deer.* The fact had long been known to the native hunters and trappers, who tried in vain to convince Audubon and Bachman that such was the case. The following is Bartlett's account in the paper referred to:

> On the morning of November 7 the keeper, somewhat alarmed, called my attention to the fact that one of the horns of the prongbuck had fallen off. I hurried to the spot immediately, fearing that some accident had happened, and reached the paddock in time to see the second horn fall to the ground. My astonishment was much increased at observing that two fine new horns were already in the place of those just dropped, that these new horns were soft and covered with long, straight, smooth, and nearly white hairs, and that the bony core (that I had expected to see) was thickly covered with soft, new, horny matter. These new horns appeared larger than the hollow portion of the horns just cast—an appearance due to the fact of their having pushed off the shed horns by their growth. The long hair at the base of the horns had concealed the separation that was taking place.

Jumbo was the most important arrival, from the Menagerie point of view, and was said to be the first African elephant brought alive to this country. Bell, however, wrote from The Wakes, Selborne, to the *Field* of July 8, 1865, stating that he remembered to have seen, some years before, two living African elephants at the Surrey Zoological Gardens; and he was of opinion that they were not the only ones that had been imported

* *Proceedings*, 1865, p. 718.

though he could not recollect particulars.* In Bartlett's "Wild Animals in Captivity" the author, in an article on African elephants (p. 63) which, from internal evidence, appears to have been written about 1880, said:

> I remember, years ago, seeing a young elephant of this kind, which belonged to a travelling menagerie, led through the streets of Cardiff. It was advertised (and most justly) as a great rarity—I think, as a unique specimen. . . . That it was African, and not Asiatic, was evident at a glance.

Jumbo was received on June 26, and at the scientific meeting on the following evening Dr. Sclater announced its safe arrival in the Gardens, where at first it was quartered the eland house. About three months later Alice was purchased of Rice for £500. With another elephant she had been sent to London from Vienna, to which city Casanova had brought them and other animals collected in the Soudan. In November she was 3 ft. 6 in. high and 6 ft. 3 in. in girth; the corresponding measurements for Jumbo were 5 ft. 6 in. and 9 ft. 6 in.

Commander Fenwick, of H.M.S. *Harrier*, brought home and presented to the Society a king penguin from the Falkland Islands. Considering that the larger penguins were met with by Cook on his second voyage, it seems strange that no example of these flightless sea-birds should have reached the Gardens till 1865. In the opinion of the Council this was the only member of the group ever brought alive to Europe up to that time. During its short life in the Gardens it attracted universal attention.

This bird was one of a dozen taken on board at the Falklands, and all the rest died from refusing food. The survivor was petted and played with by the sailors, and at length induced by them to swallow some fat and fish; from that

* There can be little doubt that Bell was mistaken. Had two African elephants been exhibited at the Surrey Gardens the fact would have been known to every working zoologist, and must have found its way into literature. Search through a large collection of newspaper cuttings relative to the collection, and evidently made in the office, shows no reference to the subject, nor does an African elephant appear in the catalogue of the sale, which took place in 1855. But in 1854 there were two "pygmy Indian elephants" in the Surrey Gardens. These were figured in the *Illustrated London News* of June 10.

time it was carefully fed and brought home in good condition. This king penguin showed great disinclination to go into the water, and it was proposed that "while waiting the arrival of the next porpoise or whale" the bird should be turned into the large basin.*

Other important introductions were the three-banded armadillo, the Siamese pheasant,† and the red-crowned pigeon of the Seychelles.

Early in 1866 a Patagonian sea-lion was purchased of a French sailor named Lecomte, who had brought the animal to England in the previous year. He had captured it in the Falkland Islands and trained it to perform various tricks, which attracted a good deal of attention at Cremorne Gardens and other places. At the time of purchase the former owner entered the service of the Society, in which he remained till his death in 1877. The sea-lion was a great attraction for more than a year, when it died from inflammation of the intestines, probably caused by swallowing a fish-hook, which had escaped the keeper's notice in some of the fish on which it was fed.

The straw-necked ibis, the little whimbrel, and the wattled lapwing, from Australia, and the trumpeter swan and the ruddy flamingo, from North America, were received for the first time.

Wolf's sketches were exhibited in the upper part of the Museum, and attracted a good many visitors to the Gardens. Some of these unrivalled drawings now adorn the walls of the meeting-room; the rest are bound in large folios in the Library.

Clarence Bartlett went out to Surinam to take charge of an American manatee, which had been purchased of a German naturalist. Unfortunately, the animal died a few hours before the vessel arrived at Southampton. Equally unsuccessful was the attempt to send one home from Porto Rico. Both the bodies, however, were fresh, and Dr. Murie's dissections formed the subject of a memoir in the *Transactions*.

In the winter of this year two accidents happened. The more serious was the fire in the giraffe house, which, though it was soon got under, resulted in the death of an adult female and

* A. R. W. [*i.e.* Dr. Alfred Russel Wallace] in the *Reader*, April 29, 1865.

† Now known as Diard's crested fire-back, the *Lophura diardi* of the British Museum Catalogue (xxii. 290).

AFRICAN RHINOCEROS. (*See p.* 140.)

From a Drawing by Joseph Wolf.

PLATE 27.

her fawn. The cause of the fire was never discovered; but the "occurrence was conjectured to have arisen from a box of fusees or lucifer matches having been accidentally left in the straw, and become ignited by the tread of the animals." The loss, estimated at £545, was covered by insurance.

Owing to a heavy snowstorm the netting that roofed in the pheasantry near the cattle sheds was broken down, and "the inmates (many of which were worth £50 apiece) escaped into the Park. Most of the birds were fortunately recovered."

In 1867 the Government agreed to pay the expenses of a collector, appointed by the Council, to accompany the Abyssinian expedition. Mr. William Jesse was selected, and brought back over 1,200 specimens, chiefly birds, which were described by Dr. Otto Finsch in the *Transactions*.

Clarence Bartlett sailed for Calcutta early in the year to bring back a valuable collection, presented by the Rajah Rajendra Mullick, Mr. A. Grote, Dr. J. Anderson, and other friends in the East. There were heavy losses on the return voyage. He arrived in August, bringing with him:

2 Black Tibetan Wolves
1 Gayal (♀)
1 Panolia Deer
1 Entellus Monkey
2 Slow Loris
1 Indian Badger
2 Mitred Pelicans
4 Demoiselle Cranes
2 Polyplectrons
1 White Fruit Pigeon
1 Bronze Pigeon
1 Singing Pigeon
1 Hemipode; and
8 Water Tortoises

Lecomte was sent out on a collecting trip to the Falklands for sea-lions and other animals, but did not return till the following year.

A walrus was purchased for the collection at a cost of £205. The following extract from the Council's Report describes its capture and transport to London:

This animal was captured in Davis's Straits by Captain Richard Wells, of the steam-whaler *Arctic*, belonging to Messrs. Alexander Stephen & Co., on August 28 last, under the following circumstances: A herd of from 200 to 300 of these animals was met on the ice by the *Arctic* in lat. 69° N. and long. 64° W. A boat's crew was landed on the ice, and the herd attacked and several individuals killed, amongst which was a large female. The body of the latter, being attached to the boat and rowed towards the vessel, was followed by a young male, who swam and dived around, and

refused to quit his deceased parent. This being noted, he was captured by a noose swung over his head and one fore limb, from the ship, and hauled on board. For some days the captive was kept tied to a ring-bolt on deck, and refused food altogether. Subsequently he was induced to swallow thin slips of boiled pork, and was thus fed until the vessel reached the Shetlands, when a supply of fresh mussels was provided for his use. A large box with openings at the sides, and the animal secured therein, was brought safely into Dundee. From that port to London the walrus was conveyed in the steamer *Anglia* under the care of the Society's Superintendent.

The animal had very short tusks, and Bartlett had the skull of an adult male, with tusks over a foot long, fastened to a tree. "I was much amused one day," he wrote, "by a decent-looking man, who appeared to be taking great interest in and studying the beast, asking me if he had shed that skull."*

One Press correspondent seems to have had a strange idea of a walrus, for he wrote: "At present he has no sign of the formidable 'horns' so familiar to Arctic navigators, and which give such a peculiar appearance to the sea-horse."

The first lyre-bird, a female, was acquired by purchase this year, and in 1868 a male was presented by the Hon. John Ellis.

A young male African rhinoceros, believed to be the first received alive in Europe since the days of the Romans, was purchased from Hagenbeck, who received it from Casanova. It was in excellent health and quite tame. Till the elephant house was finished, the animal was kept in the giraffe house. Its dimensions on arrival are given as about 6 ft. in length, and 3 ft. 6 in. high at the shoulder. In a wing of the same building a young male koodoo was housed; and as the horns were not developed, a skull with horns was put up in the stall. This method of exhibition has much to recommend it, but it is not easy to decide how far it should be carried.

In the autumn of this year Lecomte returned from his expedition, the object of which was to procure as complete a living collection as possible of the mammals and birds of the Falkland Islands. He arrived at Port Stanley on August 11, 1867, and received valuable assistance from Governor Robinson, who placed a small schooner at his disposal. By the end of the

* "Wild Animals in Captivity," p. 167.

year he had obtained four young sea-lions, but was unable to rear them, and all died from want of suitable food. Nothing daunted by this loss, Lecomte tried again, and in June returned to Port Stanley with four others (one male and three females), and a collection of other animals, of which the following is a list:

8 Johnny Rooks (Milvagos)	7 Cormorants
1 Gentoo Penguin	6 Starlings
4 Rockhopper Penguins	22 Finches
6 Kelp Geese	2 Sea-hens (Black Oyster-Catchers)
9 Loggerheaded Geese	2 Antarctic Wolves

12 Gulls (Dominican and Scoresby's)

On board the packet between Port Stanley and Monte Video Lecomte lost seventy-one animals of the eighty-three shipped. The surviving stock was transferred to the mail-boat at the South American port, and for some time the sea-lions remained in good health and condition. The death of a passenger was, rightly or wrongly, attributed to yellow fever,* and the doctor ordered Lecomte to throw overboard the fish he had shipped for feeding his sea-lions. In consequence three of the four died, and the survivor (a female) was kept alive as far as Lisbon (where a fresh stock of fish was obtained) chiefly by the flying-fish which fell on the deck, and these Lecomte purchased from the sailors who picked them up.

When this animal arrived at the Gardens it was "about the size of an ordinary seal, very thin, but still in good health." The only other animals brought by Lecomte were:

1 Antarctic Wolf	2 Upland Geese
2 Milvagos	1 Kelp Goose; and

1 Dominican Gull

Although the results were less satisfactory than had been expected, the Council stated in the Report that they had "every reason to be satisfied with Lecomte's conduct during this difficult and dangerous expedition."

Dr. Wilson, of the Antarctic exploring ship *Discovery*, recently called attention to the practice of boiling down penguins

* In *Land and Water* of August 29, 1868, Frank Buckland wrote: "One of the passengers being taken ill with a chest disease, it was imagined there was yellow fever on board." The Council's Report (1869, p. 23) states that "the passenger died of yellow fever."

for oil; and at the final sitting of the Fourth International Congress of Ornithologists a telegram was sent to the Colonial Governments at the Antipodes urging them to introduce legislation to prevent the boiling down of sea-birds for oil. Though the practice seems to have escaped general attention till recently, it is by no means new. Lecomte told Frank Buckland that "there were vast numbers of penguins at the Falkland Islands. Last year [1867] no less than 405,600 were slain, skinned, and boiled down to make oil. They yielded 50,700 gallons of oil, worth 1s. 7½d. per gallon, making a total of £4,119 7s. 6d."

A hoolock gibbon presented by Mr. Grote is entered as new to the collection; but in this case, as in that of the kiang, a prior existence of the species in the Menagerie seems to have been overlooked.* The regent-bird was received for the first time this year.

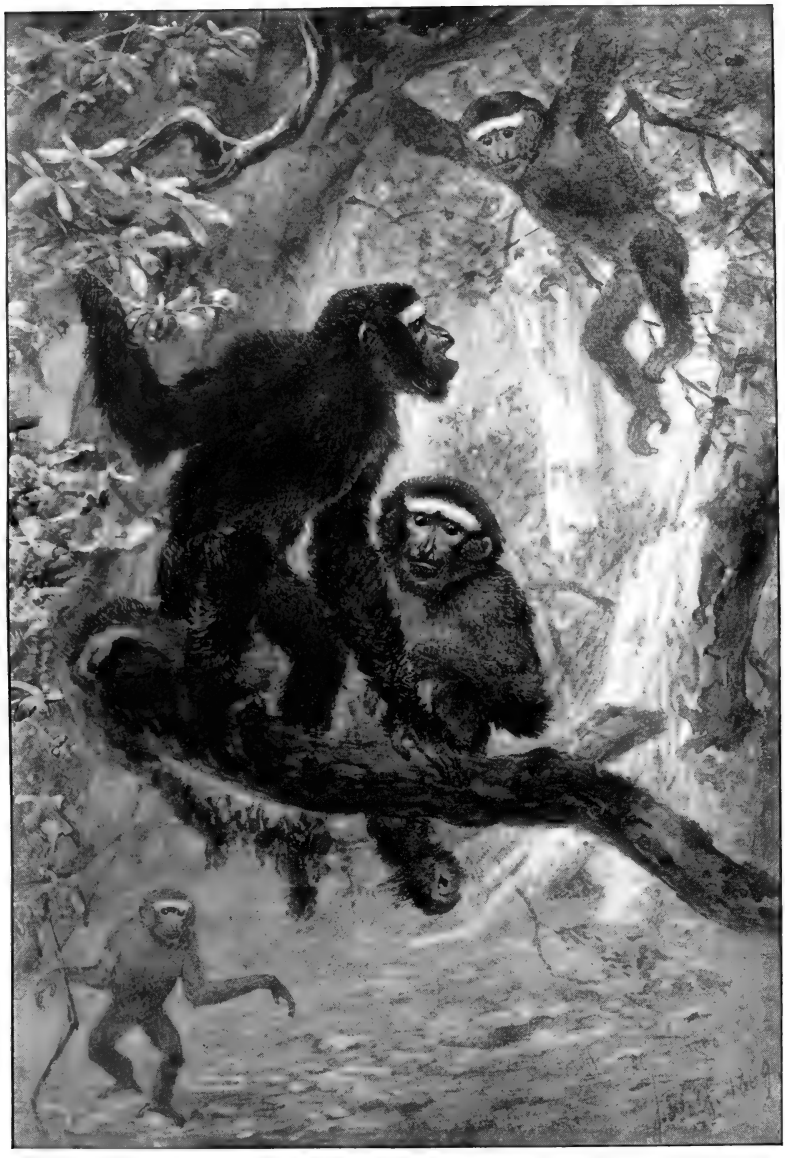
Many new forms were entered on the List in 1869. Perhaps the most remarkable were two examples (♂ ♀) of Père David's deer, presented by Sir Rutherford Alcock. The species was described by Milne Edwards from skins and skulls sent to Paris by Père David, a French missionary in China. This deer has a long tufted tail, and the neck is maned. The antlers are remarkable in bearing no brow tine; a straight back tine is given off from the beam, and the extremity may be forked. These deer are said to have been kept from time immemorial in the large Imperial Park about a league south of Pekin, but they are not known in a wild condition.

The Cape ant-bear was introduced this year, as were the aardwolf, the panda, and the true musk-deer. The two "musk-deer presented by the Princess Victoria" in 1836 were undoubtedly examples of Stanley's chevrotain.†

Among the birds were Owen's apteryx and the Amherst

* In treating of the hoolock gibbon at a scientific meeting in 1839, Horsfield said: "Living individuals are at present in the Society's Gardens in the Regent's Park."—*Proceedings*, 1839, p. 148.

† Dr. Gray refers also to this genus [*Tragulus*] . . . *Moschus stanleyanus*, of which in 1836 there were four living specimens in the magnificent collection of the Earl of Derby at Knowsley; and two others, consisting of a specimen of each of the varieties, in that of the Zoological Society of London, the gift of Her present Majesty."—"English Cyclopædia" (Nat. Hist.), iii. 907. They were referred to as "Stanley musk deer" in the President's address at the Jubilee Meeting, June 16, 1887.



HOOLOCK GIBBONS. (*See p.* 142.)

From a Drawing by Joseph Wolf.

PLATE 28.

pheasant. Five males and a female of the last-named species were received. This pheasant breeds freely in confinement and in the open covert. Hybrids between the cock Amherst and the hen golden pheasant are of surpassing beauty.* At the sale of the surplus stock from the Antwerp Gardens in 1872 a male hybrid was sold for £35.

Two deer, new to science, were received in the last year of the decade. Both were from the Philippines; the first was the Blackish Deer† allied to the sambur, and the other Prince Alfred's Deer, named by the Secretary‡ in honour of the Duke of Edinburgh, who presented it. The latter bears a general resemblance to the axis, but the coat is dark chocolate-brown. A kakapo, the ground parrot of New Zealand, was received on deposit, and remained in the aviaries about six weeks, when the owner removed it, "after some unavailing attempts to come to terms with us as to its price."

The silver medal was awarded in 1862 to Dr. George Bennett for his many valuable donations, and in 1869 to Sir Rutherford Alcock for his gift of a pair of Père David's deer. In 1866 the bronze medal was given to Henry Hunt, Mathew Scott, and Benjamin Misselbrook, keepers, for their meritorious success in breeding foreign animals in the Gardens; and in 1869 Mr. William Penney, a Fellow of the Society, received it for his numerous donations to the fish house.

The increasing prosperity of the Society amply justified the policy of appointing a paid Secretary. In 1847 the income was only £7,765. Early in that year D. W. Mitchell entered on his duties; he resigned in April, 1859, and the receipts for the previous year had risen to £14,034. Dr. Sclater succeeded him, and by the end of 1870 the income amounted to £23,257, and during the decade which closed with this year upwards of £46,000 was devoted to the permanent embellishment of the Gardens.

* Mr. W. B. Tegetmeier, in his "Pheasants for Coverts and Aviaries" (ed. iii. p. 204), says: "There can be no possible doubt of the perfect fertility of the half-bred Amhersts . . . and an intermediate breed may be perpetuated which possesses the united beauty of both parent species, and be perfectly permanent in its characters."

† Brooke, in *Proceedings*, 1877, p. 57, pl. ix.

‡ *Proceedings*, 1870, p. 381; *ibid.* 1871, p. 237.

It is not easy to appraise Mitchell's work as Secretary justly and exactly. But certain facts stand out with such distinctness that they cannot be overlooked. He was thoroughly in sympathy with Lord Derby's plans for the improvement of species and varieties already domesticated, the introduction of new forms, and experimental breeding. To him was due the abolition of the rule which required that visitors should be provided with a Fellow's order. The early policy seems to have been to keep the public out; he invited them, and his system of "starring," as it was called by the Press, caused the favourable turn in the affairs of the Society, so that his successor came in with the flowing tide. During this decade there was little change in the general policy; some important reforms in the matter of accounts were introduced, and greater activity was shown in the timely productions of the literature, which was greatly increased in quantity.

Considerable advance was made in the formation of a Library, on which rather more than £2,000 was spent during this decade. By far the larger part of it was devoted to the purchase of standard zoological works. Up to 1867 there was no Librarian. In that year Mr. (now Dr.) R. B. Sharpe was engaged as clerk, his special duty being the care of the books and periodicals, though for some time he assisted in the general work of the office. In the Council's Report issued April 29, 1871, he is for the first time styled "the Society's Librarian."

The Council had long entertained the view that it would be well if the scientific meetings could be held in more immediate connection with those of cognate bodies, and especially of the Linnean Society. After consideration of the matter by both Councils, the Linnean Society courteously offered the use of their room in Burlington House on alternate Thursdays with their own meetings. Accordingly the meetings of the Zoological Society were held there during the session November, 1866–June, 1867. It was hoped that the experiment would lead to successful results in the best interests of both Societies, and ultimately to a system of co-operation among the various scientific bodies of the metropolis. The arrangement was found in some respects inconvenient, and the Council reverted to the former practice of holding the meetings on the second and

fourth Tuesdays of the month in their own house, No. 11, Hanover Square.

In 1867 the undated tickets issued to Fellows for the admission of their friends on Saturdays and Sundays were abolished, and dated books of tickets for these days substituted.

The Davis bequest was received in 1870. Under the will of the late Mr. Alfred Davis, F.Z.S., there was bequeathed—

> To the Zoological Society of London the sum of Two Thousand pounds, such sum to form a Perpetual Fund, the Income from which is to be applied to or the creation of Annual Prizes, or any other purpose which may seem to the Council or governing body of the Society most conducive to its interests.

The legacy duty of ten per cent. reduced the amount to £1,800, which was at once invested.

A new series of *Proceedings* was commenced in 1861,* and continued, with little alteration, down to 1890. The recognised abbreviation in the "Zoological Record" is *P. Zool. Soc. London*, but an alternative [*P. Z. S.*] is allowed. The latter form seems preferable, and has the merit of priority, besides being universally known. "Our *Proceedings*," Dr. Sclater was wont to say, "are quoted as *P. Z. S.* all the world over." In 1862 the bye-law entitling Fellows to receive a copy of the letterpress of the *Proceedings* was repealed, and the publication subscription was introduced. Every Fellow and Foreign and Corresponding Member who paid a guinea before the Anniversary Meeting received all the publications for the current year. Of this date was Louis Fraser's "List of Vertebrated Animals"; other editions, containing species subsequently added to the Menagerie, appeared in 1863, 1865, and 1866. The "Index" to the *Proceedings* for the years 1848–60 was issued in 1863, and that for 1830–47 in 1866. In 1864 a supplement to the Library Catalogue was published; this contained nearly 1,000 titles, making 1,550 in all.

The *Proceedings* contained many valuable papers, but undoubtedly that which has left the greatest mark was Huxley's

* The title was then altered from *Proceedings of the Zoological Society of London* to *Proceedings of the Scientific Meetings of the Zoological Society of London.* The cheap edition, without plates, was discontinued in 1866, and one with uncoloured plates was issued.

contribution On the Classification of Birds. Bartlett reported a good many interestng observations on animals in the Menagerie, and some of his remarks on the Breeding of the *Felidæ* in Captivity were borne out later by Crisp, who said that up to that time (1864) no lion had been reared at the Gardens, although in Wombwell's and other menageries a great number attained the adult state. Crisp, who seems to have been a sort of honorary pathologist, was responsible for more than twenty papers. Day's work afterwards formed the basis of his "Fishes of India," and nearly half of Flower's memoirs dealt with cetaceans. Gould described a number of new species. The list of J. E. Gray's papers, most of them of the ordinary type, fills eleven pages. Heseems to have been the first to call attention in a scientific journal (*Proceedings*, 1861, p. 278) to the fact that a specimen of a young gorilla was exhibited for some months in Wombwell's menagerie in the North of England as a chimpanzee, and was as tame and tractable as the young of the species usually are. As a pendant he said that an adult male black chimpanzee had been offered to the British Museum as an adult female gorilla, and was afterwards purchased and exhibited as such by some institution on the Continent. Of at least equal importance was his citation of authority for the statement that the existence of an African anthropoid other than the chimpanzee—or African orang, as it was then called—was clearly recognised in the first quarter of the nineteenth century. The passage to which he alluded runs thus:

The African Ourang-outan (Pithecus Troglodites) is found here [in the Gaboon]; the one I saw was two feet and a half high, but said to be growing. I offered a fair price for it, considering they are not rare there, and would not give more when I heard of one being already in England. The native name is Inchego [*nschiego*, now usually written *tschego*]: it had the cry, visage, and action of a very old man, and was obedient to the voice of its master. . . . There is a curious variety of monkeys. The favourite and most extraordinary subject of our conversations on natural history (which I introduce merely to excite inquiry) was the Ingēna [ngīna], compared with an Ourang-outan, but much exceeding it in size, being generally five feet high, and four across the shoulders; its paw was said to be even more disproportionate, and one blow of it to be fatal; it is seen commonly by those who travel to Kaylee, lurking in the bush to destroy passengers, and feeding principally on the wild honey which

PLATE VIII.

THE LION HOUSE

(*See p.* 155.)


Charles E. Flower

abounds. Their death is frequently accelerated by the silliness which characterises most of their actions: observing men carry heavy burthens through the forest, they tear off the largest branches from the trees, and accumulating a weight (sometimes of elephants' teeth), disproportionate even to their superior strength, emulously hurry with it from one part of the woods to another, with little or no cessation, until the fatigue and the want of rest and nourishment exhausts them. Amongst other of their actions, reported without variation by the men, women, and children of Empoöngwa [Mpongwe] and Sheekan, is that of building a house in rude imitation of the natives, and sleeping outside or on the roof of it; and also of carrying about their infant dead, closely pressed to them, until they drop away in putrefaction.*

Some of Mivart's best work is to be found in these volumes. About forty papers stand to the credit of Dr. Murie, the first Prosector; some of these were of a pathological and others of a physiological character. Abstracts of Owen's memoirs, published in the *Transactions*, appeared here. Kitchen Parker was a contributor, and his account of the Sternal Apparatus of Birds and other Vertebrates † was afterwards expanded into a monograph on the Structure and Development of the Shoulder-Girdle.‡

Salvin alone, and in collaboration with the Secretary, did a good deal of work on South American birds. Two papers, compiled at the Gardens, and presented by Dr. Sclater, who added some notes, deserve mention—the first, in 1868, dealt with the breeding of mammals in the Gardens during the preceding twenty years; the other, in the following year, with the breeding of birds for a similar period. Mr. Sharpe contributed fourteen papers, of which those on kingfishers and swallows were the drafts, so to speak, of monographs on the respective families. Swinhoe added considerably to our knowledge of the Chinese fauna, and there were a dozen papers from Wallace on the birds of the Malay Archipelago.

The fourth volume of *Transactions*, published in 1862, contained twenty-four papers, the most important being those of

* T. E. Bowdich: "Mission to Ashantee," pp. 440–441 (London, 1819).

† One of the chief results of this work was, by demonstrating the true homologies of the various bones of the shoulder-girdle in fishes, to overthrow, once for all, Owen's theory of the nature of limbs.—T. Jeffery Parker: William Kitchen Parker, p. 44.

‡ Ray Society, 1888.

Owen on *Dinornis*, the Anatomy of the Indian Rhinoceros, the Osteology of Chimpanzees and Orangs, and the Anatomy of the Great Ant-eater; Parker on the Anatomy of the Shoebill Stork, and the Secretary on the Struthious Birds in the Gardens. Eleven papers made up the fifth volume, issued in 1866. Flower described the Brain of the Javan Loris; Owen continued his memoirs on *Dinornis*, his other subjects being the Aye-Aye and the Anthropoid Apes; and Parker gave an account of the Osteology of the Gallinaceous Birds and Tinamous. In 1869 the sixth volume was published. Owen contributed a memoir on the Dodo, and two sections of his memoirs on *Dinornis;* other authors were Allman, Flower, Günther, Parker, Mivart, and Newton.

	Exhibited for the First Time.				Breeding Species.			
	Mammals.	Birds.	Reptiles.	Total.	Mammals.	Birds.	Reptiles.	Total.
1861	8	15	9	32	19	24	—	43
1862	14	16	6	36	26	29	1	56
1863	12	35	22	69	24	29	1	54
1864	8	23	2	33	22	20	1	43
1865	21	50	4	75	30	36	—	66
1866	15	45	5	65	21	23	—	44
1867	14	31	—	45	25	33	2	60
1868	No returns.				34	30	—	64
1869					29	28	—	57
1870					25	26	—	51

Animals in the Menagerie.

	Mammals.	Birds.	Reptiles.	Total.
1861	450	843	121	1,414
1862	485	1,114	149	1,748
1863	567	1,063	100	1,730
1864	498	1,255	105	1,858
1865	490	1,365	101	1,956
1866	535	1,305	173	2,013
1867	531	1,320	159	2,010
1868	616	1,220	134	1,970
1869	598	1,245	170	2,013
1870	571	1,333	214	2,118

Fellowship Roll, Visitors, and Finance.

	No. of Fellows.	Admissions to Gardens.	Income. £.	Expenditure. £.
1861	1,725	381,837	16,072	16,974
1862	1,731	682,205*	27,397	18,713
1863	1,815	468,700	20,284	21,252
1864	1,918	507,169	21,713	24,889
1865	2,143	525,176	23,457	23,571
1866	2,459	527,349	24,378	22,418
1867	2,702	556,214	25,041	26,209
1868	2,924	573,186	24,958	26,313
1869	2,966	572,848	22,768	25,748
1870	3,021	573,004	23,257	24,408

* Exhibition year; the visitors exceeded those in 1851, the year of the Great Exhibition, by 14,962; and the income was larger b £945.

CHAPTER VII.

1871–1880.

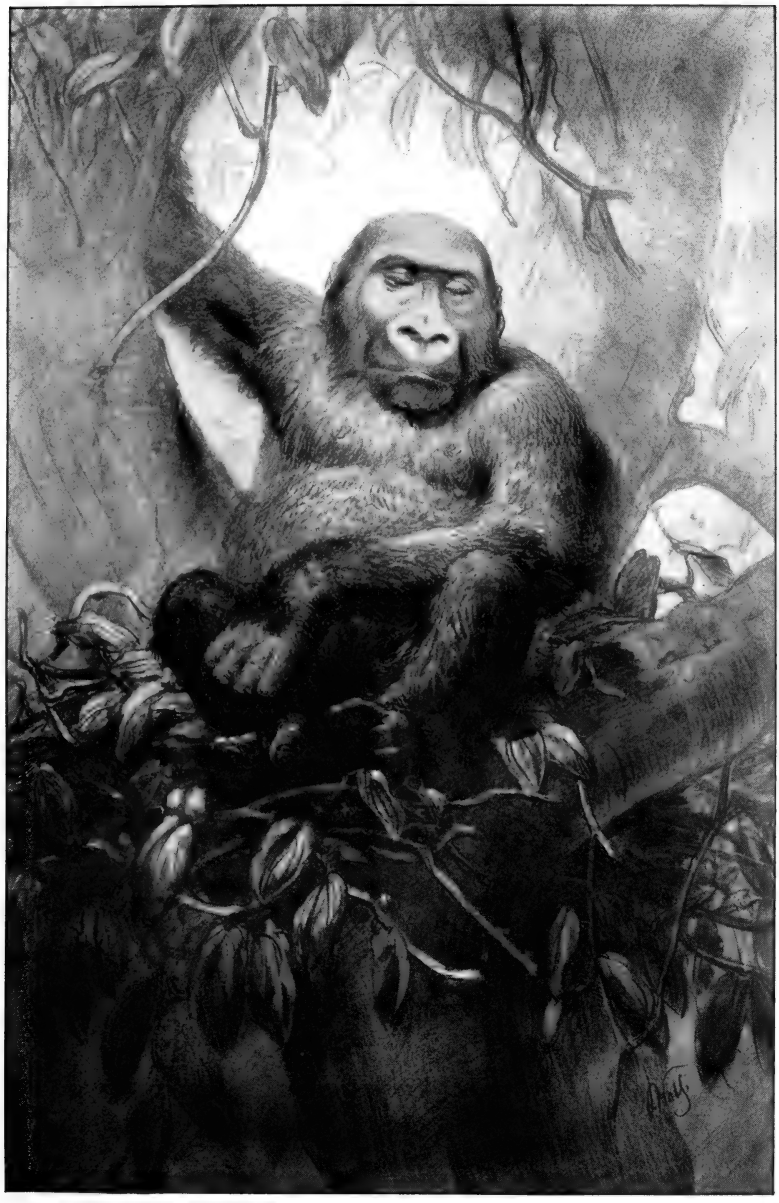
In this decade, as in the last, there was a change of Presidents. The Marquess of Tweeddale died on December 29, 1878, and at the next Scientific Meeting, on January 14, 1879, the Chairman, Professor Newton, F.R.S., Vice-President, thus called attention to the work of the late President:

> I am sure there was no Fellow of the Society who took a livelier or deeper interest in its welfare than did the late Lord Tweeddale; and if proof of this assertion seem to anyone wanting, I have but to refer to the facts that he was not merely content with giving us the countenance of his high social position, not merely content with presiding at our Council Meetings, and discharging the formal duties of the office he bore amongst us, but that he actively participated in our scientific work, as witness the valuable and carefully elaborated papers with which he from time to time enriched our publications, the last of which* you will hear read to-night. I believe I am right in saying that since these Scientific Meetings were established, we have never had a President who was so well, so intimately, known to the majority of the Fellows who attend them, or one who was so competent to appreciate the papers read or the communications made at them; and this, I need not point out to you, has been of great benefit to us.

It became the duty of the Council to select a duly qualified person to fill the vacant chair. Their choice fell on Professor (afterwards Sir William) Flower, Conservator of the Museum of the Royal College of Surgeons. In announcing this fact to the Annual Meeting on April 29, 1879, they said:

> The late Marquess was pre-eminently suited, not only by his social position, but also by his attainments as a naturalist and his business-like habits, to be the President of the Society. . . . In selecting for this high office, however, the name of Professor Flower, one of the most distinguished zoologists of the present day, and for many years a most active and efficient Vice-President, the Council feel sure that they will receive the approbation of the Fellows, and that their choice will be duly ratified.

* "Contributions to the Ornithology of the Philippines, No. xii."—*Proceedings*, 1879, pp. 68–73.



WOMBWELL'S GORILLA. (*See p.* 146.)

From a Drawing by Joseph Wolf.

PLATE 29.

The Presidency thus commenced lasted, like that of Lord Derby, for twenty years. To a certain extent these terms of office may be taken as carrying out respectively the views of Sir Humphry Davy and Sir Stamford Raffles,* as shown in the letter of the first President quoted on p. 24; and Lord Derby's influence persisted, though in diminishing force, up to, and even after, this time. There was no abrupt break, nor anything like a deliberate reversal; the change was gradual, but none the less sure. Bionomics were neglected in favour of cabinet studies; and the results became evident in the prosectorial work, the literature, and to some extent in the Menagerie.

A. H. Garrod entered on his duties as Prosector on January 1, 1872, and held the post till his death on October 17, 1879. He was an enthusiastic worker; but a comparison of the titles of his papers with those of his predecessor will show that their conceptions of the duties of the office were not quite the same. It is not improbable that there was some change in the views of the Zootomical Committee; at any rate, it is clear that the new President considered the investigations of the Prosector should be conducted entirely from the morphological side. Over his initials "W. H. F.," he contributed a sympathetic obituary notice of Garrod to *Nature* (October 23, 1879), in which the following passage occurs:

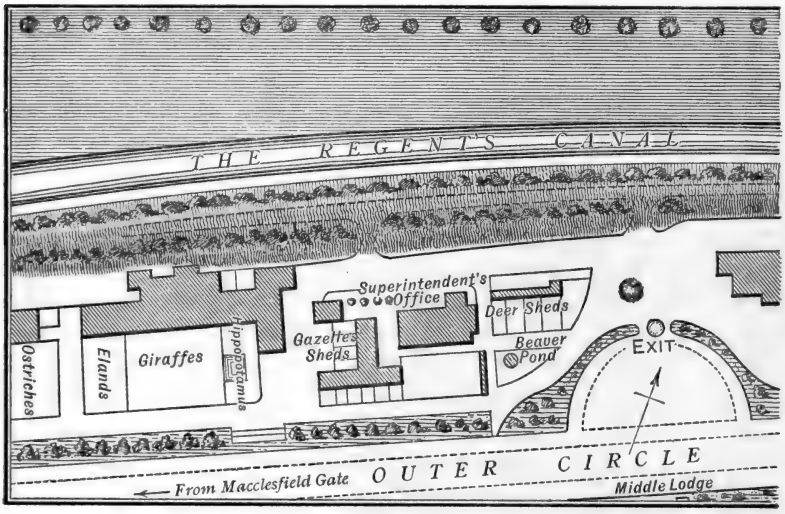
> It is, indeed, probable that physiology is the subject to which he would most willingly have devoted his attention, had not his energies been turned to the pursuit of morphology by his receiving the appointment in January, 1872, of Prosector to the Zoological Society. This appointment is one which, perhaps more than any now existing, comes near to an ideal endowment of research.

In the view of the Council, as set forth in the Report issued in 1866, and cited on p. 127, morbid anatomy was to be the chief duty of the Prosector; so that here was quite a new departure which has since been followed, with the result that it has been found necessary to appoint a pathologist to do the work for which the office of Prosector was instituted.

* In the one case the work of the bionomist, in the other that of the systematist.

During the winter of 1878–79 W. A. Forbes acted as deputy for Garrod, who spent that time in the South of France, in the hope of relieving serious lung trouble. He was appointed Prosector on Garrod's death, and took up his duties in January, 1880.

At the close of 1871 Mr. (now Dr.) R. B. Sharpe resigned his position as Librarian "in order to be able to devote more time to several important works on ornithology which he had



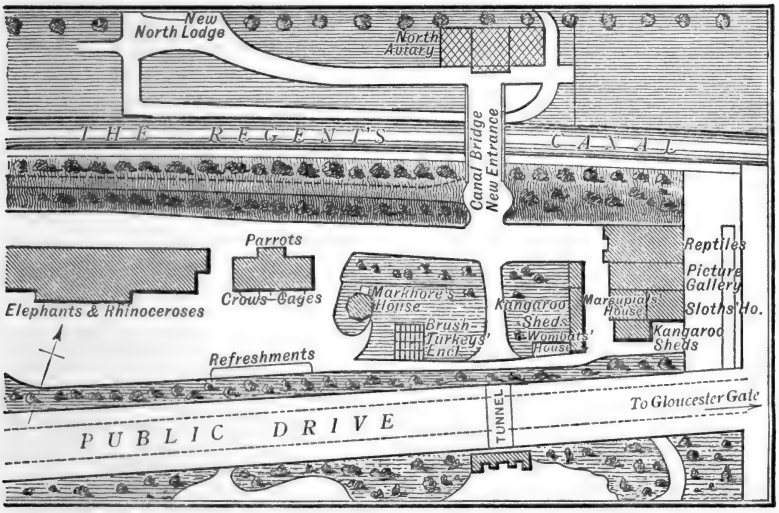
WEST END OF MIDDLE AND NORTH GARDEN, 1874.

in progress." The Council acquiesced with regret, and chose Mr. F. H. Waterhouse as his successor. In 1871 Clarence Bartlett was made Assistant Superintendent.

In commemoration of his valuable services as Accountant, extending over half a century, a gold watch and chain, worth fifty guineas, were presented to Mr. J. H. Leigh at the Anniversary Meeting, April 29, 1878. In the following January Mr. Leigh died, and Mr. John Barrow, who had been his assistant for upwards of nine years, was appointed his successor.

The narrow strip of ground near Primrose Hill, now known as the North Garden, was partially laid out early in

1872, and the North Gate, with the adjoining lodge, commenced. In October the bridge that spans the canal and connects this piece with the Middle Garden was completed; but the public were not admitted at the North Gate till the Easter Monday of 1873. The land had been in the occupation of the Society since Michaelmas, 1869, and the object of opening it was rather the provision of a convenient mode of access to the Gardens for persons living north of Regent's



EAST END OF MIDDLE AND NORTH GARDEN, 1874.[1]

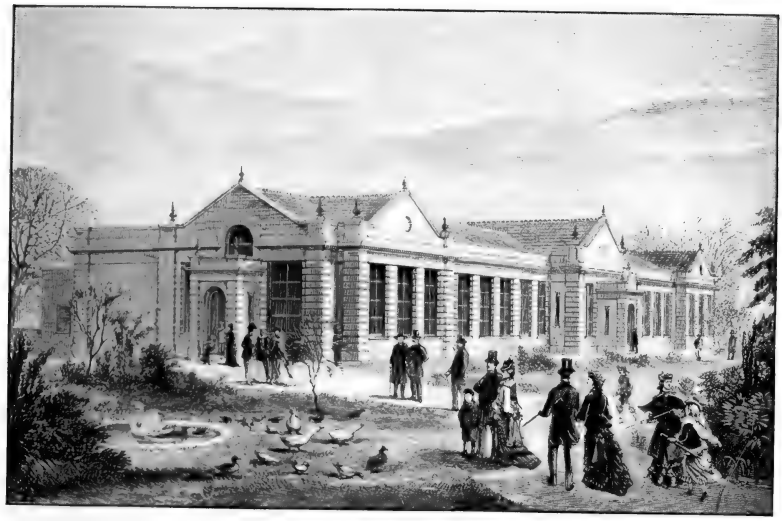
Park than the necessity for increased accommodation for Menagerie stock. For some time only that part lying between the entrance and the bridge was utilised. The brick aviaries long occupied by owls and falcons were put up in 1874. To provide winter quarters for two Aldabra tortoises purchased in 1875, the glass front from the old lions' dens under the Terrace was erected, a little east of the entrance, and used as a tortoise house till the opening of the new building in the South Garden. Five years later more of the strip was taken in; and the iron-and-glass structure—now the insect house—was removed to its present position from the South Garden, where it had done duty as a refreshment-room. At first it served as a winter

house for "some of the more delicate monkeys, birds, and reptiles, which thrive only when kept in a continuously high temperature."

After the opening of this strip what had been the North became the Middle Garden. Here the construction of the bridge necessitated the removal of an old aviary, which stood opposite the north end of the tunnel. This must have been one of the first buildings, for it is figured in a tail-piece in Bennett's "Gardens and Menagerie of the Zoological Society," which appeared in 1830, but it then served as a squirrel cage. Owing to the institution of the Davis Lectures, the old Picture Gallery was fitted up as a lecture-hall, and was employed for this purpose till 1899. In the following year the lectures were given in the meeting-room at No. 3, Hanover Square.

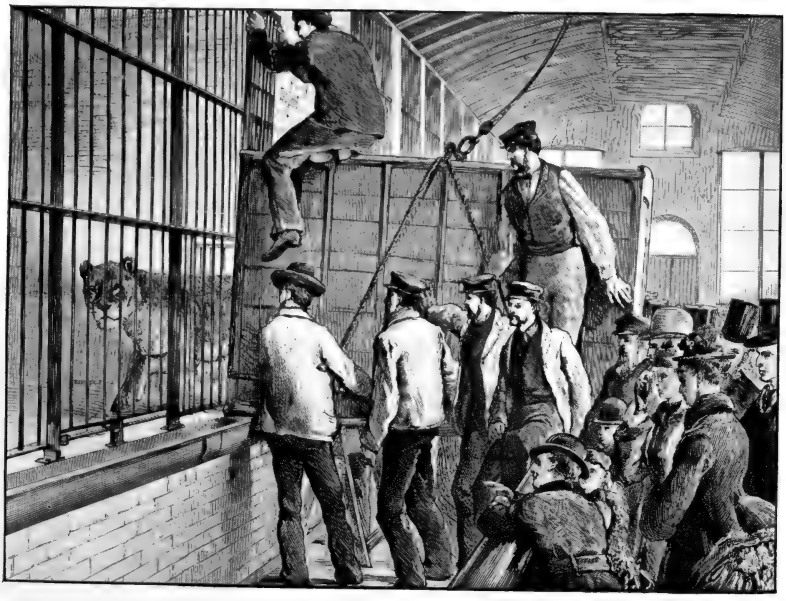
One may imagine the terror that would be caused if the animals in a menagerie should escape. Early on the morning of October 2, 1874, A. D. Bartlett, and the assistant keepers sleeping in the Gardens, had reason to apprehend something of the kind. Four barrels of gunpowder exploded on board the barge *Tilbury* on the Regent's Canal, just under the bridge at the end of Avenue Road. The shock was severely felt along the canal bank, and fragments of the barge were afterwards picked up by the Superintendent between his office and the elephant house. No serious damage was done, though it was reported to the Council that "no house had entirely escaped injury." Large quantities of glass were broken, and frames and sashes displaced and shattered. The western aviary in the South Garden suffered a good deal; some of the smaller birds made their way out, but most of them were captured and brought back. According to the *Annual Register*, "the explosion caused considerable commotion among the animals, and their howling added considerably to the excitement which the disaster caused in the neighbourhood." Fortunately, none of the large animals was injured; and though they were greatly terrified, they soon became quiet when the keepers arrived. In the following year compensation was made by the Grand Junction Canal Company, the owners of the barge.

The erection of the new lion house in the South Garden was the most important work of this decade. Plans had been



NEW LION HOUSE. (*See p.* 155.)

From the "Illustrated London News," April 1, 1876.



SHIFTING THE CARNIVORA. (*See p.* 156.)

From the "Illustrated London News," January 29, 1876.

PLATE 30.

prepared and the sanction of the Board of Works obtained in 1869; but building operations were not commenced till 1875. To make room for this house the old deer sheds were cleared away, and the contractors began their work in February. Before the plans were made, Bartlett was sent by the Council to inspect and report on the lion houses in Berlin, Amsterdam, Rotterdam, Hamburg, Antwerp, and Paris; and Dr. P. L. Sclater, from his acquaintance with these and other Continental gardens, was able to make suggestions.

The house is a massive brick structure, of good proportions, but without architectural adornment. It is 228 ft. long, 30 ft. high at the central elevation, and the floor-width to the front of the dens is 35 ft. A good yard must be deducted from this last measurement for the protecting barrier; but this loss of floor-space is more than balanced by the accommodation for spectators afforded by the stepped platform on the opposite side. There are fourteen dens, each with an inner compartment or sleeping place, so that animals may be exhibited in pairs, and separated when necessary. The six larger dens have a floor-space of 240 square feet; in the eight smaller ones the area is 144 square feet.

Between the dens and the barrier is a line of rails, on which runs the meat-trolley so eagerly watched for by the great carnivores as feeding-time approaches. Halfway down the line* is an arched opening leading into the service passage behind, which extends the whole length of the building. Here are fixed the chains and pulleys that operate the doors between the exhibition dens and the inner compartments, so that all the business of cleaning and shifting is done from the back. Opposite the arched opening from the house a short passage leads into a yard, where travelling-boxes are unloaded. Here they can be conveniently handled, taken into the passage, and the animals transferred to the dens through one of the inner compartments, each of which has a sliding door.

At the beginning of 1876 the lion house was finished and ready for occupation; but the great beasts which were to inhabit it were in the dens under the Terrace Walk, now

* In the following scheme of the dens, s = small, L = large, and o = arched opening: | L | s | s | s | s | L | L | o | L | s | s | s | s | L | L |

occupied by bears and hyenas. Flitting was by no means a simple matter; Bartlett has left it on record that numerous suggestions and ridiculous propositions were made to him for carrying out this interesting and, to a certain extent, dangerous performance. "Some people," he wrote, "advised that the animals should be chloroformed; others that springs and chain collars should be used, which, with a sufficient number of men on either side, would be a most simple and easy mode of transport; while one other suggestion was that an iron tunnel should be erected for them to run through."

So many applications—not a few of them from Fellows of the Society—for permission to witness the transference of the animals to their new quarters were received by the authorities, that it was found necessary to give public notice that the work would be done before the Gardens were opened.

> We are requested [said the *Times* of January 17, 1876] to state that such delicate operations can only be carried on when the Gardens are free from visitors. . . . It seems to have been imagined by some people that the lions and tigers would be led out by the keepers, with chains round their necks like house dogs, and transferred simultaneously into their new abode in a kind of procession, with, perhaps, the superintendent at its head to lead the way; but such is not the established mode of procedure.

The operations began on January 15, and most of the animals were shifted on that day, though the removal of a few of them was not effected till the following week.

Bartlett's description is quoted from "Wild Animals in Captivity":

> There was placed in front of the door of the cage of the lion or tiger that was about to be removed a narrow shifting or travelling den; no attempt was made to force or drive the animal into this den, the door of which was open, facing the open door of the old cage. The animal was tempted to enter the shifting den by his food being offered to him at the far end; but as it was uncertain how long it would take to induce the beast to venture into the temporary den, the men who were employed to carry out the removal were not kept waiting until the animal thought proper to do so, but went about their work. When the beast had made up his mind and walked into the travelling cage, the keeper in attendance closed the door immediately behind him, and the bell in the clock-tower was rung as a signal to the other men that the animal had been trapped.

This was necessarily a slow process; but the whole collection was removed without the slightest injury to the men employed or to the lower animals.

The beasts were put into their new quarters from the front, as is shown on Plate 30. This was the easiest part of the business, for as soon as the animal was trapped the travelling box was loaded on a trolley and taken across to the new building. There it was hoisted up, so as to rest on the den floor and the barrier, with its door against the open door of the den. When the slide of the travelling box was raised, the animal, tired of its narrow quarters, bounded forward, only to find retreat cut off behind. It was then passed along from den to den by the sliding doors in the partitions till it reached its destined abode.

Frank Buckland, in describing the operations, said he had been told by Bartlett that the old method of shifting animals was to set fire to some straw and thus start them, or else to throw ropes round their necks and when they were half-strangled drag them into the den. Curiously enough the first-named plan was adopted in shifting two of the tigers belonging to the Prince of Wales (now Edward VII.). They were brought home in small cages in the *Raleigh*, and at Portsmouth it was decided to put them into larger ones before sending them to London. "Captain Jocelyn," said a special correspondent, "could not evacuate them into their present more roomy cages without resorting to fireworks, after having ineffectually tried syringes."

The following list from *Land and Water* (January 22, 1876) gives the Menagerie stock of large *Felidæ* when the house was opened, numbering the cages from the door near the antelope house: *

1. A Persian lion, purchased June 6, 1873.
2. Kathiawar lioness, presented January 8, 1874.
3. Indian leopard, presented August 30, 1867; Nubian lioness, presented June 19, 1873.
4. Indian leopard, presented August 30, 1867.
5. Clouded tiger, Burmah, purchased January 6, 1875.

* The list is taken from the Council's Report, but the writer (Frank Buckland) made it more valuable by showing where the animals were quartered.

6. Three Mexican pumas, presented April 3, 1872.
7. A lion and two lionesses, born in the menagerie July 8, 1872.

These are worth special notice, as they were then three years and a half old. Though other cubs have been born since, none has attained anything like that age.*

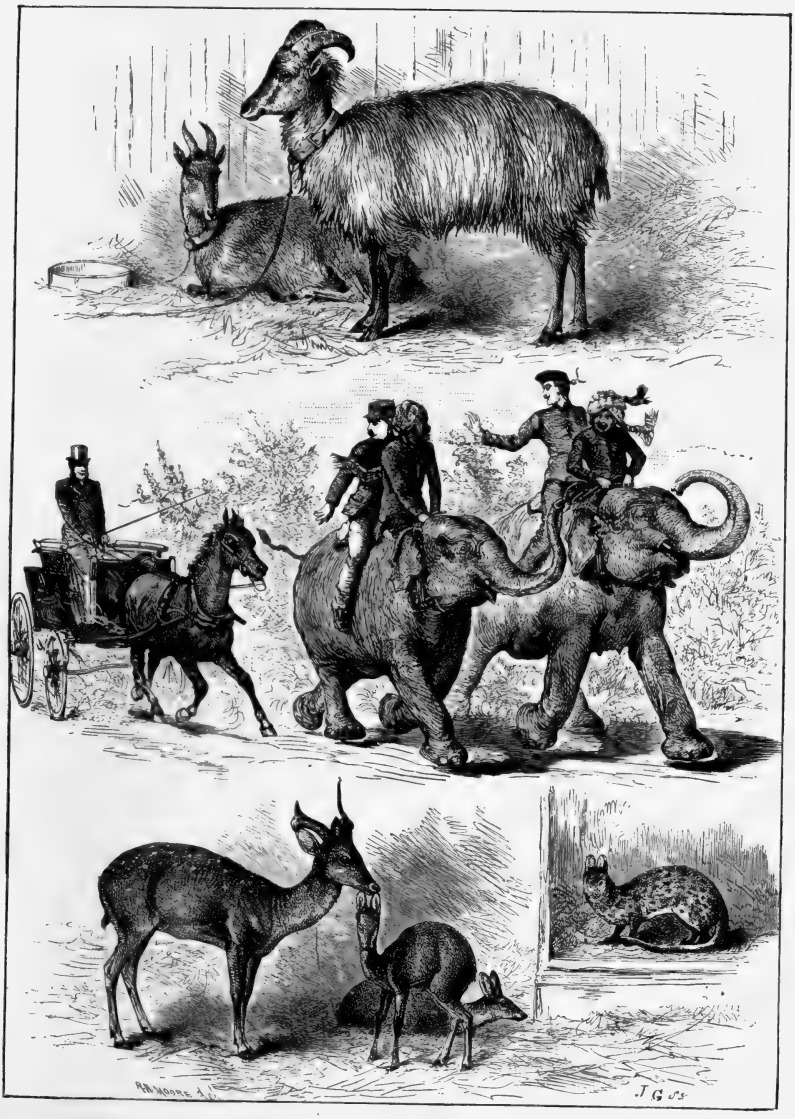
8. Indian tiger, presented June 28, 1870.
9. Indian tiger, presented August 4, 1865.
10. Jaguar, purchased August 5, 1875.
11. Jaguar, received in exchange November 22, 1873.
12. Three tiger-cubs, presented October 1, 1875.
13. Indian tiger, presented August 14, 1873.
14. Indian tiger, presented July 25, 1874.

Not till the spring of 1877 were the four outside cages finished. These stand two on each side of the yard, and the keepers' quarters, and are 42 ft. long by 30 ft. wide, with a height of 25 ft.—that is, quite as lofty as some eagles' aviaries.† In the middle of the concrete floors are massive rockwork and tree trunks. The drainage scheme—a central depression with a pipe, sure to get choked with leaves—is far from good; nor are there facilities for cleaning from the outside. There should have been a rake to the front, so that in wet weather the water might flow off to a gutter; and the bottom bar should have been made to lift up, to allow of the introduction of a long-handled scraper. Indeed, the outside cages and the arrangements for shifting the animals are of such a character as to lend colour to the suggestion that this part of the house was not in the original plan.

Down the passage, between the indoor and outdoor cages, is a line of rails carrying two trolleys, on each of which is a covered bridge—or, as it is termed in the Council's Report, a movable tunnel—and there is a fixed tunnel at each end. At the back of the inner compartment is a sliding door corresponding to another at the back of the outside cage. When this covered bridge is in position the doors are pushed back, and the animal can pass out or return, as the case may be. These outside cages were first used on April 23, and the transfer of

* For the general question, see *Proceedings*, 1864, pp. 158, 159.

† In the Official Guide they are described as "enormous." Skeat's definition of that epithet—"great beyond measure"—exactly fits the case.



SOME OF THE PRINCE OF WALES'S ANIMALS. (*See pp.* 164, 165.)

From the "Illustrated London News," May 27, 1876.

PLATE 31.

the animals was made in the presence of the Council, the Secretary, the Superintendent, a few visitors specially invited, and representatives of the Press.

The cost of this house is returned at £11,421; but if the expense of making new walks in connection with it be taken into account, the total must be put at something over £12,000. The plan has been criticised, not without reason, though it should be remembered that the house was designed and built before the views now held on the open-air treatment of animals were generally accepted. Mr. Carl Hagenbeck is reported by Captain Peel, in his "Zoological Gardens of Europe" (p. 240), to have said that the lion house was "no good." In matters concerning the housing of wild animals it is safer to agree with than to differ from Mr. Hagenbeck. Yet here one need not take his dictum too literally. The great defect is that the animals have not free egress into and regress from the open. This was recognised by Dr. P. Chalmers Mitchell, in the first edition of the Official Guide, for he wrote: "The animals have not free access to the open air all the year round. It is hoped that before long this will be put right, for it is now known that lions and tigers thrive better with constant exposure, even to the cold of winter."

In 1877 the sheep-sheds were removed from opposite the cattle sheds to a position near the eastern boundary of the Garden; but they were cleared away when the new sea-lions' pond was planned. The Raffles bust was put up in the lion house in September. This was presented by the late Rev. W. C. Raffles Flint, Vicar of Sunningdale, a nephew of Sir Stamford Raffles. Beneath it is the following inscription, recommended by the Garden Committee:

SIR THOMAS STAMFORD RAFFLES, F.R.S.,
FIRST PRESIDENT OF THE ZOOLOGICAL
SOCIETY OF LONDON.
BORN, 1781. DIED, 1826.

The bust, by E. Roscoe Mullins, is a copy of that by Chantrey, which is now in the possession of the donor's son, Canon Stamford Raffles Flint, of Nansawsan, Cornwall. An engraving of the original forms the frontispiece to Lady Raffles' "Memoir."

The covered bandstand, erected in 1880, was the gift of Mr. Charles Henry Gatty, F.Z.S., of Felbridge Park, East Grinstead. In the south-east corner, near the reservoir, ground was cleared for the new reptile house. The Council reported that plans were in preparation, adding that these would require careful study, as the subject was a difficult one, and the only building of the kind yet attempted was that in the Jardin des Plantes at Paris. Some small studies were erected at the back of the Prosector's office for the use of naturalists engaged in special investigations.

Numerous important additions were made to the Menagerie stock in the form of species exhibited for the first time. In 1871 the anoa, the dwarf buffalo of Celébes, was introduced, but this species has not thriven in England as it does on the Continent, where it breeds pretty freely. Baird's tapir and the Cape sea-lion were exhibited; the former was a young animal, of considerable interest in that it showed the longitudinal striping, which is lost in mature individuals.

A hippopotamus calf was born on February 21, 1871, but died from inanition two days later, the dam having shown no disposition to suckle it. The skin was mounted for the British Museum, the skeleton and viscera are preserved in the Museum of the Royal College of Surgeons, and a plaster cast of the cadaver, made and presented to the Society by Frank Buckland, is still to be seen in the giraffe house.

Two rhinoceroses were purchased in 1872, both at first believed to be of the Sumatran form. One, for which Jamrach was paid £1,250, was obtained in Chittagong in 1868. The story of her capture is thus told in Sterndale's "Mammals of India":

> She had got into a quicksand, and had exhausted herself by floundering about. The natives contrived to attach two ropes to her, and, hauling her out, managed to make her fast to a tree. Next morning they found her so refreshed and vigorous that they were afraid to do anything more to her, and so sent messengers to the magistrate of Chittagong to report the

capture. The same evening Captain Hood and Mr. Wickes started with eight elephants to secure the prize, and after a march of sixteen hours to the south of Chittagong they came up to the animal. The elephants at first sight bolted, but were brought back by considerable exertion, and the rhinoceros was made fast to one by a rope. The poor creature roared with fright and a second stampede ensued, in which luckily the rope slipped off the leg of the rhinoceros, to which it was attached. Ultimately she was secured between two elephants and marched into Chittagong, where she soon got very tame. Eventually she was sent to England.

This animal was afterwards made the type of a distinct species,* and is entered under the name "hairy-eared rhinoceros" in the Vertebrate List of 1896 (the last published), but it is now regarded as only a well-marked variety of the Sumatran rhinoceros.

These important additions overshadowed the rest. The crested screamer must, however, be named, for this species bred in the Great Aviary in 1904, which, so far as can be ascertained, is the first record in captivity. The Beatrix antelope is also entered as an introduction; but the *a* in the Vertebrate List distinguishing this individual is a manifest error for *b*, since Gray's type was the animal presented by Captain Shepherd in 1856 (see p. 117).

Two hippopotamus calves were born. The first came into the world on January 6, and was at once removed from the mother, which was kept at a safe distance by a well-directed stream of water from a garden-engine. In this dangerous business Bartlett had the help of his son Clarence and the keepers Arthur Thomson (now the Assistant Superintendent) and Michael Prescot. "Placed in a warm room," said Bartlett in his notes, "on a soft bed of hay, and covered with a blanket, it seemed to revive. Two goats supplied it with plenty of warm milk, which it readily sucked from a large feeding bottle in sufficient quantity, which caused me to think that I should be able to save its life." His anticipations, however, were not realised; the calf died on January 10.

Soon after this alterations were made in the house, so as to afford ready access to the female in the case of a third calf

* *Proceedings*, 1872, pp. 185, 493, pl. xxiii. and p. 790; *Transactions*, ix. 652, pl. xcviii.

being born, in order that the young one might be taken away at once and brought up by hand. On November 5 the third birth occurred, but fortunately there was no necessity for the removal of the calf. The dam took to it at once; and, as Frank Buckland put it, the calf had more sense than its brother and sister, for it almost immediately discovered and made use of its mother's milk. At the monthly meeting on November 21 the Secretary announced that the calf was thriving and the dam was becoming less savage and excitable when approached, and that it was hoped to exhibit the little one to the Fellows and their friends on the following Sunday.

The king colobus, the white-thighed colobus, and the rock-hopper penguin were introduced in 1873, and in 1874 the Javan or Sondaic rhinoceros was exhibited for the first time. This small representative of the Indian rhinoceros was probably, at that time, the only individual of the species in Europe. An uncoloured plate, from a drawing of this animal by Wolf, was issued with the Council's Report.

In August, 1875, a half-grown female American manatee was purchased. This was the first living specimen exhibited in England; it was obtained on the coast of Demarara, and was three weeks on the passage to this country, during which time it was in a big swinging tank specially constructed for the purpose. On September 7 it died; but Garrod studied it closely, and described the curious action of the lip-pads, the structure of which had been investigated by his predecessor. The upper lip is cleft into two pads; these can be separated so as to leave a considerable gap, and then brought together to grasp food, which is introduced into the mouth by the backward motion of their margins.

Other important additions were a pair of giant tortoises, originally from Aldabra, which had long been kept in captivity in the Seychelles. The male was said to have lived there for upwards of seventy years. These reptiles appear to have been the largest imported up to that time; the length of the male was given at 4 ft. and the width at 3 ft.; the weight was estimated at 800 lb. The hamadryad, or king cobra, was introduced this year.

A strange accident, about which there is some mystery,

REPTILE HOUSE. (*See p.* 177.)

From the "Illustrated London News," September 8, 1883.

PLATE 32.

happened to Alice, the African elephant, on Bank Holiday, August 2, 1875. On the Occurrence Sheet, under the heading "Animals Unwell," it is thus recorded:

> The female African elephant was chained by the leg as usual this morning, and about 8.50 a.m. she made a loud noise, and upon the man going to her it was found she had torn off the end of her trunk; the wound was bleeding, but soon stopped. She would not allow it to be touched, and she seemed in great pain, twisting about in the wildest manner.

Public attention was called to the unfortunate affair by a letter signed "A Fellow," which appeared in the *Daily Telegraph* of August 4. After a general indictment—far too sweeping to be well founded—the writer stated that there had recently been a change of keepers in the elephant house, and the new men thought that Alice was not sufficiently broken in. "Accordingly they set to work to break her in after their own fashion. On Monday morning last they tied her up with ropes and left her. Soon a terrible screaming and trumpeting was heard, and it was discovered that—somehow or other—Alice's trunk was torn off."

The following comment appeared in a leading article on Friday morning:

> Our correspondent writes guardedly, but he obviously wishes the public to infer that the elephant had been tied up by her trunk to the bars of her cage; and it is certainly hard to see how the accident could have happened in any other way.

Coincidently with this the following paragraph appeared in the *Times*. It is apparently intended to be an explanation, for it gives details not supplied on the Occurrence Sheet or in Bartlett's book*:

> The female African elephant, being very fidgety and restless, is usually tethered by a ring round one of her fore feet to the corner of her stall while the house is being cleaned out in the morning. On Monday, about half-past 8 a.m., the keepers were alarmed by the elephant calling out suddenly as if in great pain, and on running to the spot found that she had actually torn off the top of her trunk. It seems that she had thrust the end of her trunk underneath the ring by which her foot was confined, and then by pulling against the ring with her foot hurt her trunk. This caused her to exert such force in the attempt to withdraw her trunk that

* "Wild Animals in Captivity," pp. 51–3.

the end of this organ was torn off in the effort. For some time after this extraordinary event the elephant was in great pain and very uneasy. She has now begun to feed again, and seems likely to recover the use of her trunk, as the wound has not inflamed much and is gradually healing over.

A letter from Dr. Sclater complaining of the "unfounded calumny against the two keepers in charge of the animal" was published in the *Times* of June 6. After an assurance that the account of the accident in the issue of the preceding day was correct, Dr. Sclater continued: "I shall have the pleasure of reporting to the Council at their next meeting that no blame is attributable to the keepers in reference to this singular occurrence. The keepers were not, it is true, actually present when the event occurred, but were only a few yards off."

It was, in truth, a "singular occurrence." It must be pointed out that the Secretary was not writing from his own knowledge. His explanation is, however, no more convincing than are the sweeping charges of "A Fellow."

The animals brought home by the Prince of Wales (now Edward VII.) arrived in May, 1876, in charge of Clarence Bartlett, who served in the capacity of taxidermist and collector during the Prince's Indian tour. There were in the collection deposited by the Prince in the care of the Society 151 specimens, of which 65 were mammals and 86 birds. The following is the official report from Dr. Sclater's Guide of 1876:

MAMMALS.

2 Green Monkeys	4 Tailless Dogs	6 Domestic Sheep
2 Rhesus Monkeys	3 Tibetan Mastiffs	2 Thar Goats
5 Tigers	2 White Dogs	4 Shawls Goats
7 Leopards	2 Indian White Dogs	8 Indian Antelopes
1 Cheetah	1 Himalayan Bear	2 Zebus
1 Viverrine Cat	1 Sloth Bear	2 Spotted Porcine Deer
1 Indian Civet	4 Indian Elephants	3 Axis Deer
	2 Musk Deer	

The only species new to the Society's collection appears to be the lesser porcine deer, if indeed that form deserves specific rank. Dr. Sclater remarked, in his report, that no specimens had previously reached this country.

BIRDS.

1 Grey-winged Blackbird	2 Hill Francolins	4 White-crested Kalij
2 Wedge-tailed Pigeons	4 Chukar Partridges	3 Bankiva Jungle Fowl
5 Domestic Pigeons	15 Impeyan Pheasants	10 Horned Tragopans
8 Surah Doves	21 Cheer Pheasants	5 Indian Peafowl
1 Black Francolin	2 Pucras Pheasants	3 Ostriches

With the exception of the two young elephants, Suffa Culli (♀) and Jung Pershad (♂), which came up by road, the animals were brought by train from Portsmouth. Unfortunately, a Cashmere deer was lost on the journey, and the carcase was found on the line about a mile from the starting place. The tarpaulin covering of an open box had been unfastened—it is supposed, by some person wishing to look at the animal—and the deer, alarmed by the flapping, jumped out and broke its neck on the line.

The animals were exhibited for some months in a reception tent on the waste ground near the reptile house, and were inspected by Queen Victoria, the Prince and Princess of Wales, and other members of the Royal Family. The hunting trophies, among which were sixteen tiger skins, were displayed in the lecture-room, and shown to the public, early in 1877. Two tigers, two leopards, an elephant (Suffa Culli, still living in the Gardens), two antelopes, and two tragopans were presented to the Society by the Prince. Jung Pershad remained in the elephant house, on deposit, till its death in 1896. It is needless to say that the collection was a very great attraction, and the number of visitors made 1876 the record year.

The other elephants, Omar and Rostom, remained at Regent's Park till 1882, when they were presented to the Zoological Garden at Berlin. On Easter Tuesday, 1879, the latter upset and trod on a keeper, who had been in the service of the Society nearly fifty years. At the inquest there was some suggestion that the elephant knelt on the man,* but this "was not made quite clear." Bartlett "thought it was possible that some mischievous person or persons had touched the elephant from behind with a stick or umbrella, causing the elephant to suddenly step forward and upset Goss, but there

* *Land and Water*, May 17, 1879.

was no actual evidence to prove that anybody had touched the elephant." The jury agreed that it was "a case of pure accident."

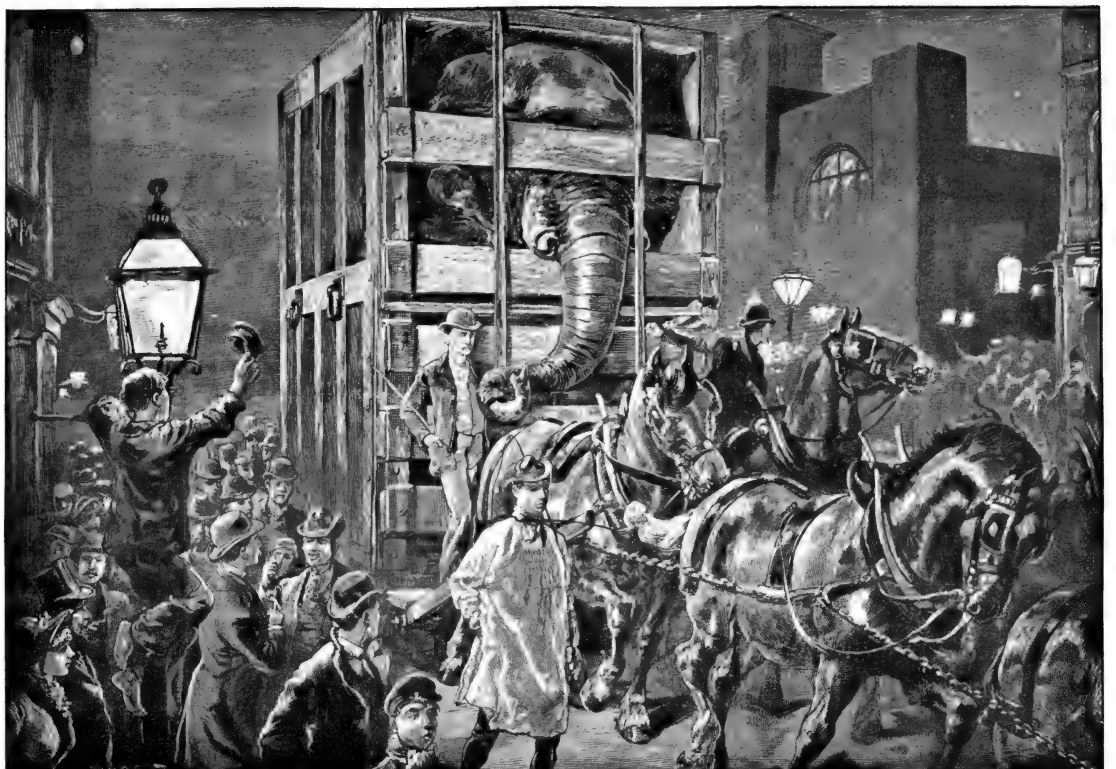
The East African buffalo was introduced in 1877, and a number of gelada baboons were deposited by Carl Hagenbeck, by whom they had been exhibited at the Alexandra Palace. A white-cheeked gibbon was also received, but this was the second specimen, as a young one was exhibited in 1840. Up to this time these two appear to be the only examples to reach Europe alive.

In 1878 the brown mouse lemur, Smith's dwarf lemur, the isabelline bear, and the equine antelope were shown for the first time. More important, from a menagerie point of view, was the purchase for £800 of a young male hippopotamus, born in the Amsterdam Gardens, and about two years old. A correspondent of a daily paper in describing a visit to the Gardens at Christmas, mentions what appears to be a Siberian tiger, though the List throws no light on the matter. He seems to have derived his information from Bartlett, and says that this animal, which he calls "the hairy tiger," is found "in cold and snow districts, and has a much longer and more wool-like coat than the tigers from the hot districts of India."* In the following year the mitred monkey, the red-faced saki, the Japanese goat-antelope, the mule deer, and the horned parrakeet were introduced. A pair of these birds, from New Caledonia, were purchased; on account of their extreme rarity—for there were few skins at that time even in the principal museums—a plate representing the species was given in the Council's Report. Obaysch, the male hippopotamus presented in 1850 by the Viceroy of Egypt, died on March 11. No traces of organic disease were found. Bartlett† attributed the death "to pure old age." The animal was only thirty years old, and this has been exceeded by Guy Fawkes, born November 5, 1872, now in its thirty-fourth year.

A fight took place in the lion house, on October 26, between two tigers that had been paired up. The female struck her claw through the cartilaginous division of the nose of the

* *Daily News*, December 27, 1878.

† "Wild Animals in Captivity," p. 77.



DEPARTURE OF JUMBO. (*See p.* 191.)

From the "Illustrated London News," April 1, 1882.

PLATE 33.

male, who retaliated by rolling her over, and having administered some rough punishment walked away. She rushed after him, and bit him on the thigh; on this he seized her by the throat, inflicting a bad wound. Eventually Sutton managed to separate the animals and get them, one after the other, into separate sleeping dens at the back. On the Saturday following (November 1) the tigress was reported, in *Land and Water*, to be in a fair way for recovery. The growling caused a good deal of excitement among the other animals, and a Frenchman who was in the house at the time wrote to Frank Buckland, that, "to quiet them," he adopted the following measures: "I ran up and down; I agitated my hat; I waved my handkerchief to disturb them; but they were agitated by so strong anger, that my efforts were of little effect."

The Prince of Wales was a generous donor in the last year of the decade, for he presented to the Society two thars, two wild boars, six Himalayan monauls, three horned tragopans, a Temminck's tragopan, and a spotted turtle dove. Among the introductions were the koala, or native bear of Australia, which had long been a *desideratum*, the Tcheli monkey, and the tufted umbre, a curious African bird, the hammerkop (hammerhead) of Cape Colony. This example, purchased of a Liverpool dealer, seems to have been the first to reach Europe alive, though skins and skeletons were to be found in museums in this country and on the Continent.

When the reptile house was opened, in 1849, there appeared in the *Athenæum* of December 15 a letter of protest against the practice of feeding the serpents in public. It does not seem to have met with support, for the subject attracted little notice till 1876, when the Editor of the *Animal World* drew Dr. Sclater's attention to the matter. Soon after letters and articles appeared in the public Press, and some of the writers were not content with trying to put a stop to a practice which had nothing to recommend it, but charged the Society with encouraging cruelty and "pandering to public brutality." One essayist, in the *Whitehall Review* (April 27, 1878), protested against "the Cawnpore Massacre enacted diurnally," and headed his article, "Sepoyism at the Zoo." In 1880 there was some correspondence in the columns of the *Times* on the subject.

This gave Dr. Sclater an opportunity of publishing the regulations which had been in force for many years:

> At 5 p.m. on Fridays the doors of the reptile house are closed, and a notice is put up outside stating that "This house is closed for the purpose of feeding the reptiles." After that time no one is admitted unless he applies specially for the purpose and states that he wishes to see the reptiles fed.

One leading article suggested that the feeding "should be done, as the stage Medea, according to the precept of Horace, was instructed to slay her children, behind the scenes." In this way the difficulty was got over. A few months later the Garden Committee recommended that the reptiles should be fed at times when the grounds were not open to the public. This was accepted by the Council, and since April 20, 1881, has been the rule.

In 1877 the freehold of the Society's house, No. 11, Hanover Square, and of the house at the back, facing Oxford Street, was purchased. A new storey was added in 1879 to provide additional accommodation for the Library. A room on the second floor was assigned to readers, while the upper storey was reserved for additions. Nearly £2,500 was expended during this decade in the purchase of standard zoological works. In 1874 Mr. Bryan Hodgson, formerly resident at the Court of Nepal, presented a fine collection of original drawings of the mammals and birds of India; and Colonel Tickell presented an original illustrated manuscript work, in several folio volumes, containing memoirs on the mammals, birds, reptiles, fishes, crustaceans, and butterflies and moths of India. Both donors were elected honorary Fellows, the former in 1874 and the latter in 1875, when the same compliment was paid to the Sultan of Zanzibar for his donations to the Menagerie, and to the Hon. Ashley Eden for help afforded to the Society when he was Commissioner in Burmah.

On June 7, 1876, the Society's Gold Medal was presented to the Prince of Wales, at Marlborough House, in "acknowledgment of his many valuable donations to the Menagerie, and other services." The presentation was made to the Prince in person by a deputation—consisting of the President (Lord Tweeddale), the Vice-Presidents, and the Secretary—which

PLATE IX.

THE BROAD WALK, WITH ELEPHANTS.

(*See p.* 192.)


Charles E Flower

was most graciously received. Four silver medals were awarded in this decade. The recipients were: in 1872, A. D. Bartlett (Superintendent from August 15, 1859, till his death, May 7, 1897), for his services to the Society, and in commemoration of the successful rearing of the young hippopotamus, born November 5, 1872; the Sultan of Zanzibar, in 1875, in acknowledgment of his donations of African animals; in 1877, Mr. Robert Hudson, in recognition of his valuable services as a member of Council; and, in 1878, Colonel Sir F. R. Pollock, in return for donations to the Society's Menagerie. For their services in connection with the rearing of the young hippopotamus, Michael Prescot and Arthur Thomson, keepers, received the bronze medal, when the silver one was awarded to the Superintendent.

Up to and including the year 1873 the interest of the Davis bequest was applied in aid of the publication of the "Zoological Record."* For the rest of the decade it was devoted to "popular lectures on zoology." The lecturers were Messrs. Leith Adams, Carpenter, Clark, Flower, W. A. Forbes, Garrod, Reay Greene, Harting, Huxley, Mivart Murie, Kitchen Parker, Pye-Smith, Sclater, Bowdler Sharpe, and Tegetmeier. Huxley's series, in 1878, on Crustaceous Animals and their Organisation, was the most important.

The subjects were interesting, and the lecturers men of eminence. But the experiment was not a success, for, generally speaking, the treatment seems to have been more fitted for classes of professional students than a general audience. In noticing the introductory lecture by Dr. Sclater, the *Echo* (April 15, 1874) said:

> The beasts did not personally attend, as some of the junior portion of the audience obviously expected, and their feelings would have been hurt had they done so to find themselves constantly described as "specimens" of their respective classes and species, without any attempt at those personal sketches of character and biography to which many of them might, not unreasonably, have aspired. Even the lamented Joe was referred to as "an Anthropoid Ape" of the "species Chimpanzee," and the affecting

* This annual summary of the work done by naturalists all over the world was originally published by Van Voorst in 1864. In 1871 it was taken over by the Zoological Record Association, who carried it on till 1886, when the Society assumed the responsibility, and acquired the whole of the back stock.

narrative of his last moments, given by a contemporary, was trivially touched upon as "sensational."

Admitting that this is not delicately put, it seems, nevertheless, to hit the mark, and may be justified, *ex post facto*, by a quotation from an abstract of Dr. Sclater's address on Waterfowl, given in *Nature* (July 20, 1880):

> Of the whole number of 174 generally recognised species of Anatidæ, 77 may, I think, be best set down as Arctic, although some of them, such as *Tadorna rutila*, *Fuligula rufina*, and *Marmaronetta angustirostris*, cannot be strictly so termed, as they inhabit only the temperate portions of the Palæarctic region. Very many of the Palæarctic species also, as will be noted below, go far south in winter, and intrude into the Æthiopian, Indian, and Neotropical regions.

A grant of £100 was made in 1874 in aid of Dr. Anton Dohrn's Zoological Station at Naples; in view "of the benefits likely to accrue to zoological science from its establishment; and, secondly, in the expectation that valuable acquisitions to the Society's fish house (which the Council hope shortly to see rebuilt on a much more extended scale) would ultimately be received by means of this Institution.

Dr. Dohrn had close relations with many English naturalists, and carried out some of his early investigations at Millport, on the Clyde, the home of David Robertson, with whom he became very intimate. In the "Naturalist of Cumbrae"—the story of the life of David Robertson—the Rev. T. R. R. Stebbing said (p. 190), when speaking of the Naples station, "one might be almost justified in considering that Millport stands to it in the unassuming relation of a fairy godmother."

The second edition of the Library Catalogue, published in 1872, contained the titles of about 2,100 works; and the third edition, issued in 1880, made the total 2,300.

The fifth edition of the Vertebrate List appeared in 1872, the sixth in 1877, and the seventh in 1879. The number of species catalogued were 1,826, 2,143, and 2,325 respectively. In 1872 the "Index" to the *Proceedings* (1861–1870) was published.

The number of papers presented at the Scientific Meetings increased, and this was of course reflected in the augmented size of the volumes of *Proceedings*.

Among the contributions of general interest are those by Bartlett on the breeding of the hippopotamus in the Gardens and the birth of a Sumatran rhinoceros on board the s.s. *Orchis* in the Victoria Docks. The dam had been consigned to Mr. Rice, and the arrival of the calf was unexpected. The author compared it to a young ass, on account "of its long legs and general mode of moving its large, long head and meagre-looking body." By lifting, he estimated the weight at 50 lb.; the height is given as 2 ft. at the shoulder, and the total length at 3 ft. It was unfortunate that the calf lived but a few days, for thus a good opportunity of watching the growth, development of the teeth, and other interesting matters was lost. Another contribution of his described the moult in Humboldt's penguin; and in this paper occurs the oft-quoted description of the scaly wing-feathers flaking off like the skin of a serpent. Sir Victor Brooke's communications dealt with antelopes and deer; and those of D'Albertis described his travels in New Guinea and some of the results. Dobson's papers were chiefly on bats, those of Mr. H. E. Dresser on European birds, and of Flower on cetaceans. The prosectorial memoirs of Forbes and Garrod were for the most part anatomical and systematic. Godman alone, and in conjunction with Osbert Salvin, contributed some important papers on the Butterflies of Central America. The latter collaborated with Dr. Sclater on the Birds of Central and South America.

About a dozen papers by Mr. W. H. Hudson treat of the smaller mammals and the birds of the Argentine Republic, and some of this material has since been made available for the general public in his charming books on La Plata and Patagonia. Huxley contributed six papers; that on the Classification and Distribution of the Crayfishes was expanded into the well-known text-book in the International Science Series. Lord Lilford did something to settle the question as to the position in which the flamingo sits on her eggs. Professor Newton's papers were principally ornithological; and those of Owen and Kitchen Parker abstracts of their memoirs in the *Transactions*. Mr. Howard Saunders was chiefly concerned with skuas, gulls, and terns; and an important statistical paper by Max Schmidt on the Duration of Life of the Animals

in the Zoological Garden at Frankfort-on-the-Main should not be overlooked.

Dr. Sclater's contributions were very numerous; probably the most important were those on the birds obtained by the *Challenger* Expedition. In one of his exhibitions he made some addition to the knowledge of Wombwell's gorilla, first referred to by J. E. Gray (see p. 146). He showed two photographs of Falkenstein's gorilla,* which the Berlin Aquarium had purchased for 10,000 marks, and the chalk drawing by Wolf of Wombwell's gorilla, that now hangs in the meeting-room. In connection with this anthropoid he read the following note from Bartlett:

> In the year 1861 I saw, in the collection of the late Mr. Charles Waterton, a mounted specimen of a young gorilla.† It had been prepared from an individual that had been exhibited alive in the No. 1 Collection of Wombwell's travelling menagerie, where it had lived upwards of seven months.

Although Waterton called this animal a chimpanzee, his description‡ is sufficiently exact to enable anyone at the present day to decide that it was really a gorilla. He refers to the protuberant abdomen, the small ears, and the prominent flat nose, "as if some officious midwife had pressed it down with her finger and thumb at the hour of Jenny's birth."

At the time of the Du Chaillu controversy, in 1861, a letter from "A Missionary" appeared in the *Morning Advertiser* of October 1. The following passage is of interest, not only as bearing on Wombwell's gorilla, but as showing how the African anthropoids are procured for menagerie purposes:

> "I have had several young or half-grown gorilla (*sic*) alive at different times on my premises, where they were allowed great liberty, following the person about who fed them just as the young chimpanzee does. Indeed, I see very little difference in the habits and disposition of the two animals, and I think this is proved by the fact that five years ago I sent a young

* This was the Pongo exhibited at the Westminster Aquarium.

† At Waterton's death, in 1865, this went, with the rest of his collection, to Ushaw College. The author is indebted to the Rev. Joseph Broadhead, Procurator of that College, for the information that the whole collection was sent, about twenty years ago, to Alston Hall, near Preston, the seat of the Mercers, relatives of the Watertons.

‡ "Essays on Natural History," 3rd Series, pp. 63–67.

Photo: Cassell & Co., Ltd.

ZOOLOGICAL SOCIETY'S HEADQUARTERS, HANOVER SQUARE. (*See p.* 194.)

PLATE 34.

gorilla to England. It arrived at Liverpool alive, and the dealer who bought it would have it that it was only a black chimpanzee, and under that name it was shown in Wombwell's menagerie in different parts of England. A friend tells me he saw it at Scarborough, and that it died there, and was sent to Mr. Waterton's, at Walton Hall, near Wakefield, where the skin is now preserved, and thus anyone can satisfy himself that it is a gorilla, and not a black chimpanzee, as the dealer called it.

Seebohm presented some of the results of his visits to the Petchora and Yenesei. Dr. Bowdler Sharpe contributed about thirty papers on birds, and the President, Lord Tweeddale, about twenty.

The seventh volume of the *Transactions*, published in 1872, contained sixteen memoirs, which included three on *Dinornis*, and one on the Dodo, by Owen; two by Murie on the Pinnipedia, and the important paper on the Lemuroidea by Murie and Mivart. In 1874 the eighth volume appeared, with the same number of contributions; among these were two by Lord Walden on the Birds of Celébes; others on *Dinornis* and the Osteology of the Marsupialia, by Owen; two on Cetaceans, by Flower; a continuation of Murie's researches on the Anatomy of the Pinnipedia, and a paper by the same author on the Manatee. Three years later the ninth volume was published; this contained twelve papers, including one by Lord Walden on the Birds of the Philippines; one by Leith Adams on Maltese Fossil Elephants; a section of Owen's memoir on *Dinornis* and one of the Osteology of the Marsupialia; the first part of Kitchen Parker's treatise on Ægithognathous Birds, and papers by the Secretary on Curassows and the Rhinoceroses now or lately living in the Society's Gardens.

In the last-mentioned paper Dr. Sclater relates the story of Jim, the great Indian rhinoceros, tearing off his horn:

> The male and female having been placed in adjoining yards, the former made frequent attempts to raise the lower transverse bar of the massive railing that separates the two enclosures by placing his horn under it. After repeating these attempts several times, in spite of the interference of the keepers, his efforts were such that the horn became suddenly detached under the violent pressure to which it was subjected, and rolled off into the yard. The animal appeared to be much hurt, and roared lustily for a few minutes. There was a considerable loss of blood from the wound, which, however, healed in a few days, neat's foot oil being applied to it to keep off the flies.

It was suggested that malformed horns due to injuries had led to the creation of species, afterwards found to be invalid.

Dr. Sclater also recorded the fact that in 1874 Jamrach imported a young rhinoceros from Calcutta, said to have been obtained in the Munipore district. It was offered to the Society, but after examining the animal, and being confirmed by the opinions of Bartlett and Garrod, he came to the conclusion that it was a young Sondaic rhinoceros. The animal was afterwards purchased for the Berlin Garden, and Dr. Peters carefully examined and quite agreed with the identification. The author added in a note: "This conclusion did not please Mr. Jamrach, who in October, 1874, printed an account of the supposed new species on a sheet of green paper, and proposed to call it *R. jamrachii.**

The tenth volume, published in 1879, contained sixteen papers, among which was the last of Owen's series on *Dinornis;* Mivart dealt with the Axial Skeleton of Struthious Birds, and of the *Pelecanidæ;* Parker with the Skull of Ægithognathous Birds, and Ray Lankester with the Hearts of *Ceratodus*, *Protopterus*, and *Chimæra;* and Garrod described the Manatee.

	Exhibited for the First Time.				Breeding Species.			
Year.	Mammals.	Birds.	Reptiles.	Total.	Mammals.	Birds.	Reptiles.	Total.
1871	6	9	6	21	32	21	1	54
1872	17	48	—	65	35	26	2	63
1873	17	54	14	85	20	22	2	44
1874	21	45	9	75	23	30	—	53
1875	17	39	5	61	26	20	1	47
1876	6	53	8	67	24	22	1	47
1877	20	32	5	57	22	17	2	41
1878	16	24	11	51	26	27	2	55
1879	12	26	10	48	23	18	3	44
1880	15	30	17	62	22	18	1	41

* This instance of a describer naming an animal after himself is not, as one would naturally imagine, unique, or, indeed, the first of its kind. Gordon Cumming described an East African form of the bushbuck, and with what the authors of the "Book of Antelopes" call "characteristic audacity," named it after himself. He shot a "princely old buck," and "christened him the '*Antelopus roualeynei*,' or 'Bushbuck of the Limpopo.'" Gordon Cumming's first name was Roualeyn.

Animals in the Menagerie.

Year.	Mammals.	Birds.	Reptiles.	Total.
1871	590	1,227	255	2,072
1872	573	1,208	229	2,010
1873	592	1,329	266	2,187
1874	751	1,243	128	2,122
1875	626	1,340	239	2,205
1876	637	1,405	223	2,265
1877	667	1,357	176	2,200
1878	640	1,314	224	2,178
1879	548	1,334	73	1,955
1880	703	1,438	231	2,372

Fellowship Roll, Visitors, and Finance.

Year.	No. of Fellows.	Admissions to Gardens.	Income. £	Expenditure. £
1871	3,047	595,917	24,620	22,037
1872	3,050	648,088	26,728	26,900
1873	3,173	713,046	28,099	27,667
1874	3,197	706,907	28,417	25,577
1875	3,241	699,918	28,738	31,667
1876	3,311	915,764*	34,955	31,635
1877	3,358	781,377	30,988	29,002
1878	3,416	706,713	27,944	27,266
1879	3,364	643,000	26,463	25,146
1880	3,309	675,979	27,388	26,579

* In this year the Indian collection of the Prince of Wales (now King Edward VII.) was exhibited.

CHAPTER VIII.

1881–1890.

CHANGES in the *personnel* were few in this decade. The most important was the appointment, in January, 1884, of Mr. F. E. Beddard as Prosector, that office having become vacant by the death of W. A. Forbes in the preceding year. There is no reference to this event in the published Report, for which reason part of the obituary notice in the *Ibis* (1883, pp. 384–392) may be quoted:

> In July, 1882, he left England on what promised to be a splendid opportunity of visiting the Eastern tropics with every advantage and without much risk. Detained at Shonga (a station some 400 miles up the Niger below Rebba) by the breaking down of his communications, Mr. Forbes fell a victim to dysentery on January 14 last, thus adding another name to the martyrs of science* in that deservedly dreaded climate.

In 1889 Mr. Benjamin Misselbrook, who had been for more than sixty years in the service of the Society, and for about a third of that time had filled the responsible post of head-keeper, retired on pension. Mr. Arthur Thomson, the son of a former head-keeper, was appointed to succeed him.

Just as the Society, in 1849, opened the first reptile house in connection with a zoological garden, and in 1853 the first aquarium, so now, in 1881, the first systematic attempt was made to form a collection of living insects for exhibition. The iron-and-glass building used as an insect house was removed to its present position from the South Garden, where it had formed part of the refreshment-room. The cases were arranged on stands round the building, and on tables in the centre, and the general plan with regard to their disposition was much the same as it is now. The specimens were well labelled, and preserved

* The Continental practice of recording on simple memorial tablets, in museums and similar institutions, the names of officers who have "died on the field of honour in the cause of science" is worthy of imitation in this country. The formula quoted is that used in the Museums in the Jardin des Plantes.

MEETING ROOM OF THE ZOOLOGICAL SOCIETY. (*See p.* 194.)

By the kind permission of the Zoological Society.

PLATE 35.

specimens of the different stages of metamorphosis were shown in a box over the principal cases. One feature, somewhat neglected of late years, was the development of aquatic insects, as exemplified in dragon-fly larvæ and caddis-worms.

The most important insects from an economic point of view were, of course, the various silk moths; but it is worth recording that one case contained plants infested with green-fly, with which were exhibited the larvæ of the common ladybird —the natural enemies of the fly, "which they seize with much the same habit as a dog would a rat."

For the first year the house was under the charge of Mr. William Watkins, who prepared the Guide, and in 1882 it was taken over by Mr. Arthur Thomson, described by Dr. Sclater as "one of the Superintendent's principal Assistants," whose valuable aid in the preparation of the second (and last) edition of the Guide-Book was acknowledged. Early in the year Mr. Thomson presented a report on the work, and exhibited the more important insects reared or presented.

The reserve shed for duplicates and stock requiring seclusion was built in 1882 at the rear of the cattle sheds; and at the end of the fish house—for so the Aquarium was now called—the tank was put up to show the movements of diving birds (such as auks, guillemots, and penguins) under water. On account of diminishing receipts from the Gardens there had been some idea of postponing the works for the new reptile house; but as the admissions increased in 1882, the contract was signed in August and the building commenced. In the Middle Garden shelter was provided for the kangaroos by fixing a glass roof to the sheds opposite the lecture hall.

In August, 1883, the reptile house was completed, stocked, and opened to the public. The building is 160 ft. long by 60 ft wide, and has keepers' rooms at the rear, and in front a porch with an entrance at each end. In this porch, in movable cages are kept lizards, toads, and frogs that do not need a high temperature. Three sides of the hall are fitted with large glass-fronted cages carried on a slate platform which forms a chamber for the hot-water pipes, so that the heat is confined, as far as possible, to the cages. The glass fronts are fixed, and the only access for feeding or cleaning is by a sliding door worked from

the keepers' passage at the back, to which the public are not admitted. On the south side are movable glass cages, on stands, for small lizards and snakes, and recently an inner row of terraria for frogs and toads has been added. In the centre is a large oval tank, about 25 ft. in the longer and 12 ft. in the shorter diameter, for large crocodiles and alligators, with one, less ample, on each side, for smaller aquatic reptiles.

The general plan of distribution is that the large cages on the north side are occupied by boas and pythons, and the smaller ones at the east and west end by the innocuous and venomous serpents respectively. Some of the larger lizards, however, are often exhibited in these cages.

As may be imagined, the operation of shifting the reptiles was not easy, but it was fortunately effected without any mishap to man or beast. The larger serpents and crocodiles were secured, not without difficulty, in stout canvas bags, and so carried from the old house to the new. More caution was necessary with the venomous snakes, which were boxed up before they were removed from the cages in the old house. This obviated all risk during transport across the Gardens. The box was deposited in the new cage, and the experienced keepers soon transferred the reptiles to stronger and more roomy quarters.

On January 17, 1884, Messrs. Barnum, Bailey and Hutchinson deposited a male Burmese elephant, described in the "List of Additions" as of the "mottled variety," which the owners said was a sacred white elephant. People flocked to the Gardens to see it; the admissions on Monday, January 21, were returned at 5,594, the average for Monday at that time of the year being about 700. One regrettable incident was the introduction by the owners of some natives, said, incorrectly, to be Burmese priests. Of these the *Times* of January 28 remarked that the "title priest might be used in their case with some such modifications as attach to the white of the elephant." Their pretensions were exposed by Professor T. W. Rhys David, and their performances came to an end.

At the Anniversary Meeting the Council reported that the reptile house seemed to answer its purpose in every way, and afforded great facilities for the examination by the public of the

reptiles which had been very inconveniently lodged in the old wooden building. They appealed to the crowds that visited the house every day, and to the increased Garden receipts, as proofs that the house was appreciated.

The burrhel sheep yard—a circular enclosure with a rocky elevation in the middle—was constructed in 1885. The shelters covered with rockwork, simulating their natural haunts, were well suited to the habits of these mountain sheep, which breed regularly. Owing to the success of this method it has been followed in making similar enclosures for Barbary sheep and mouflon. It is, perhaps, to be regretted that the Continental plan of one large enclosure, divided into yards, dominated by a central "ruin" on broken ground, has not been adopted. From a spectacular point of view, such combined yards are very successful. Those in Düsseldorf and Frankfort-on-the-Main may be a little too much like set-scenes; but the same objection really lies against this method of exhibition, whether on a small or large scale. Once get over the incongruity of a stony outcrop from the London Clay of the Park, there is no reason why it should not take the form of a miniature mountain range, crowned with a picturesque ruin. There is a very good example of this kind in the Rotterdam Garden, where chamois, wild sheep and goats, and llamas are kept on the slopes of an artificial mountain, from the crest of which there rises a graceful tower.*

In this year also the old reptile house was fitted up with cages "suitable for the exhibition of the smaller Cats and allied Carnivora." Consequently from this period dates the name "Small Cats' House," by which the building was known till 1904. By using the house in this way the Council were enabled to realise, to some extent, a plan which had always been considered desirable — the separation of carnivorous animals from the rodents and other frugivorous mammals hitherto kept together in the small mammals' house.

* It may be suggested that English naturalists scarcely live up to their opportunities in the matter of visiting Continental Gardens. One may see a good deal, even in a week-end. It is not difficult to get as far as Düsseldorf and Cologne, and quite easy to see the Gardens at Antwerp, Rotterdam, and Amsterdam between Friday night and Monday morning. The Harwich route has many advantages, and *Rundreise* tickets are not expensive.

Something more was done in this way in 1887 by the erection of the dog kennels or wolves' and foxes' dens, on the southern boundary of the Gardens. In the centre are four large dens (12 ft. by 11 ft.), and in each wing five smaller ones (8 ft. by 10 ft.). The following is a list of the stock in the possession of the Society at the Anniversary Meeting in 1888:

3 Wolves	1 Pale Fennec Fox
1 Black Wolf	1 Silver-backed Fox
4 Common Foxes	3 Prairie Wolves
3 Arctic Foxes	3 Red Foxes
1 Sumatran Wild Dog	1 Kit Fox
2 Common Jackals	1 Virginian Fox
1 Indian Desert Fox	1 Azara's Fox
2 North African Jackals	2 Rough Foxes
2 Side-striped Jackals	1 Red-footed Fox; and
2 Black-backed Jackals	1 Dingo

The New Aviary, or Night Herons' Pond, was formed on the Waterfowls' Lawn in front of the Eastern Aviary. It is 105 ft. long by 62 ft. broad, and the sloping sides, of galvanised wire, rise to a height of 27 ft. in the centre. The object was to enclose a space so large and high that the birds might exercise the power of flight, lead a more natural life, and indulge their habits better than in an aviary of the ordinary kind. It contained a large pond, for which smaller ones have since been substituted; the trees were left, and shrubs and brush planted. The birds were not put in till June; nevertheless, pairs of the straw-necked and Bernier's ibis nested and successfully reared their respective broods.

In 1888, when Spiers and Pond took over the contract for the supply of refreshments, the main building was painted, repaired, and decorated. In view of "the financial economy necessary" no new buildings were added. Additions were made to the money-takers' lodges at the north entrance in 1889, and this terminated the constructive work of the decade.

The white-nosed saki, a rare South American monkey, was introduced in 1881. The type specimen in the Paris Museum remained unique in Europe from 1848 till this animal was brought to the Gardens. The goral antelope, the rubiginous cat, and the gemul deer deserve mention. Several birds were

MEETING OF THE ZOOLOGICAL SOCIETY AT HANOVER SQUARE. (*See p.* 194.)

(After a Drawing by Harry Furniss.)

By the kind permission of the Proprietors of "Punch."

PLATE 36.

added to the list, including the twelve-wired and red bird of paradise, the green manucode, the Indian darter, and Germain's polyplectron.

Next year four pygmy hogs were purchased. This species was described by Bryan Hodgson,* as "about the size of a large hare, and extremely resembling a young pig of the ordinary wild kind of about a month old, except in its dark and unstriped pelage." These curious animals are found in the sâl forests of the Sikkim and Nepal Terai. Their hue is blackish brown, "shaded vaguely with dirty amber or rusty red." There is some resemblance to the peccary, apparently in disposition as well as in shape. They go in herds, and the males fearlessly attack intruders, "charging and cutting the naked legs of their human or other attackers with a speed that baffles the eyesight, and a spirit which their straight sharp laniaries render really perplexing, if not dangerous."

The heloderm lizard—the Gila Monster of the Mexicans—presented by Lord Avebury (then Sir John Lubbock) appeared for the first time on the list. Experiments showed that the bite was fatal to guinea-pigs.† Sir Joseph Fayrer suggested that "the saliva contained a higher quantity of active principle than that of other lizards, and that all saliva contained a trace of this principle which was so intensely active in the cobra and viper."

Coquerel's mouse-lemur was also exhibited for the first time, and among the birds new to the collection were the rifle-bird, the radiated fruit-cuckoo, with gait and actions resembling those of a gallinaceous bird, a jackass penguin, and a cock and two hens of Elliot's pheasant.

Sally, the famous chimpanzee, was purchased in 1880, and lived nearly eight years in the Gardens, establishing a record for

* *Journal Asiatic Society of Bengal*, May, 1847, pp. 423–28. Garson's paper (*Proceedings*, 1883, pp. 413–418) went to show that Hodgson's supposed generic characters did not exist.

† Dr. J. Fischer was quoted by Mr. Boulenger at the meeting of November 14 as authority for the statement that a gentleman was bitten by one of these lizards, and "the effects were of a very serious character." Mr. W. T. Hornaday, in his "American Natural History" (p. 335), records the fact that Mr. A. Z. Schindler was bitten by a Gila Monster, at the United States National Museum, but apart from a very natural degree of irritation and soreness of the wound he experienced no permanent ill-effects.

longevity among anthropoids. It has been claimed that this was exceeded by Messrs. Barnum and Bailey's Johanna*; but the evidence is not satisfactory.

The Somali wild ass and the hairy-fronted muntjac were exhibited for the first time in 1884; and both were described and named by the Secretary as being new to science. Mr. E. Lort Phillips had shot, in Berberah, an ass of large size—"our Berberah horses looked quite small in comparison"—agreeing in all points with the new form—the French grey colour, absence of shoulder-stripe, small ears and flowing mane, and black bands on the legs.

The more important birds new to the collection shown this year were the African cormorant, the Nepalese hornbill, the banded gymnogene, purple barbet, and blue snow-goose.

Among the mammals exhibited for the first time in 1885 were the Siamese gibbon, according to Dr. H. O. Forbes only a geographical race of the agile gibbon, one of the early acquisitions of the Society; the "pleasant" antelope, and the pale fennec fox. Among the birds were the brown pelican, wattled starling, striated coly, Gouldian finch, and black-browed albatross, from the Cape.

The beautiful lesser koodoo was introduced in 1886. This was the male of a pair imported in 1884 from Somaliland by Carl Hagenbeck, and sold to M. Cornély of Tours. That gentleman, having lost the female, parted with the survivor to the Society. Another important addition was the bald ouakari, which unfortunately lived but a few months.

A young male gorilla was received from Cross of Liverpool (a descendant of Edward Cross of Exeter 'Change) on October 10, 1887, and purchased later. At the scientific meeting of November 15 Dr. Sclater said that the animal appeared to be about three years old, and its height was 2 ft. 6 in. It was placed in a compartment adjoining that of Sally, the bald chimpanzee, affording an opportunity for comparing these two anthropoids.

The following is quoted from Bartlett's account of the animal in *Land and Water* (October 22, 1887, p. 342):

> On arrival the poor beast appeared to be completely exhausted and almost lifeless—no doubt partly from exposure to the cold and the

* *Proceedings*, 1899, p. 297. *Field*, Nov. 19 (p. 908), Nov. 26 (p. 950), 1904.

shaking and noise of the railway journey. In this condition no one could be expected to offer to purchase the animal; in fact, the owner could not ask any one to take it, however low the price he might ask; all he asked was that it might be attended to, and that whatever could be done to save it should be done.

With careful attention the animal revived, and was fed on fruit and bread. It improved in strength and temper, and when the account was written had made friends with the keeper (Mansbridge, now in the anthropoid house).

The gorilla attracted a good deal of attention, and attained the distinction of being portrayed in *Punch*. From a description in the *Illustrated London News* of November 12, it appears that it was not lively, and preferred to remain in the travelling-box, which stood in one corner of the compartment. A young macaque monkey was put in for company, but the gorilla took no notice of it. The animal died on December 9, and the body was sold to the Royal College of Surgeons.

The first example of the Samango monkey—extending across South Africa, from Mozambique to Angola—was received in 1888, as was the Indian small-clawed otter. The more important birds introduced were the Prince of Wales's pheasant—a new species from the confines of Northern Afghanistan and Persia; the spotted hawk eagle, from Northern India; and a Sclater's penguin, from the Auckland Islands. The new pheasant is a beautiful bird, spangled with bright purplish black on a rich golden-red ground, and the white wing-coverts stand out in strong contrast to the dark flight feathers.

Sir Cecil C. Smith, Governor of the Straits Settlement, presented a young gaur in 1889. This appears to be the first example of this Oriental wild ox received alive in Europe, and the donor was elected an Honorary Member in recognition of the value of his gift.

Very important additions were made in 1890. Mr. J. A. Nicolls presented a young female Selous's antelope, the first example to reach Europe alive. The animal was captured in the marshes north of Lake Ngami by Mr. Nicolls and his companions, who took it down to Mafeking, a distance of 750

miles, by waggon, and thence it was brought to this country by rail and steamer. The chief Moremi gave Mr. Nicolls a cow and two goats "for a milk supply for the little animal." The story of the hunting expedition was told by Mr. Nicolls in the *Field* (February 22, March 1, and March 8, 1890).

White park cattle were shown for the first time this year. Lord Ferrers presented a young bull from the Chartley herd, and Mr. G. W. Duff Assheton-Smith sent a cow from Vaynol. The nagor antelope and the waterbuck were also introduced: for the former the Society was indebted to Dr. Percy Rendall and for the latter to Mr. G. S. Mackenzie. A fossa, the rare carnivore from Madagascar, forming a link between the cats and the civets, was purchased—the first seen alive in England, though examples had been exhibited on the Continent. Nothing is known of its habits, except that it carries off kids and goats, and fights with desperation when wounded. The Chinese alligator was also exhibited for the first time, two examples having been presented by Mr. D. C. Janson, of Shanghai. Great interest attaches to these reptiles, as this is the only instance of the occurrence of an alligator in the Old World; and there is reason to believe that from it was derived the myth of the Chinese dragon.*

A young beisa antelope was born in 1881—probably the first instance of this species breeding in captivity; a nose-horned viper produced forty-six young, and though few of them long survived, the large number at a birth was set down in the Report, as remarkable and worthy of record. In 1882 a gayal bull calf was born, the produce from a fine pair received in the previous October from the Calcutta Gardens; no earlier record of this species having bred in Europe is known. Dr. Bauer sent home in 1883 three babirusas (♂ ♀ ♀); a young one was born shortly before the vessel reached England, and came to the Gardens with the dam. This little pig was of great interest, showing that, unlike the young of other wild pigs, those of this species are unstriped.† A young one was born in the Gardens in 1884. The pygmy

* Swinhoe, in *Proceedings*, 1870, p. 410; Leyland, in *Magazine of Art*, 1891, pp. 369–372.

† *Proceedings*, 1883, pl. xlvii.

Photo: Cassell & Co., Ltd.

FELLOWS' PAVILION.

THE LAWN. (*See p.* 203.)

BAND STAND.

PLATE 37

hogs produced young in 1883, and each succeeding year till 1886.

A greater Vasa parrot died in 1884, apparently of old age; it had been fifty-four years in the Gardens. The next year the Society lost a Sumatran and a Javan rhinoceros. The noteworthy deaths in 1886 were a male hippopotamus, born in the Amsterdam Gardens in 1876, which had been in the Menagerie nearly nine years; a giraffe, purchased in 1874; and a West African python, that had been in the collection twenty-three years. In 1888 a Sumatran rhinoceros, one of a pair purchased in 1875, died; a condor, purchased in 1856, died in 1889; and the death in 1890 of a crane bred in the Gardens in 1863 is worth mention.

The event that attracted most attention from the general public during this decade was the sale of Jumbo, the great African elephant, to Barnum. The facts of the case were simple; yet the motives of the President, Council, and Secretary seem to have been misunderstood, and many of the articles on the subject did small credit to the wisdom of a section of the newspaper Press.

In 1881 Jumbo developed dangerous tendencies and did a great deal of damage to the house, rendering necessary the setting up of stout timber buttresses, more than once destroyed. Those last erected are still in position. There was, however, at times—worse than this—the disposition to attack persons. Bartlett's own words should carry conviction as to the danger of keeping the animal in the Gardens:

> Finding that he, at the end of this period, was likely to do some fatal mischief, I made an application to the Council to be supplied with a sufficiently powerful rifle in the event of finding it necessary to kill him.*

It may be well to give the Superintendent's Report on the subject in full; for although it was published in the *Times* of March 9, 1882, it is not generally known:

> I have for some time past felt very uncomfortable with reference to this fine animal, now quite, or nearly quite, adult, and my fear of him is also entertained by all the keepers except Matthew Scott, who is the only

* "Wild Animals in Captivity," p. 49.

man in the Gardens who dare enter this animal's den alone.* I have no doubt whatever that the animal's condition has at times been such that he would kill anyone (except Scott) who would venture alone into his den, but up to the present time Scott has had, and still has, the animal perfectly and completely under his control. How long this state of things may continue it is quite impossible to say. At the same time, I consider that the matter is of so serious a nature that I feel called upon to draw the attention of the Council to the subject, for in the event of illness or accident to the keeper (Scott) I fear I should have to ask permission to destroy the animal, as no other keeper would undertake the management of this fine but dangerous beast.

In conclusion, I may ask that I should be provided with, and have ready at hand, the means of killing this animal should such a necessity arise. A. D. BARTLETT.

December 14, 1881.

No administrative body could disregard such an application from a man of Bartlett's experience. The rifle was supplied; but the necessity for its use was obviated by Barnum's enquiry if the elephant was for sale, and, if so, at what price. On being consulted, the Council asked £2,000, and Bartlett, knowing the difficulty of boxing Jumbo, added the condition "as he stands." Barnum accepted by telegraph. The *Times* of January 25 contained an announcement of the purchase, and thus commented on the condition: "To those who know the size, weight, and strength of this ponderous creature (certainly the largest elephant in Europe), the undertaking is one of serious difficulty, and not unattended with some danger." But there was still greater danger in keeping Jumbo, and there are men in the Society's service who know how grave that danger was.†

The preparation of the box in which Jumbo was to be shipped took nearly a month. It was brought to the Gardens on February 17, and Barnum's agents tried ineffectually to get him to enter. Then the opposition, active among a small section of the Fellows and the general public, and passive, as it would appear from Bartlett's notes, in the Gardens, mani-

* It is said, no doubt with truth, that there were times when Scott did not care to go in.

† The case of Neff, a keeper in the Jardin des Plantes, who was killed in August, 1905, by an elephant of which he had had charge for a quarter of a century, shows how dangerous these great animals are when they "go mad."

fested itself. The Council were charged with selling the animal to fill the coffers of the Society, and their conduct was compared to that of American slave-dealers. Said one leader-writer:

> When the bid arrived the Council was in session, Professor Flower in the chair, and Dr. Sclater ready to record the bargain. The scene reminds us of Mr. Selby disposing of Uncle Tom. . . . When a Southern slave owner put in force his legal right of separating a family at the auction block the world rang with anathemas against the inhumanity of the deed. Surely to tear this aged brute from a home to which he is attached, and from associates who have so markedly displayed their affection for him, is scarcely less cruel.

Another writer dwelt on the "almost human distress of the poor animal at the attempted separation of him from his home and his family." This note was sustained in other quarters, and it became the fashion to write of Alice as "Jumbo's little wife"—no doubt on account of the baseless rumour that she was in calf. A similar story, equally unfounded, was told of another elephant. In the *Times* of February 4, the "interesting announcement" was made, on the authority of *Land and Water*, that "one of the young Indian elephants is shortly expected to be the mother of the first elephant ever known to be born in Europe—at any rate, in modern times."

On February 21 Dr. Sclater published a temperate statement of the case, which was inserted in the leading morning papers. It set forth the facts that "male elephants, when they arrive at the adult stage, are periodically liable to fits of uncertain temper," and that "the risk of an outbreak on the part of so huge and powerful an animal in the much frequented Gardens of the Society was not one which should be lightly run." One would think this would be held to justify the declaration that "the Council would not have consented to part with the animal unless satisfactory reasons for so doing had been placed before them by the responsible executive of the Gardens." Some of the Fellows thought it did not.

The Council, however, had their supporters. A letter from "A. B." was printed in the *Times* of February 23. He said that

he had visited the Zoo* rather frequently of late, and noticed that Jumbo's temper was not so good as it used to be. He clearly recognised that the animal was a possible source of danger, not only to the keepers, but to the public; and stated the case plainly: "If he were suddenly to get cross some day when a number of children were present some accident might happen. I venture to think the authorities have acted with discretion in parting with him."

Mr. W. B. Tegetmeier dealt with the subject in the *Field* of February 25. With a fuller knowledge of the facts than any other journalist possessed, he described the risk of keeping the animal, concluding thus:

> The statements that have been made respecting the human emotions manifested by the animal are mainly imaginary. The simple explanation of his behaviour is that he became alarmed at the new conditions under which he was placed, and consequently refused to move.
>
> Had Jumbo been so docile and obedient as to take his departure quietly, but little would have been said on the subject. Old public favourite as he was, the announcement of his sale, which was published in the daily papers a month ago, and the paragraphs which subsequently appeared relative to the preparation for shipment, may have elicited a few passing words of regret, but no public protest was thought of.†
>
> No sooner, however, does the sensational writer ‡ adorn the facts and give to the subject a fictitious interest by endowing Jumbo with human attributes than the kindly feelings of the public are aroused and angry remonstrances evoked against his supposed oppressors. All honour to

* This is an early instance of the use of this inelegant contraction without inverted commas. In the *Daily Telegraph* of April 18, 1876, the following sentence occurs: "Easter Monday is always a great day at the 'Zoo,' as it is now the fashion to call it." The form was, as everybody knows, adopted from a music-hall song made popular by Vance in 1867. By a strange anachronism it occurs in the "Life of Owen," whence it would seem as if what purport to be quotations from Mrs. Owen's Diary are not given in the exact words of the diarist. "Zoo" has also found its way into colloquial German. In the "Tagebuch einer Verlorenen" (Berlin, 1905, p. 230) one meets with this sentence: "Wir beschlossen, den Abend zusammen im Zoo zue ssen."

† There was no expression of disapproval of the sale on the part of any Fellow at the monthly meeting of February 16.

‡ It would not be difficult to dot the i's and cross the t's in this sentence. Mr. Tegetmeier has not mentioned the "writer" by name—for the allusion is to a person, not a class—nor will the author take the responsibility of doing so. The only remark he permits himself is, that the sensation was not, as is generally believed, created in the interests of Barnum, whose agents adroitly turned it to profitable account.

Photo: Cassell & Co., Ltd.

PLATE 38.

MOTI, THE PEARL. (*See p.* 207.)

those who would prevent a wrong being done. Unfortunately, however, they simply had their feelings played upon; the wrong existed only in their imagination—the danger was real.

Mr. Henry C. Burdett made a public appeal early in March for contributions to a Zoological Society Defence Fund, of which Mr. Berkeley Hill was treasurer. On March 6 an application was made in the Chancery Division to Mr. Justice Chitty on behalf of the last-named gentleman and some other Fellows for an injunction to restrain the President and Council from selling Jumbo, on the ground that they had no authority to do so, for the Royal Charter limited their powers to the acquisition of animals for the purposes of the Society. An interim injunction was granted, with the proviso that it was not to prevent the boxing of the animal.

Subsequently the evidence of Dr. Sclater, Bartlett, and Davis, Barnum's agent, was taken. The officials of the Society emphasised the danger of keeping the elephant. Davis agreed; but added that "it would not be dangerous to exhibit him under their system of management, which was quite different from that of the Society, and would not be allowed in this country."

Farini threw some light on the American "system of management" in an interview with a representative of the *Graphic*, which appeared in the issue of October 14, 1893. Having described how Jumbo lay down outside the Gardens, and the profit Barnum made out of the purchase, Farini continued:

> You know old Jumbo was so pleased with himself over that piece of business that he must needs try to repeat it when he got to the States. He refused to go into the specially-constructed railway car we had made for him—wouldn't be coaxed in. There was Wood,* his English keeper, saying, "Now, come along, Jumbo!" (patting his trunk); "come along in, old man!" Not he. But he was a fine elephant, the tallest I ever saw. Wouldn't budge. So at last Arstingstall, who was looking on, got tired. "Oh, blame all this British coaxing," says he; "he's in America now." And Arstingstall, he passes a chain round Jumbo's buttocks, and takes the two ends through the car, and through the opening on the opposite side, where they were fastened on to an old she-elephant.
>
> Still old Jumbo cocks his old head up, he was a tall elephant, and

* This should, of course, be Scott.

won't go in. So Arstingstall puts two elephants behind him and a man on top of the car. Then he gave the word. The old she-elephant started to pull, and the two other elephants to butt Jumbo from behind. The man on the top of the car fetched him a blow over the head with a crowbar. Jumbo ducked, and he shot into the car like a sack of coals. He never wanted any more coaxing.

Mr. Justice Chitty delivered judgment on March 8, and is thus reported in the *Times* of the following day:

The result of the evidence was that it was a fair question for the Council whether they would keep Jumbo, or would run the risk of his becoming dangerous. If he granted the injunction he should be taking the management out of the hands of the Society, which he did not intend to do. If, after the report of Mr. Bartlett, the animal should become dangerous, and injure any of the public the Society would be liable. It was impossible for a court of justice to say the Council had not exercised their powers reasonably. The result was that the motion failed, and as he thought there was no ground for it he must refuse it with costs.

Even this weighty judgment failed to put an end to the agitation. Public meetings were held and communications sent to the Press, with the view of influencing the Council. Wild assertions were made about the value of Jumbo, and the Governing Body was accused of neglect of duty in allowing what was termed "a unique specimen" to leave the country. The height of absurdity was reached in a letter to the *Times* of March 16, in which the animal was compared to perhaps the most important of the sacred manuscripts:

The trustees of the British Museum have an express power to dispose of duplicates and other useless or superfluous books. But if they sold the "Codex Alexandrinus" or any other precious volume to the injury of the library, would not a Court interfere?

At the monthly general meeting on the following day Mr. Berkeley Hill and Mr. H. C. Burdett disclaimed all feeling of hostility towards the Council and the executive officers. Professor Huxley, the Hon. S. Gathorne Hardy, and Dr. Günther strongly supported the action of the Council. The President (Professor Flower) is reported as having "animadverted in strong terms upon the bad motives attributed by certain writers in the newspapers, and still more by the senders of anonymous communications, to the Council."

PLATE X.

THE TORTOISE HOUSE.

(*See p.* 203.)

A vote of thanks to the Governing Body for their action in this matter was proposed and seconded; but though "a very large majority of the crowded meeting appeared to be in its favour,"* the President ruled that it was out of order, owing to the fact that previous notice had not been given.

Considerable difficulty was experienced in boxing the elephant. The *St. James's Gazette* of September 20, 1892, published the result of an interview with a "Mr. Gaylord, who was with Barnum when Jumbo was bought." This gentleman is reported as having said that "Scott had a quiet sign which the elephant knew to mean 'Lie down.' It was arranged that when he was to be taken from the Gardens Scott should make this signal, and the people would believe that Jumbo was unwilling to leave Alice." In this interview the statement was made that Barnum "gave £1,000 to raise an action to endeavour to interdict the departure of Jumbo."

Bartlett, in telling the story of the removal,† says it was imagined that the difficulty "was caused by the unwillingness of Scott, the keeper, to exert himself in the command he had over the animal; in fact, it was generally suspected that he was obstructing the work of removal, and that his effort to box the elephant was a sham." Newman was asked if he would undertake the business, provided Scott were sent away for a holiday. This he was quite ready to do. Bartlett then told Scott of the suggested arrangement, and of Barnum's liberal offer, if he would go to America with the elephant. The rest deserves quotation:

> Scott immediately begged me not to carry out my intention of giving him a holiday, stating that if I would only give him another day he would do his best to induce Jumbo to enter his box. To this I agreed, and on the following morning Jumbo was safely housed.

This was on March 23; and it was past midnight before the trolley with the box moved out of the Gardens. The crowd waiting outside raised cheers for Scott, and shouted that the Yankees should never have Jumbo. About 7 a.m. on Thursday morning St. Katherine's Docks were reached, and the box was put on a barge for Millwall. Here, it is recorded,

* *Daily News*, March 17, 1882.

† "Wild Animals in Captivity," pp. 49–51.

Jumbo breakfasted, and was "treated afterwards to a copious draught of beer by a lady who had followed him all the way from the Zoological Gardens, and now took a mournful farewell of him." The box was shipped on Friday on board the *Eastern Monarch*, which sailed on the following day.

After May 1 riding tickets were introduced. Previously there had been no fixed charge for rides on elephants and camels; people gave the keepers a tip, and the Society was not benefited. Twopence each was charged for the tickets, but the price was soon reduced to a penny for a camel-ride. By December 31 £305 had been received under this regulation, which still works well, and a portion of the money is divided among the keepers concerned. The Broad Walk in the South Garden, on a fine afternoon when the elephants are carrying, presents an animated scene.

The monthly business meeting was held on June 22, at the Marlborough Rooms, Regent Street, as affording greater accommodation than the Society's meeting room. Circulars had been issued, and there was a good deal of feeling on the subject. Mr. Burdett's proposal to alter the bye-laws so as to make any ordinary meeting special on giving seven days' notice, and to limit the power of the Council in selling animals, was defeated after a long discussion. An amendment to the effect that the meeting did not consider it desirable to interfere with the discretion of the Council on the questions raised by Mr. Burdett was then put as a substantive motion, and carried without a division. Since that time, however, the list of animals for sale has been laid on the table at business meetings.

On the suggestion of one of the Fellows, the Council decided to celebrate the Jubilee of Queen Victoria, on June 16, 1887, by holding the monthly meeting in the Gardens. After the formal business, the Silver Medal was presented to the Maharajah of Kuch-Behar in acknowledgment of His Highness's valuable donations to the Menagerie. The President then delivered an address, sketching briefly the history of the Society.* Incidentally, though not in express terms,

* Printed as an Appendix to the Council's Report, and included in Flower's "Essays on Museums and other Subjects."

Professor Flower showed that the appointment of a paid Secretary was abundantly justified:

> There was a period, it is true, in which the Gardens fell rather low in popular favour, the record of 1847 showing both the smallest number of visitors and the lowest income of any year in the Society's existence. A new era of activity in the management of the Society's affairs was then, happily, inaugurated, which resulted in a prosperity which has continued ever since, with only slight fluctuations, arising from causes easy to be understood.

The President and Council then held a reception, which was well attended by the Fellows and the friends specially invited; and the function was a great success. In commenting on it the *World* said in its next issue:

> If these pleasant parties could be held occasionally with a "regular periodicity," they would do much to revive the fallen fortunes of the now *un*social Zoo. The gathering of Thursday was an extremely agreeable one. Professor and Mrs. Flower, Mr. Sclater, and Mr. Bartlett were indefatigable.

The last poultry show was held on the vacant ground at the west end of the North Garden in September (11–13), 1889. It was organised by Mr. Alexander Comyns, but though there were nearly 1,400 entries, the attendance was small.

In the Report issued in 1890 the Council stated that they had received frequent applications for information as to "how the animals were fed." Consequently they added a table, giving a list of the provender and the quantities supplied for each year of the decade 1880–1889. No particulars as to cost were given. A casual examination of the table may possibly prompt the enquiry why the quantities of three of the items remained constant during the whole period, though the number of animals varied. Yet 313 gallons of shrimps, 7,512 fowls' heads, and 3 tons 18 cwt. of potatoes are set down in each of the ten columns.

Reference has already been made to the presentation of the Silver Medal to the Maharajah of Kuch-Behar. In 1882 the same distinction was conferred on Dr. John Dean Caton; in 1884 on the Rev. George H. R. Fisk; and in 1889 on Dr. Edward Dalzel Dickson. These gentlemen were Corresponding Members, who had sent valuable donations to the Menagerie.

More accommodation was needed for the official work of the Society than No. 11, Hanover Square afforded. Various expedients were suggested to overcome the difficulty. That which found most favour was that the premises in Oxford Street, purchased in 1877 and formerly leased to Purdey, the gunmaker, should be utilised and a new meeting-room built. A special committee of the Council was appointed to deal with the question, and they reported that the relief would be only temporary. Consequently these premises were disposed of, and the freehold of No. 3, Hanover Square was purchased for £16,250. The Society took possession in the autumn of 1883; but the house was in a bad condition, and an expenditure of nearly £10,000 was required for repairs and fittings. In 1884 the Anthropological Institute became tenants of the Society.

The Anniversary Meeting of 1884 was held in the new offices, the advantages of which were appreciated by the Fellows present. It was officially stated that when No. 11, Hanover Square was taken in 1843, the income of the Society was £9,137,* and when the occupancy terminated, in 1883, it had more than trebled, being £28,966. In 1885 a Scientific Meeting here was the subject of a clever sketch in *Punch*.

The offices of the Prosector were repaired and enlarged in 1881, and the increased accommodation was soon utilised. A long-vacation class of four students from Cambridge worked there on the comparative anatomy of the Mammalia, under the supervision of Mr. Lister, and the Pathological Society formed a committee for the study of comparative pathology in the Gardens. In view of what was advanced on p. 127 as to the original intention of the Council in establishing the prosectorship, the following remarks in their Report for 1881 on the work of the Pathological Committee are of interest:

> Their investigations promise to be of great scientific interest and value, not only to pathologists, but also to the officers of the Society, as affording better indications than have hitherto been obtained of the various morbid causes affecting the animals in the Society's menagerie.

* It fell to £7,765 in 1847, the last year of Ogilby's secretaryship. In 1859, when W. D. Mitchell, the first paid secretary, resigned, it stood at £14,034, and in 1902, the last year of Dr. Sclater's secretaryship, at £29,077. Thus, the first paid Secretary nearly, and the second more than, doubled the income of the Society during their terms of office. It would be pleasant if this progression were continued.

Photo: Cassell & Co., Ltd.

JENNY THE GORILLA. (*See p.* 207.)

PLATE 39.

Later a good deal of pathological material was handed over to Mr. J. Bland Sutton, and his results were published in the *Proceedings*. Some, illustrating the diseases of teeth, went to the Dental Museum.

Grants were made to the Zoological Record Association in 1886 ; the Society undertook the publication, and Mr. F. E. Beddard, the Prosector, was appointed editor. In the same year the sum of £100 was granted in aid of the establishment of the new Laboratory of the Marine Biological Association at Plymouth. This was opened by the President on June 30, 1888. Mr. Cornish said, in his "Life of Sir William Flower" (pp. 164, 165):

> Huxley was too unwell to preside, and in his absence Flower took his place, and as Vice-President of the Marine Biological Association, delivered the opening address. After pointing out that Professor Huxley was the pioneer in urging support for the study of marine life, he referred to the enormous importance of the subject both to science and economics in a country which has 2,000 miles of coast.

Professor Ray Lankester was the Honorary Secretary of the Association, which owes quite as much to his advocacy as to Huxley. The chief concern of the Zoological Society with the Association is, that under Professor Lankester's influence bionomic observation and experiment were to be, and are, among the chief objects of its laboratory work.

The Davis lectures were continued year by year, and the following gentlemen were Davis lecturers for varying periods: Messrs. Beddard, Jeffery Bell, Boyd Dawkins, Martin Duncan Flower, Forbes, Harting, E. Ray Lankester, Mivart, Kitchen Parker, Romanes, Sclater, Seebohm, and Bowdler Sharpe. It cannot be said that the lectures were a success. Even the President, in his Jubilee Address, admitted the fact. "I must, however, confess," he said, "that the interest taken by the Society generally in these lectures has not quite equalled the expectations that were raised when the question of establishing them was first brought before the notice of the Council."

There seems, nevertheless, to have been a belief in some quarters that really popular lectures by competent men would be well attended. "Why not, for example," said a writer in the *Daily Telegraph* (May 13, 1890), "have special daily lectures for

children, and even adults, on the ways and habits of the various prisoners of the Society?" And the probable results were thus summed up:

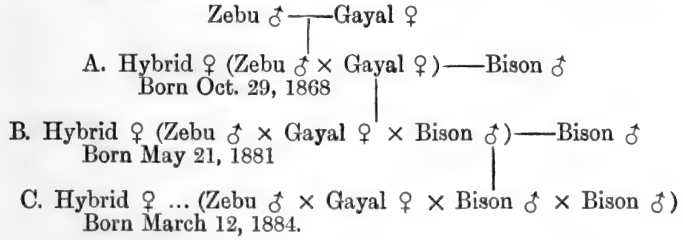
> Experts in zoology, perhaps, few would ever become, but the true stories of animals would certainly arouse greater interest in their existence and make plainer the marvellous ways and means of Nature, while instilling into many children that love, kindness, and forbearance towards even the humblest of God's creatures, which shall in after life make them better men and women. Lastly, the development of some such idea as has been imperfectly set out would unquestionably increase the popularity and at the same time the finances of the Zoological Society. Can it not be given a trial?

The eighth edition of the Vertebrate List was published in 1883, and contained the names of 2,557 species—667 mammals, 1,447 birds, 307 reptiles, 48 batrachians, and 88 fishes.

A supplement to the third edition of the Library Catalogue appeared in 1883; this contained about a thousand titles, raising the total to more than 4,000. By the Anniversary Meeting of 1884 the whole collection had been transferred to the present library, reclassified and arranged. In the following year the books were valued at £12,000. The fourth edition of the Catalogue was brought out in 1887, and the titles had then risen to a little over 6,500. In 1888 Mme. Cornély, widow of M. J. M. Cornély of Tours, an old and valued Corresponding Member, bequeathed to the Society her husband's zoological library. This consisted of about 840 volumes, of which 256 were new to the Society's library, and many of the books thus acquired were rare and difficult to obtain by purchase. In 1889 the Council voted £25 towards the expenses of publishing a very useful little volume—"Index Generum Avium"—compiled by Mr. F. H. Waterhouse, the Librarian. This list of the genera and sub-genera of birds, established since the days of Linnæus, was aptly described in the Report as a "laborious piece of scientific work."

Nearly twelve hundred communications were made to the Scientific Meetings of this decade, all of which appeared, in full or in abstract, in the *Proceedings*. Bartlett sent five papers, of which by far the most important is that on Some Bovine Animals bred in the Society's Gardens, in the volume for 1884.

It dealt with some remarkable hybrids, of which the table below gives the pedigree:



That is, the last hybrid was of one-eighth zebu and one-eighth gayal blood and three-quarters bison, so that the statement that the calf was "undistinguishable from a pure-bred bison of the same age" causes no surprise. To a zebu bull the hybrid A. produced four other calves, of three-quarters zebu and quarter gayal blood, but with these nothing appears to have been done; nor were further experiments encouraged. In commenting on the omission of the authorities to turn the collection to practical account, Mr. W. B. Tegetmeier wrote in the *Field* of January 14, 1899:

> It is greatly to be regretted that we have not in England, in the Zoological Gardens or elsewhere, any place where experiments or observations on the valuable results that might attend the hybridisation of our domestic animals might be studied. Mr. Bartlett's hybrid bovines should have been utilised. There is no doubt that in the hands of a successful breeder, they might, under some conditions or circumstances, have greatly tended to the improvement of our domestic cattle.

In the volume for 1885 Bartlett's paper on Sally, the famous chimpanzee, appeared. This dealt with her physical character and her fondness for animal food; her mental qualities were discussed by Romanes in a paper in the volume for 1899.

Of the prosectorial papers forty-six were contributed by Mr. F. E. Beddard and twenty-four by W. A. Forbes; from Mr. J. Bland Sutton came several pathological papers of interest. That on the Diseases of Monkeys opens with the following important passage:

> When a "generally received opinion" is made the subject of careful investigation, it not infrequently turns out to be erroneous. So with

regard to the diseases of monkeys living in this country. The general public hold the belief, endorsed by the medical profession, that nearly all the monkeys brought to England die from tuberculosis. After careful examination, I fail to find any reasonable excuse for so widely spread an error.

Mr. Blaauw described the development of the horns in the white-tailed gnu; these weapons, so strangely curved in the adult, are at first quite straight. The contributions of Mr. Jeffery Bell, Mr. Boulenger, Dr. Günther, Mr. Bowdler Sharpe, and Mr. Oldfield Thomas were chiefly systematic. Emin Pasha sent some interesting letters; one reports the occurrence of a striped hyena in East Africa, which has recently been confirmed by Herr Schillings. Flower's papers were concerned chiefly with cetaceans; and those of Howes were, of course, anatomical. Sir Harry Johnston treated of the fauna of Kilima-njaro, Professor E. Ray Lankester of the heart of the duck-billed platypus and spiny anteater, and here appeared Mivart's classification of the cat-like and bear-like carnivores. Dr. P. Chalmers Mitchell, the present Secretary, read his first paper—a description of an ingenious graphic formula to express geographical distribution—in 1890; Mr. R. I. Pocock, the Superintendent, preceded him by three years with a report on the Crustacea collected by the officers of H.M.S. *Flying-fish*. In 1887 Professor Poulton's great paper on the Protective Value of Colour and Markings in Insects appeared.

Two volumes of *Transactions* were published in the decade. The eleventh, which came out in 1885, contained nineteen memoirs. Among these were Flower's contribution on Two British Dolphins, Forbes's on the Sumatran Rhinoceros and on the Californian Sea-lion, and Garrod's on the Brain of the Hippopotamus; Professor E. Ray Lankester's memoir treated of the Muscles and Internal Skeleton of the King-crab and Scorpion; Owen's papers were on a large extinct Kangaroo, and *Dinornis;* and Kitchen Parker described the Construction of the Skull in the Chameleon and the Tailed Batrachians. The twelfth volume, with fifteen memoirs, was published in 1890. Perhaps the most important contribution was that of Mr. Beddard and Mr. (now Sir) Frederick Treves on the Anatomy of the Sondaic Rhinoceros.

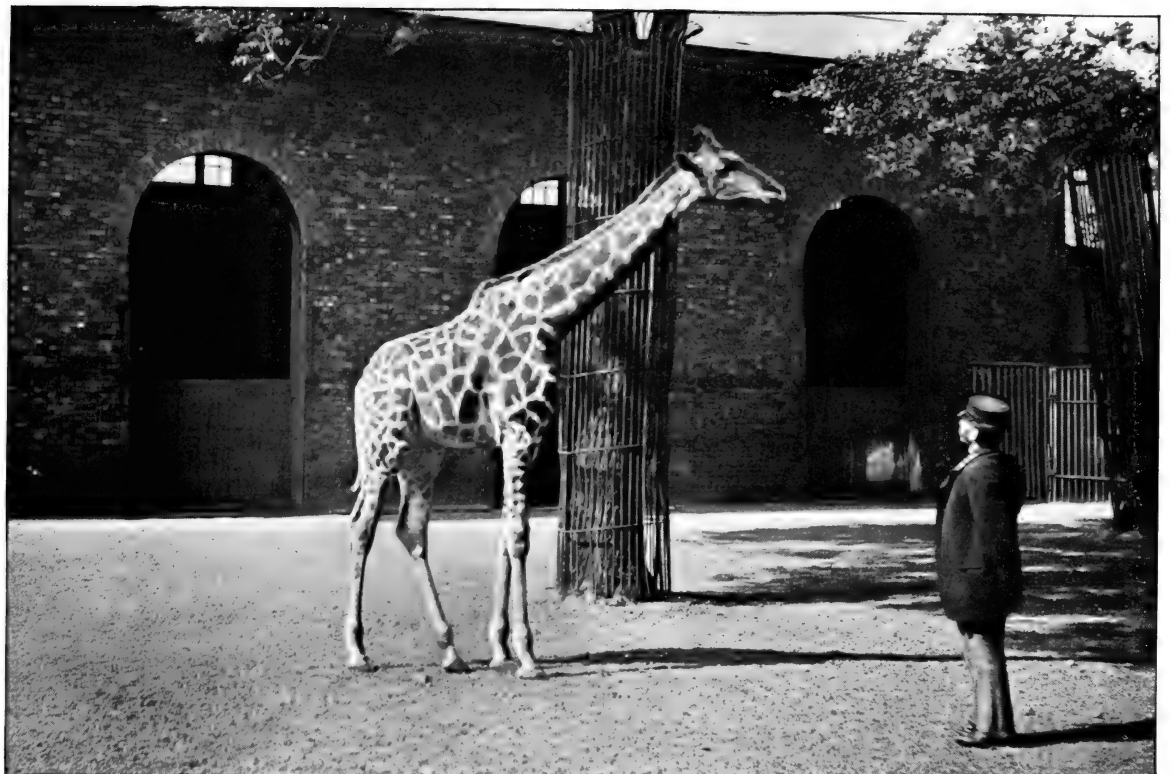


Photo : Cassell & Co., Ltd.

DAISY, WARD'S GIRAFFE. (*See p.* 207.)

PLATE 40

Year.	Exhibited for the First Time.				Breeding Species.			
	Mammals.	Birds.	Reptiles.	Total.	Mammals.	Birds.	Reptiles.	Total.
1881	11	17	11	39	24	21	2	47
1882	17	40	20	77	31	18	1	50
1883	12	14	13	39	22	17	3	42
1884	11	32	16	59	33	15	—	48
1885	11	17	12	40	36	15	2	53
1886	12	16	24	52	30	20	3	53
1887	8	10	8	26	29	21	3	53
1888	5	11	9	25	31	17	2	50
1889	6	13	4	23	31	18	—	49
1890	7	18	9	34	28	20	1	49

Animals in the Menagerie.

Year.	Mammals.	Birds.	Reptiles.	Total.
1881	647	1,389	258	2,294
1882	750	1,364	241	2,355
1883	731	1,398	269	2,398
1884	731	1,423	347	2,501
1885	756	1,366	429	2,551
1886	777	1,429	403	2,609
1887	735	1,331	459	2,525
1888	666	1,280	344	2,290
1889	519	1,411	302	2,232
1890	693	1,273	290	2,256

Fellowship Roll, Visitors, and Finance.

Year.	No. of Fellows.	Admissions to Gardens.	Income. £	Expenditure. £
1881	3,213	648,694	25,810	25,687
1882	3,213	849,776	34,270	29,376
1883	3,210	743,485	28,966	38,040
1884	3,255	745,460	28,939	33,845
1885	3,193	659,896	25,809	25,084
1886	3,146	639,674	25,787	24,568
1887	3,104	562,898	23,102	23,135
1888	3,076	608,402	24,025	22,139
1889	3,075	644,579	26,427	23,268
1890	3,046	640,987	25,059	23,572

CHAPTER IX.

1891–1900.

SEVERAL changes in the principal officers took place during this decade. In 1896 the health of the Superintendent, Mr. Abraham Dee Bartlett, failed, and he died on May 7, 1897, in his eighty-fifth year, and the thirty-eighth in the Society's service. He was a man of wide experience and more than ordinary skill in the management of animals in captivity. He has left it on record in his scanty autobiographical notes that Cross of Exeter 'Change allowed him "to crawl about the beast-room of that menagerie," so that he could not recollect seeing lions, tigers, elephants, or any other wild beasts for the first time, for the reason that he spent his early years among them. After his apprenticeship to his father, a hairdresser and brushmaker, he became a taxidermist, and though self-taught, obtained a first prize in the Great Exhibition of 1851. Prior to this he had become known to Yarrell, Ogilby, Gould, and other Fellows of the Zoological Society, and corresponded with D. W. Mitchell, who then resided in Cornwall. Bartlett set down in these Notes his astonishment that Mitchell obtained the secretaryship, and continued:

> He did not fail, however, to consult me on the future prosperity of the Society, and this led to the opening of the Gardens [in April, 1848] to the public on payment of sixpence on Mondays. The success of this concession to the public undoubtedly brought about the popularity of the collection and its advancement to its present condition.

Bartlett's appointment took place in 1859, and from that time till his death he was a favourite with the public, who saw in him the personification of the Zoological Society. For them there was neither Council nor Secretary: Bartlett was all-important and all-powerful. It was the same with the Press. At his death his services to popular zoology were set forth at much greater length than has ever been devoted to

the work of any President or Secretary. Naturally his life was full of incident, and afforded abundant opportunity for graphic description. With the Royal Family he was also a favourite; he used to take care of Queen Victoria's pet birds during Her Majesty's absence from London, and attend to them when they were ailing.

At the General Meeting immediately following his death the Council put on record:

> Their deep sense of the services rendered to the Society by the late Mr. Bartlett during the long period for which he had held his post, and their full appreciation of the skill, energy, and faithfulness with which he discharged the multifarious and difficult duties of his office.

In appointing a successor, they felt they could not ignore the claims of Clarence Bartlett, the late Superintendent's second son, who since 1872 had acted as clerk of works and Assistant Superintendent, and was "fully acquainted with all the details of the business connected with the office and quite competent to discharge them."

On July 1, 1899, the presidential chair became vacant by the death of Sir William Flower,* who had held office for rather more than twenty years. Sir William became a Fellow in 1851, and read his first paper in 1852. Sixty of his contributions were printed in the Society's publications, of which fifty-two appeared in the *Proceedings* and the remainder in the *Transactions*. The Council expressed their regret at the loss of "a zoologist of the highest abilities, and a most able and energetic President."

The Duke of Bedford, who became a Fellow in 1872 and was elected into the Council in 1897, was selected by the other members to be President till the next Anniversary Meeting. In asking the Fellows to confirm their choice the Council said they felt confident they would "receive the support of all who were acquainted with the great interest taken by His Grace in the progress of zoology and the splendid collection of living animals founded and maintained at Woburn Abbey."

The acceptance of the Presidency by the Duke of Bedford was taken as a good omen by those desirous of seeing a

* Professor W. H. Flower was made C.B. in 1887 and K.C.B. in 1892.

revival of the practical work of the Society. With this the late President does not appear to have had much sympathy. It has been shown that he looked on the office of Prosector as an endowment of research* (p. 151); and in his Jubilee Address the references to early attempts at acclimatisation—distinctly laid down in the Charter as one of the objects of the Society—can scarcely be called favourable. It was pointed out by Mr. W. B. Tegetmeier in the *Field* (Nov. 10, 1900) that "Sir William had evidently forgotten the turkey" † when he said, "no addition of any practical importance has been made to our stock of truly domestic animals since the commencement of the historic period of man's life upon earth."

Promotion came this year to Mr. Arthur Thomson, the head-keeper, who was appointed Assistant Superintendent.

The circular yard, with rockwork for Barbary sheep, was erected in 1891. This species is kept in greater numbers in Continental Gardens than in Regent's Park. It does well in confinement, and breeds freely, and a herd makes a good show. Of the same date is the kiosk hard by, for the sale of photographs of animals in the Gardens, serving also as the office where tickets for elephant and camel rides may be procured. This year witnessed a return to the old practice of keeping monkeys in the open. A cage was built at the east end of the monkey house for the Tcheli macaque, presented by Dr. Bushell, and the animal, a native of Northern China, did exceedingly well in these quarters.

In 1893 the stables at the west end of the Middle Garden, which served also for the reception of animals on arrival and departure, were rebuilt. By an arrangement with the Canal Company a new fence was erected along the south bank, and in return for a contribution of £100 the company made certain alterations and easements to suit the convenience of the Society.

The drainage question, which had occupied the attention of the vestries of St. Pancras and St. Marylebone, the directors

* J. E. Gray was, to some extent, responsible for the change in the character of the prosectorial work.

† The guinea-fowl may be added. For, as Professor Newton states ("Dictionary of Birds," p. 400), it was probably reintroduced at the time of the African discoveries of the Portuguese; and there is "apparently no evidence of its domestication being continuous from the time of the Romans."

ZEBRA, FIGURED BY LUDOLPHUS. (*See p.* 210.)

PLATE 41.

of the Regent's Canal, and the Council for the past fifty years, was satisfactorily settled without litigation. The new sewer was brought up to the Gardens by the parish authorities, and the drainage was diverted into it by the Society at a cost of £1,100.

Next year preparations were made for the new ostrich house by clearing away the sheds and enclosures south of the monkey house. The row of cages put up by the Garden staff outside the small cats' house for the more hardy small carnivora became notorious a few years later.

This house was stocked and opened in 1897; the total cost of the structure was about £3,400. In the southern half of the building are twelve compartments, the centre four being assigned to the ostriches, and those on each side to the rheas, cassowaries, and emeus. The northern half, with sixteen compartments, is used for cranes and storks, and on each side the compartments open into grassed enclosures. Formerly the more delicate of these birds were removed from their usual quarters during the winter, but in the new house they may be viewed all the year round.

The tortoise house, appropriately erected near the large reptile house, is of the same date. To the cost of the building the Hon. Walter Rothschild contributed £150. It was a work of some difficulty to transfer the large tortoises from the Middle Garden to their new house. The gigantic Daudin's tortoise was put into a sling that had been originally made for lifting a sick elephant. The margins were attached to poles, and it took a dozen men to effect the removal.

In 1898 the Fellows' Tea Pavilion was erected, facing the Lawn, and the llama house reconstructed on the site of the original cattle sheds; and at that time the old owls' cages of the same date at the back were done away with. The removal of the birds from the sheds at the west end of the Middle Garden allowed these to be taken down. It was then determined to utilise the ground for a new zebra house. For some years the old well sunk on the canal bank in 1834 had been useless owing to the penetration of sand into the bore, the clearing of which was found to be impracticable. This obliged the Society to obtain the whole of the water-supply from the

West Middlesex Company at a heavy cost. Consequently the Council decided to sink a new bore and erect machinery for raising the water, which was done at a cost of about £1,300. A saving of £150 was effected in the expenditure for water supply the first year the well was used.

In March, 1899, the new zebra house was finished at a cost of about £1,100, and the animals put into the stalls, which open into one large paddock. In the last year of the century a second reservoir was constructed, and the pheasantry in the North Garden put up; but it was not opened till after the Easter holidays in 1901.

Important additions were made to the Menagerie in this decade. In 1891 the first snow-leopard was acquired by purchase; unfortunately the animal, which is believed to have been obtained in Bhotan, lived but a short time. Nevertheless, it completed the series of the larger cats, all of which had now been exhibited in the collection. Among the new birds were Lhuys's Impeyan pheasant and the Tibet crossoptilon, or Hodgson's eared pheasant—in both cases the first examples received alive in Europe—the yellow-crowned penguin, and the spotted-billed pelican.

An example of the remarkable Hainan gibbon was presented in 1892; this is the Yuen of Chinese classics, in which the male is described as being black and the female white.* No European naturalist has seen this anthropoid in its native haunts. Consul Swinhoe was told in the 'sixties by a magistrate of the island that this gibbon "had the power of drawing into its body the long arm-bones, and that when it drew in one arm it pushed out the other to such an extraordinary length that he believed the two bones united in the body, and he said they were used for chopsticks." Stairs's monkey, one of the "green" group, obtained on the Lower Zambesi, and presented by Dr. J. A. Moloney, of Stairs's expedition, was new to science. Other specimens have since been exhibited; the species is easily recognisable by the chestnut band extending backward from the forehead on each side.

* A female received at the Gardens in January, 1904, was then quite black, but in less than a year changed to silvery grey. Mr. R. T. Pocock's observations (*Proceedings*, 1905, ii. 169–180, pl. 5) are of great interest.

Photo: Cassell & Co., Ltd.

ROCKY MOUNTAIN GOAT. (*See p.* 211.)

Photo: Cassell & Co., Ltd.

[SELOUS' ANTELOPE. (*See p.* 211.)

PLATE 42.

A Steller's sea-lion is said to have been deposited this year; but though the statement was made on what is usually good authority, it is negatived by the evidence of the Death-book, which shows that the animal was really a Californian sea-lion. Nevertheless, it was of more than ordinary interest. The owner, Mr. Bostock, sent it to the Gardens because it would not feed. Bartlett tried it with different kinds of fish—everything was refused. Then he bought a dozen pounds of live eels, and threw them into the pond. Their rapid motion, as if to escape from danger, seemed to whet the sea-lion's appetite; it dashed after them, and in five minutes had swallowed every one.

After its feast of eels the sea-lion was left in the large pond for the night. When the keeper arrived next morning, he found, to his consternation, that the animal was missing. It had got over the iron railing, 3 ft. high, into the seals' enclosure, over that railing, and waddled across the broad path, and so into the swans' pond, where it was found comfortably located with the birds. Thence it was driven by the keepers, armed with birch brooms, which the Superintendent considered the most effective weapon against carnivora, as a thrust in the face confused them. The animal, received on August 10, died on September 11, and the cadaver was "returned intact to depositor."

In October the "Queen's ostrich" was deposited by Her Majesty, to whom it had been presented by Mr. A. L. Jones, of Aigburth, who had sent out a collecting expedition to the basin of the Upper Niger. This was probably the largest ostrich ever shown at the Gardens. It was kept in the giraffe house, and measured 4 ft. 10 in. in height at the back, and about 4 ft. 3 in. in body-length.

In 1893 an adult male Stairs's monkey was presented, and it is exceedingly interesting to note that this fine animal had lived for some years in a garden in the North of London, with no other shelter than a box at the foot of the pole to which it was chained. The change of quarters was fatal; the animal's life in the monkey house was measured by months. In noticing the arrival of a young chimpanzee that had never been caged, and commenting on a letter dealing with the

subject of keeping monkeys in the open air, in cages or on the chain, the *Field* (May 31, 1902) said:

> Owen seems to have advocated this plan. An entry in his wife's diary, under date of October 8, 1840, reads thus: "At R.'s desire, in the Gardens to-day, the monkeys and the elephants were let out to enjoy the sunshine long before the general time, two o'clock." The elephants still possess their old privilege; and the monkeys—using the term in a wide sense—would probably thrive the better if some means could be devised for "letting them out."

Sir Henry Blake sent home from Jamaica an adult female manatee and calf. In this case the difficulties of transport had bad results; the animals were in an exhausted condition when they reached the Gardens, and died soon after their arrival.

Two notable birds, new to the collection, were received this year: the Corean sea eagle and the great grebe of Antarctic America. A Goliath beetle was presented, and in exhibiting the insect at the Scientific Meeting of November 7, Dr. Sclater said that, so far as he knew, no living specimen had previously been brought to England.

Livingstone's eland, distinguished by transverse white stripes on the barrel and a dark brown band above the knee, was introduced in 1894. This form ranks at most as a subspecies; and Mr. Crawshay, in a paper on the Antelopes of Nyasaland, says that elands are subject to great variation:

> In a single troop individuals may be seen varying from a light tawny yellow to a slaty blue in very old age, while in some the stripes are clearly defined, in others faintly, and in others again they are not distinguishable at all.*

Bennett's tree kangaroo was another introduction. This species, according to Dr. Sclater, was not sufficiently described; therefore, at the Scientific Meeting of December 4, he gave a fuller diagnosis. At the same time he exhibited "a photograph of four examples of this rare animal, taken when high up in a leafless tree in the Zoological Gardens at Melbourne." This had been kindly sent by Mr. Le Souëf, who described these kangaroos as remaining during the day on the highest branches of a tree, and descending at night to pass from one tree to another. Unfortunately, at Regent's Park these animals were

* *Proceedings*, 1890, p. 658.

kept in one of the dens in the sloths' house, and had scant opportunity of displaying their climbing powers. Examples of the famous Surinam toad originally described by Madame Merian were presented by Mr. Blaauw.

The second snow-leopard—Moti, the Pearl—was purchased in the early part of this year. This had been a lady's pet from a cub, and was quite tame. It was kept in the lion house, but generally remained in the sleeping quarters at the back till nearly closing-time. The animal, which was a great favourite died in May, 1897.

Daisy, first described as a Cape giraffe, was purchased early in 1895, and is still living in the Gardens. It has since been determined that she belongs to the race which Mr. Lydekker has named Ward's giraffe,* to commemorate the facts that Mr. Rowland Ward presented the mounted head and neck of a bull of the same race to the Natural History Museum, and was the first to call attention to the distinctness of the Somali giraffe. The Alexandra parrakeet and Forsten's lorikeet were exhibited for the first time; as was the frilled lizard, which, unfortunately, did not live long in captivity.

The second gorilla—Jenny—to come into the Society's possession was purchased in March, 1896, but only lived till August 16. This was the largest example imported alive, and was just acquiring its permanent teeth; it was kept in one of the large dens in the sloths' house, and appeared to thrive for a time, though it was never lively. Brazza's monkey from French Congoland, remarkable for its chestnut brow-band, strange facial coloration, and white beard, was exhibited for the first time this year. Another novelty was the clawless manatee of the Amazon, a species which was known to Dr. A. Russel Wallace, though unfortunately the skin and skeleton which he prepared were lost with the rest of his collection when the ship in which he had taken his passage home was burnt. Strange to say, the klipspringer, one of the commonest African antelopes, reached the Gardens for the first time this year, as did three remarkable birds—the lettered araçari, Baer's duck, and Franklin's gull.

In 1897 the Chief Bathoen of Bechuanaland sent a fine

* *Proceedings*, 1904, i. 224.

male Cape giraffe to this country, as a present to Queen Victoria on her Diamond Jubilee. By Her Majesty's order the animal was to be deposited in the Gardens. It suffered considerably on the passage, and was moribund when it reached the Park. The box was taken into the paddock, but on removing the bar and opening the door the giraffe was found lying dead. Great disappointment was felt at this mischance, for hopes had been entertained that the Jubilee giraffe, as it was popularly called, would prove a suitable mate for Daisy. Other introductions were the Altai deer, the Dominican cat, the Uvæan parrakeet, the pygmy goose, Smith's bronze-winged pigeon, the thick-billed penguin, and the white-legged falconet. A monkey received early in the year was tentatively referred to as a species exhibited in 1840, and described by Ogilby as the Tantalus monkey in the *Proceedings* (1841, p. 33).

A very fine example of Daudin's tortoise was deposited by the Hon. Walter Rothschild. This huge reptile, originally from the Aldabra, had been in captivity in the Mauritius for about 150 years, and was believed to be the largest living land tortoise. The length, over the curve of the shell, taped 5 ft. 6 in., and in a straight line 4 ft. 7 in.; the width in a straight line from side to side was 2 ft. 10 in., which was also the height from the top of the carapace to the ground; and the weight was about 5 cwt. At Mr. Rothschild's request, Mr. Arthur Thomson went to Marseilles to bring the tortoise to London, but although he had engaged a waggon to take the reptile across Paris to the Gare du Nord, owing to some misunderstanding he had to stow the crate on the top of an omnibus. As he himself expressed it, he felt anxious lest the tortoise should break down the roof and travel inside.

One new anthropoid and two new monkeys were received in 1898. The siamang gibbon, presented by Mr. Stanley Flower, was the first seen alive in Europe, although Sir Stamford Raffles had described it in the *Transactions* of the Linnean Society in 1822. Dr. H. O. Forbes gave an interesting account of a young pet siamang which he kept in Sumatra:

> The gentle and caressing way in which it clasps me round the neck with its long arms, laying its head on my chest, and watching my face with its dark brown eyes, uttering a satisfied crooning sound, is most

Photo: Cassell & Co., Ltd.

CRANES' PADDOCK. (*See p.* 232.)

PLATE 43.

engaging. . . . Every evening it makes with me a tour round the village square, with one of its hands on my arm. It is a very curious and ludicrous sight to see it in the erect attitude on its somewhat bandy legs, hurrying along in the most frantic haste, as if to keep its head from outrunning its feet, with its long free arm see-sawing in the most odd way over its head to balance itself, and now and again touching the ground with its finger-tips or its knuckles." *

Mr. Frohawk, who made an accurate drawing of the animal, contributed the following note to the *Field* (November 26, 1898) to accompany the picture. It is of much interest as showing the desire of these anthropoids for some form of animal food:

I have sketched it expanding the peculiar loose globular throat, which it blows out while calling. Its voice is wonderfully clear, deep, and mellow, and resembles the baying of a hound. I caught for it one of those small cockroaches which inhabit the apes' house, and it instantly seized it between its thumb and base of forefinger, then climbed up to the top of its cage, using the tips of the fingers of that hand still holding the cockroach, and then ate it. I noticed it tried several times to catch flies as they flew near it by grabbing at them with its hand.

Dr. George Bennett obtained an example of this gibbon at Singapore in 1830, and intended to bring it to England for the Gardens. Unfortunately, the animal died on the passage.†

Rüppell's colobus, with jet black fur and long white mantle covering the sides, was entered as new. This monkey ranges over North-East Africa, with a geographical race in the neighbourhood of the Upper Congo. The Masai use the skins for articles of dress and for covering their shields. L'hoëst's monkey from Congoland was new to science, and was described by Dr. Sclater in the *Proceedings* (1898, p. 586) as belonging to his Black-handed section of the guenons, coming nearest to Sykes's monkey, but distinguished therefrom by its dark head and the fluffy white elongated ruff on each side of the throat.

An example of the Duke of Bedford's deer‡ was presented by the President, who introduced this species at Woburn, where there is now a large herd. Two examples of the Australian

* "Handbook of the Primates," ii. 168, 169.

† "Wanderings in New South Wales," ii. 142.

‡ Lydekker in *Proceedings*, 1896, pp. 930–34; *ibid.* 1897, p. 815.

lung-fish were purchased of Mr. D. O'Connor, who had been engaged by the Royal Society of Queensland to remove a number of these fish to new localities, because the extinction of the species was feared. This was done so successfully that he was encouraged to attempt the importation of these fishes into England, which was equally successful, and they are still living in the reptile house.

A young giraffe of the typical form was purchased of Mr. Hagenbeck in July. The animal only lived about a month after its arrival; *post-mortem* examination showed that it had suffered from hydatid tumours.

Grévy's zebra came to the Gardens in 1899. A pair had been presented to Queen Victoria by the Emperor Menelek, and Her Majesty deposited them in the care of the Society. This zebra derives its specific name, conferred by Milne-Edwards, from a former President of the French Republic, to whom a mare was presented in 1882 by the ruler of Abyssinia. The animal was sent to the Jardin des Plantes, where it lived but a few days, and the mounted skin of this, the type-specimen, is now in the Natural History Museum at Paris. At a Scientific Meeting on April 3, 1883, Colonel Grant read some notes on the zebra met with by the Speke and Grant expedition, from which it appeared that this species, or a geographical race, ranged a good distance to the south of Shoa, whence the type-specimen was procured.

At the Scientific Meeting of May 7, 1901, Dr. Sclater, on behalf of Mr. E. Bidwell, a well-known ornithologist, called attention to the fact that in the translation of the work of Ludolphus on Ethiopia there was the description of an animal "about the bigness of a mule, brought out of the woods of Habessinia and the country possessed by the Galans [Gallas] and easily tam'd."* The whole seemed to correspond very closely with the accounts of Grévy's zebra. Later examination of the

* Ludolphus: A new history of Ethiopia . . . Made English by J.P., Gent. Folio. London, 1682. The passage, accurately cited in the *Proceedings*, 1901, ii. 2, is unfortunately marred by a mistranslation by J. P. The words: "A present of great esteem, and frequently given *to* the Kings of Habessinia," quoted to show that these zebras were Royal gifts in the seventeenth century, misrepresent Ludolphus, who wrote: "In donis Regum Habessiniæ frequens et præcipuum esse solet."

"Historia Æthiopica" of Ludolphus and the "Commentarius" of the same writer appears to establish two facts: that animals of this species were at that date reserved as gifts to Royalties and persons exercising sovereign powers; and that before the end of the seventeenth century three had been so sent to the Sultan of Turkey, one to the Pasha of Suakin (who sold his to an Indian for presentation to the Great Mogul), and two to the Governor of the Dutch East India Company, who at once shipped them to Japan, as a gift to the Emperor.*

The first example of the Cape jumping hare was also received in 1899. Many previous attempts to introduce this animal had been made, but all had failed. A male Selous' antelope was obtained from Mr. Cecil Rhodes by exchange, in the hope, which was not fulfilled, that the stock might be perpetuated.† The Hon. Walter Rothschild deposited a fine series of cassowaries; six species, represented by fifteen individuals, were new to the collection.

A young male giraffe, probably obtained in Portuguese East Africa, was purchased from Mr. Reiche, of Alfeld, for £800.‡ In their Report the Council, while admitting that the price seemed high, pointed out that the difficulty of obtaining living specimens was very great. They hoped that, when adult, the animal would form a mate for Daisy. The giraffe was injured at the time of its capture; two of the bones of the neck afterwards grew together, causing a pressure on the spinal cord, and the animal died in January, 1902. According to Owen (*Transactions*, ii. 231), the first giraffe lost from Thibaut's herd died from a similar cause, though in that case it was one of the lumbar vertebræ that was injured.

In 1900 the Rocky Mountain goat was introduced, and this example was probably the first living specimen to reach any part of the Old World. It is worth noting that a mounted specimen was figured in the Museum Catalogue of 1829. Two skins were presented by the Hudson's Bay Company, and one

* *Proceedings*, 1905, i. 145–47.

† The male died on January 24, 1905, and the female, presented in 1890, two days later.

‡ Mr. Lydekker is of opinion that this approaches the type of Ward's giraffe —*Proceedings*, 1904, i. 256.

was the original of Richardson's description in the "Fauna Boreali-Americana" (p. 268). These were, no doubt, the earliest museum specimens exhibited in Europe. The Ural owl, the Caffre bustard, the rose-collared lorikeet, and Bouquet's amazon were the most important new birds. Besides these Mr. E. W. Harper presented a fine series of Indian birds, representing twenty species, mostly new to the aviaries.

Krüger's lion—which was really a lioness—reached the Gardens in August. A good deal of interest centred in this animal, because she had been presented by Cecil Rhodes to the Gardens at Pretoria, whence, after a very short stay, she was returned to the donor. Dr. Sclater was then on a visit to South Africa; and the animal was offered to and accepted by him on behalf of the Society. There was no truth in the story, which had gained currency, that the tail was cut, but the ears were trimmed and rounded. The lioness was very tame, and had been kept on a chain, like a dog. After peace was declared in South Africa, she was sent back to Pretoria.

Several species of antelopes bred for the first time in the collection during this decade. The most important were the waterbuck in 1893, the white gnu in the following year, and the brindled gnu in 1900. Some interesting hybrids were produced in 1894, which had Selous' antelope for sire and the West African bush-buck* for dam.

Shortly after the arrival of the Surinam toads, considerable interest was aroused by the fact that one of the females carried eggs on her back. According to popular belief the females came to land to deposit their eggs, which were then placed on their back by the male. The first part of the story seemed improbable, for the toads never left the large tank in which they were kept. The following letter from Bartlett appeared in the *Standard* of December 10, 1894. It is curious,

* This name, used by Mr. Lydekker in the "Royal Natural History," and by Mr. Rowland Ward in his "Records of Big Game," seems more fitting than that of "pleasant antelope," given in the Vertebrate List. A still better name is that officially adopted while these sheets were passing through the press. In the monthly List of Additions it is called the West African marsh-buck, which tersely describes the locality and habitat, and implies the diagnosis of the generic or subgeneric name *Limnotragus*, by which Mr. R. I. Pocock discriminates the long-hoofed swamp antelopes from the typical bush-bucks.

PLATE XI.

THE APE HOUSE.

(*See p.* 231.)


Charles E. Flower

in that while refuting one error it gives the sanction of the writer's authority to two others:

SIR,—It seems strange, considering the great number of books published upon natural history subjects, that the mode of reproduction of an animal well known upwards of a hundred years ago, and figured and described over and over again, should yet remain a subject of doubt and uncertainty. This is, however, the case with the Surinam toad. The statements made with reference to its mode of reproduction are certainly not reliable. In the first place, the female Surinam toad does not deposit her eggs on land to be afterwards placed upon her back by the male before she enters the water, simply because these animals never come on land, but are strictly aquatic.

It is also somewhat doubtful whether it is the female that carries the eggs. In a well-known species (the midwife toad) the female deposits her eggs upon the male, who carries them about until they are hatched. The living specimens of the Surinam toads in these Gardens have afforded me the opportunity of carefully examining one of these animals, an hour or two after the eggs had appeared upon its back. I was struck with astonishment at their regular and symmetrical arrangement and their smooth and very uniform condition. This led Mr. Arthur Thomson (who has taken great interest in the subject) to suggest that the eggs had been protruded from under the skin on to the back of the creature, instead of having been placed there by the male, and this appears to be the most likely solution of this very singular and remarkable mode of reproduction.

I am, Sir, your obedient servant,

A. D. BARTLETT.

Zoological Gardens, Regent's Park, December 8.

But dissection established the fact that the egg-bearing toad was the female; and at least ten years before any living specimens of these amphibians reached the Gardens Martin Duncan had described the cavities which give the back of the female a honeycombed appearance, and each of which had contained an egg. "The question is," he said, "how did the egg get into this extraordinary position? Certainly it would not be deposited there by the mother; and equally certainly there is no passage from the egg-producing structures in her body to the cavities."*

In 1896 the mystery was solved. Two males were seen clasping two females round the lower part of the body, and on the next morning Tennant, one of the keepers (now money-taker at the North Entrance), was so fortunate as to witness the

* "Cassell's Natural History," iv. 351.

deposition of the eggs. The following account furnished by him is quoted from Bartlett's report:

The oviduct of the female protruded from her body more than an inch in length, and the bladder-like protrusion being retroverted passed under the belly of the male on to her own back. The male appeared to press tightly on this protruded bag and to squeeze it from side to side, apparently pressing the eggs forward one by one on to the back of the female. By this movement the eggs were spread with nearly uniform smoothness on to the back of the female, to which they became firmly adherent.*

One of the egg-bearing females died, and was examined by Mr. Boulenger, who found that the uterus contained a good number of ripe ova. His deduction from Tennant's observation was that fecundation took place before the extrusion of the eggs. In this connection it may be well to give the original description of Madame Merian:

Fœmina ex animalibus ejus generis in dorso gerit fœtos suos, quippe uterus ad longitudinem dorsi positus semina concepit, fovet et nutrit usque dum maturitatem vitamque nacti sint foetus, quando ipsi per cutem sibi pariunt viam unus post alium sensim velut ex ovo erumpentes.†

In 1896 a pair of pratincoles bred in the fish house; the first egg was eaten by a whimbrel, and three subsequently laid were hatched out, but none of the chicks lived more than a couple of days.‡ Bartlett's notes are interesting, as this appears to be the first instance in which the species has bred in confinement.

The male and female were observed to take turns on the nest. On June 20 the young birds could be seen, and on the keeper's approach to the aviary the female would rush forward with wings and tail spread out and with open mouth, apparently craving for food, which she would peck or take from his hands, and return to the young; brooding over them like a common fowl, she commenced the up-and-down movement of her head, and the food being regurgitated, was taken from her mouth by the young. The young never left the nest.

The breeding list in the Report for 1898 contains this entry: One hybrid zebra (bred between *Equus caballus* and *Equus*

* *Proceedings*, 1896, p. 597.

† "Insectes de Surinam" (A La Haye, 1726), p. 59, pl. lix.

‡ "Wild Beasts in the 'Zoo,'" pp. 195, 196.

burchelli). Probably the foal died soon after birth, for there does not appear to be any reference to it in the Society's literature. It is, however, worth recording, for the neglect to utilise the fine series of zebras and wild asses in this direction was about the end of the century frequently cited as a reproach.

Sally, the famous chimpanzee, died in 1891, also the African rhinoceros purchased in 1868. In the following year the male giraffe, purchased in 1879, was lost by death. As was shown in the table on p. 64, the last giraffe descended from the original herd was born March 17, 1867, and died on June 20, 1881. It is sometimes said that the original herd died out in 1892; but the animals enumerated below, as having lived in the Menagerie, had no strain of what may be called the Thibaut blood:

No.	Sex.	How Acquired.	Date of Death.
1	♂	Purchased, July 23, 1861	Sept. 12, 1869
2	♀	„ Jan. 5, 1871	April 27, 1874
3	♂	„ Oct. 11, 1871	May 21, 1878
4	♀	„ July 25, 1874	Jan. 8, 1879
5	♀		July 9, 1886
6	♀		Nov. 24, 1891
7	♂	„ Jan. 27, 1879	March 22, 1892

Thus, on the date last given, for the first time since the arrival of Thibaut's giraffes on May 25, 1836, the Society was without any representative of this remarkable mammal. The Soudan was closed by the Mahdists, and Dr. Sclater said at the Scientific Meeting of April 5, that so far as he could make out, "with the exception of a single old female, for which an exorbitant price was demanded, there were no living giraffes in the market."

A good deal of excitement was caused in October, 1894, by the fact that a boa swallowed its cage-mate, and the reptile was popularly known as the "cannibal boa." On the evening of October 5 the keeper (Tyrrell) put two pigeons into the den, and saw that the larger reptile seized one of the birds, after which he closed the house and left the Gardens. On the next morning he found that the smaller boa had disappeared, while the other was enormously increased in size;

it had no power to throw its body into curves, but lay at full length, with the skin so distended that the scales were separated. It seems a mistake to call the swallower a cannibal. The whole business was probably an accident. Having swallowed its own pigeon, there is little doubt that the larger boa struck at the bird still within the jaws of its companion, thus enveloping not only the pigeon, but the head of the other boa. Once its teeth were fixed, the process went on mechanically, and there could be no other result. Bartlett expected that the boa would be unable to digest its fellow, and would disgorge it. This was not the case. On November 2 the reptile had regained its normal proportions, and took another pigeon. "It will be seen by this," he said, in his report to the Scientific Meeting of November 20, "that a serpent of eleven feet in length can not only swallow and digest another serpent only about two feet shorter, but is ready to feed again twenty-eight days afterwards."

This case differs widely from that of the king cobra or lamadryad, which feeds almost entirely on other snakes. Many instances of such accidental swallowing are on record. One of the most curious is that related by Messrs. Mole and Urich of an innocuous snake, known in Trinidad as the "cribo."

> A cribo once in our possession struck at a mouse and caught his own tail; this he diligently swallowed, until at least one-fourth of his entire length disappeared down his own throat. In this position he looked like the numeral eight (8). After some minutes' consideration he disgorged.*

The Queen's ostrich died in 1895, and the aye-aye in 1896, in which year Jung Pershad, the male Indian elephant deposited by the Prince of Wales (now King Edward VII.) on his return from India in 1876, fell dead in his stall. In 1897 the reticulated python, presented by Dr. Hampshire in 1876, was lost by death. For two years it had not taken food voluntarily, but had been crammed by the keepers. It was the largest specimen ever exhibited in the Gardens, and it is doubtful if a finer one has ever been seen in captivity. The stuffed skin is now in Mr. Rothschild's Museum at Tring.

Begum, the hairy-eared rhinoceros, acquired in 1872, died in the last year of the century; and a serious loss was that of

* *Proceedings*, 1894, p. 509.

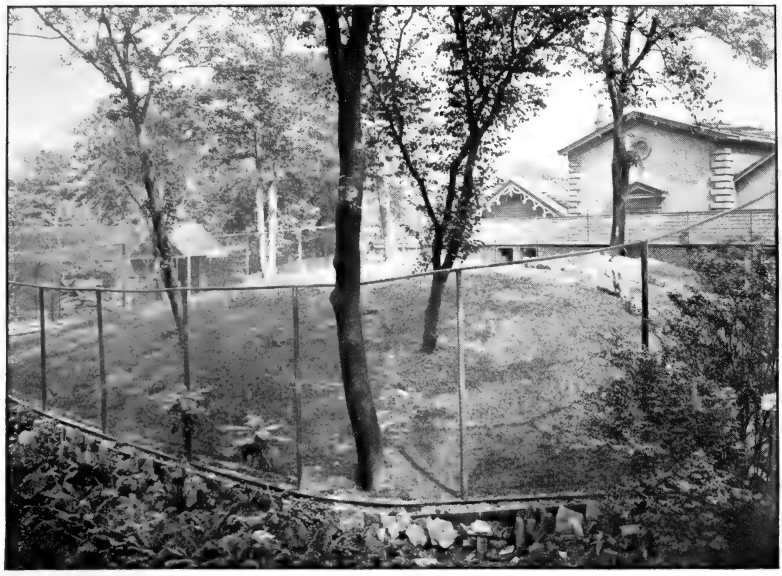


Photo: Cassell & Co., Ltd.

KANGAROO PADDOCK. (*See p.* 234.)

Photo: Cassell & Co., Ltd.

SMALL MAMMALS' HOUSE. (*See p.* 234.)

PLATE 44.

the male Grévy's zebra, belonging to Queen Victoria. On Whit Monday, June 4, the animal, with the mare, was in the paddock; when the keepers opened the house the next morning he was lying on the ground dead, just where he had fallen while feeding, for he had some hay in his mouth. Examination of the cadaver showed that the zebra was much older than had been supposed. Soon after this, at the wish of the late Queen, the mare was sent to Windsor, where it remained till the menagerie stock was sent to the Gardens by the King. A fine portrait of this zebra, exhibited by Miss Nellie Hadden at the Modern Gallery, was presented by the artist to the Society, and is hung in the meeting-room. The animal is still in the Gardens.

Mention must be made of the reception at the Gardens in 1898 of the members of the Fourth International Congress of Zoology, held at Cambridge. Owing to the illness of the President the members and their friends were received by the Council. The Hon. Walter Rothschild's fine collection of giant tortoises was shown on the lawn, and circulars giving particulars of the species, with the size and weight of each reptile, were distributed among the guests. Unfortunately, the stormy weather marred the success of this meeting. It is perhaps worth mention that the status of the Superintendent and the desirability of appointing someone with qualifications at least on a par with those of directors of Continental Gardens of the first rank, were informally discussed by some English zoologists during the Congress as an abstract question, and without any idea that the change was to come so soon, or that, when it came, candidates would be invited to submit their claims to the consideration of a committee.

The Prince of Wales (now King Edward VII.), accompanied by the Duke and Duchess of York (now the Prince and Princess of Wales), visited the Gardens in May, 1899. There was another Royal visit in June, 1900, when the King and the present heir to the throne inspected a small collection of the Indian animals recently presented to the latter and deposited in the care of the Society. Among these was a lion from Kathiawar, a valuable acquisition to the Menagerie, where only African lions had been exhibited for some years.

In 1893 additional oak-cases for books were fitted up in the library at No. 3, Hanover Square, and the electric light was substituted for gas throughout the house. Three years later the chief clerk, Mr. W. J. Williams, who entered the Society's service when Dr. Sclater was elected Secretary, retired on a pension, and Mr. W. H. Cole was promoted to the position. To Mr. G. A. Doubleday, who till then had assisted Mr. Waterhouse in the library, was assigned the business connected with the Scientific Meetings and publications, and in all that related to them the change was a great improvement. It was, however, attended with a serious disadvantage; it deprived Mr. Waterhouse of an efficient helper, and was consequently regretted by many of the naturalists who used the library, and were indebted to the Librarian and his former assistant for valuable help on the bibliographical side of their scientific work. The Society for the Protection of Birds became tenants in 1898.

Several grants in aid of scientific objects were made during the decade. In 1891, when Mr. Beddard resigned the editorship of the "Zoological Record," Dr. David Sharp was appointed, and the income from the Davis Bequest was assigned him as remuneration—none too large—for the work. In 1898 a sum of £100 was granted in aid of the funds of the Fourth International Congress of Zoology, which met at Cambridge in the August of that year, and a similar sum to the committee engaged in preparing an "Index Generum et Specierum Animalium," properly described as "a most important undertaking for the future progress of zoology." The same amount was voted in 1899 and 1900 towards the expenses of the "Index," which was prepared by Mr. C. Davies Sherborn. In the last year of the decade the Society also contributed £200 in aid of the National Antarctic Expedition, and £50 towards the cost of J. S. Budgett's expedition to the Gambia.

Several series of lectures were delivered by Mr. Beddard at the Gardens. In 1900 four lectures were given in the meeting-room, No. 3, Hanover Square, after the business meetings in April, May, June, and July, in the following order: Dr. A. Smith Woodward, on the Animals of Australia; Mr. G. A. Boulenger, on the Freshwater Fishes of Africa; Professor E. Ray Lankester, on the Gigantic Sloths of Patagonia; and Mr. Beddard, on

Whales. These were of a less technical character, but in no case was the attendance so good as was anticipated.

Some of the Scientific Meetings were of general interest. On November 3, 1891, there was exhibited, on behalf of Professor Stirling of Adelaide, a drawing of the newly discovered marsupial mole (*Notoryctes typhlops*), which was presented to the Society, and is now hung in the library; and on January 5, 1892, the Professor himself described some skins which were laid on the table. On May 6, 1893, the Secretary exhibited on behalf of Mr. Rowland Ward a skin of Grévy's zebra, shot by Colonel Paget—probably the first received from Somaliland since the species was described by Milne Edwards in 1882. On June 16, 1896, some clever drawings by Miss Edith Durham on the mode of feeding of the egg-eating snake (*Dasypeltis scabra*) were shown, and on behalf of the artist Dr. John Anderson read some interesting notes which she had made. At the first meeting (January 17) in 1897 the Secretary exhibited enlarged photographs of the same snake swallowing an egg, and the cerastes viper, which had been fitted with false horns. Two spines, probably from a hedgehog, had been inserted on the top of the head behind the eyes; one of these had penetrated the mouth, and no doubt caused the death of the reptile, from which the poison fangs had been removed. He also exhibited a photograph of a young great ant-eater, two days old, born in the Stuttgart Zoological Garden, the first case of the kind on record.

The true story of the remains of an extinct giant ground sloth in Patagonia was told by Dr. Moreno and Dr. A. Smith Woodward on February 21, 1899, and a piece of the skin was exhibited. On January 23 in the following year the last-named author described other remains of the same animal, and bones of others associated with it, obtained by Dr. Rudolph Hauthal, geologist of the La Plata Museum. Ameghino's name, *Neomylodon*, had been shown by Dr. Roth to be a synonym of *Grypotherium*, under which generic name this extinct giant ground sloth is properly described. Dr. Moreno kindly presented a fine collection of these remains to the British Museum (Natural History). At the meeting on November 29, a letter from Sir Harry Johnston to the Secretary was read, and in this "a very

remarkable new horse" from the Semliki Forest, supposed to be the same as that mentioned by Stanley in "Darkest Africa," was referred to. On this occasion the word "okapi" was introduced into the English language. At a later meeting (December 18) Dr. Sclater exhibited two native bandoliers, or waistbelts, cut from the skin of the hind limbs of this mysterious "horse," the story of which belongs to the final chapter.

Eight silver medals were awarded. Mrs. Edmonston and Mr. R. T. C. Scott received this distinction in 1891 for the effective protection accorded for sixty years to the great skua by the families of Edmonston and Scott at Uist and Foula. In 1893 the efforts of Mr. Donald Cameron of Lochiel and Mr. John Peter Grant of Rothiemurchus to protect the osprey in their respective districts, were similarly recognised; and the medal was also given to Mr. George S. Mackenzie, who had sent many valuable animals from British Central Africa to the Menagerie. In the following year Mr. H. H. (now Sir Harry) Johnston received the medal for zoological investigations in British Central Africa, as did Mr. Alexander Whyte, three years later, for valuable services rendered to zoological science by his researches in the same region. It was awarded to Mr. John Ernest Matcham in 1900 in acknowledgment of his many donations to the Society's Menagerie. During the last seven years of the century he sent to Regent's Park 525 African animals (57 mammals, 48 birds, and 420 reptiles).

In 1892 the "Index" to the *Proceedings* (1881–1890) appeared. The ninth edition of the Vertebrate List was published in 1896; it contained the names of 3,044 animals (770 mammals, 1,676 birds, 420 reptiles, 80 batrachians, and 98 fishes) —an increase of nearly 500 species on those recorded in the eighth edition of 1883.

With the end of the last decade the edition of the *Proceedings* with uncoloured plates was discontinued; and a new series issued under the title of *Proceedings of the General Meetings for Scientific Business of the Zoological Society of London.* The volumes had gradually increased in size, and the last six of this series each consisted of nearly eleven hundred pages. Mr. Beddard put in about fifty papers on comparative anatomy, the only pathological contribution being one in

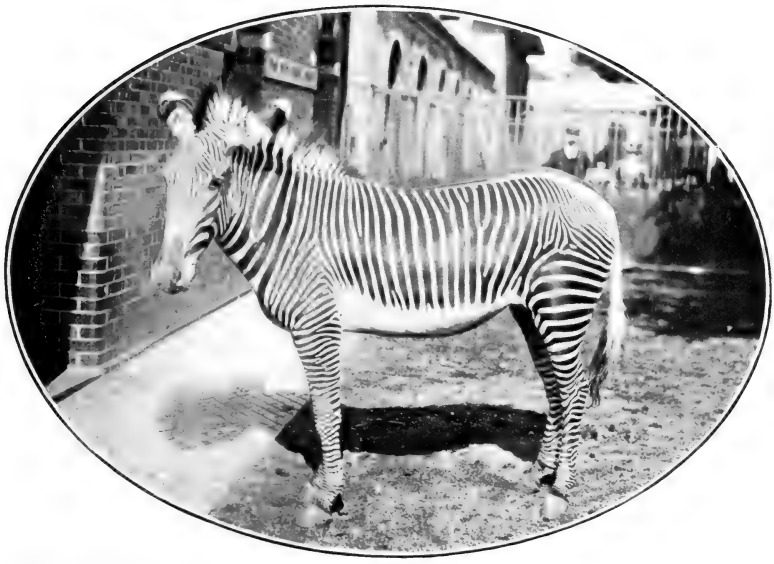


Photo: Cassell & Co., Ltd.

GRÉVY'S ZEBRA. (*See pp.* 237, 240.)

Photo: Cassell & Co., Ltd.

GRANT'S ZEBRA. (*See pp.* 236, 240.)

PLATE 45.

conjunction with Dr. Murie.* One of the most important pieces of work in this decade is that on the Classification of Birds by Dr. Gadow, which was published in the volume for 1892. This was merely a summary of the author's view, given the following year in full, with some slight modifications in Bronn's "Thier-Reich."† In 1893 the Secretary's revision of the monkeys of the genus *Cercopithecus* appeared. Next year Mr. Coryndon's account of his expedition to procure museum specimens of the white rhinoceros was published. Notes on the Nursing Habits of some South American Tree Frogs by Dr. Goeldi and Mr. Boulenger in the volume for 1895 are of interest. The deposition of eggs and the carriage of tadpoles on the back are probably to be explained in the same way as in the Surinam toad, to which reference has already been made (pp. 213, 214), with a citation from Bartlett's account in the volume for the year next following. In 1896 Mr. Bateson exhibited some pigeons showing webbing between the toes.

Mr. de Winton's paper on the Existing Forms of the Giraffe, in 1897, is noteworthy, as are later contributions of his on the Moult of the King Penguin. In 1897 also appeared the first of Mr. Graham Kerr's contributions on *Lepidosiren*, and Mr. Moore's paper on the Zoological Results of the Tanganyika Expedition. Mr. Oldfield Thomas described, in 1898, a new subspecies of the giraffe, from West Africa.‡ The volume for 1899 contains an interesting note by the Secretary on two musk oxen at Woburn, probably the first to reach Europe alive; and Mr. E. N. Buxton's account of his visit to the forest of Bielovege, where the European bison are preserved by the Czar. The papers on the giant ground sloth of Patagonia, by Dr. Moreno

* Inasmuch as the subject—the African rhinoceros—died of cancer in the stomach, the space (a little over a page) devoted to the morbid anatomy cannot be considered excessive. There is no reference to the present whereabouts of the preparations.

† Whether the upshot of it all has been to establish a Natural Classification, one indicating the true descent, and the real affinities of the several groups known, time alone will show; but that this latest attempt has been made according to the best method few will doubt.—Newton: "Dictionary of Birds," Introduction, p. *103*.

‡ A young female, purchased in April, 1905, may possibly belong to this race. *Proceedings*, 1905, ii. 57.

and Dr. A. Smith Woodward, begun in this volume, were concluded by the last-named author in that for 1900, which also contains Mr. W. R Ogilvie Grant's account of the Birds of Hainan. This was based on the collection made by Whitehead, who died of malignant fever, a martyr of science, at Hoihow, June 2, 1899.

The thirteenth volume of *Transactions*, published in 1895, contained fifteen memoirs, illustrated by sixty-two plates. Of these the most important were W. K. Parker's paper on the Hoatzin, Mr. Beddard's on Anthropoid Apes; Professor J. W. Gregory's on Palæogene Bryozoa, and those by Sir Edward Newton and Dr. Gadow on the Dodo and other Extinct Birds of Madagascar, and Dr. J. T. Jeffery Parker on the *Dinornithidæ*. In 1898 the fourteenth volume was completed and published, containing eleven memoirs and forty-seven plates. The authors were Mr. Boulenger, Dr. Brady, Dr. Bridge, Mr. Elwes, Dr. Goeldi, Professor E. Ray Lankester, Mr. Oldfield Thomas, and Mr. Vincent. Several of the papers dealt with *Lepidosiren*, and that of Mr. Oldfield Thomas with the mammals collected by Whitehead in the Philippines.

At the close of the nineteenth century it is convenient to take note of the great increase in the staff in the office and at the Gardens. In 1828 both staffs consisted of less than a dozen; at the end of 1900 they numbered nearly 130. At Hanover Square were the Secretary (Dr. Sclater), the Vice-Secretary* (Mr. Beddard, also Prosector), the Accountant (Mr. J. Barrow), the Librarian (Mr. F. H. Waterhouse), four clerks and two messengers. The Garden staff consisted of the Superintendent (Mr. Clarence Bartlett), the Assistant Superintendent (Mr. A. Thomson), store-keeper, head-gardener, Prosector's assistant, clerk of the works, clerk in the office, twenty-one keepers, and three money-takers. Besides these there were twenty-one helpers or assistant keepers, two butchers, two stokers, one cook, one messenger, one propagator, two assistant propagators, ten labourers for garden-work, two carpenters, two bricklayers, one smith, two wire-workers, one engine-driver, one net-worker, eleven painters, eleven labourers, and one timekeeper—in all 115.

* This office was revived in 1898, and again abolished in 1903 by the Reorganisation Committee.

EXHIBITED FOR THE FIRST TIME. BREEDING SPECIES.

Year.	Mammals.	Birds.	Reptiles.	Total.	Mammals.	Birds.	Reptiles.	Total.
1891	4	24	8	36	26	9	2	37
1892	11	20	14	45	26	16	2	44
1893	9	16	8	33	29	15	1	45
1894	17	29	4	50	30	12	16	58
1895	10	10	10	30	23	22	1	46
1896	11	22	3	36	21	16	1	38
1897	12	18	20	50	24	17	—	41
1898	10	13	14	37	28	16	—	44
1899	10	26	5	41	25	9	1	35
1900	14	32	21	67	19	12	1	32

ANIMALS IN THE MENAGERIE.

Year.	Mammals.	Birds.	Reptiles.	Total.
1891	630	1,346	256	2,232
1892	650	1,397	366	2,413
1893	708	1,460	356	2,524
1894	669	1,427	467	2,563
1895	768	1,267	334	2,369
1896	902	1,132	439	2,473
1897	792	1,362	431	2,585
1898	818	1,363	475	2,656
1899	821	1,471	461	2,753
1900	758	1,495	612	2,865

FELLOWSHIP ROLL, VISITORS, AND FINANCE.

Year.	Number of Fellows.	Admissions to Gardens.	Income. £.	Expenditure. £.
1891	2,985	598,730	24,054	23,697
1892	2,999	605,718	24,877	23,855
1893	2,985	662,649	26,217	25,278
1894	2,972	625,538	25,107	23,616
1895	3,027	665,326	26,958	25,110
1896	3,098	665,004	27,081	26,405
1897	3,158	717,755	28,713	27,705
1898	3,185	710,948	29,208	29,698
1899	3,246	696,707	28,879	29,420
1900	3,250	697,178	28,772	28,488

CHAPTER X.

1901–1904.

BEFORE dealing with the ordinary subjects of their Report at the Anniversary Meeting of April 29, 1901, the Council referred to "the topic which had recently engrossed the attention of the whole nation—the death of Her late Most Gracious Majesty Queen Victoria"—in the following paragraph:

> Queen Victoria was, as is well known, closely connected with this Society, as its Patron since 1837, as a Donor on many occasions of valuable gifts to the Menagerie, and up to a recent period as a frequent visitor to the Gardens. It may interest the Fellows to learn that the last occasion when Queen Victoria honoured the Gardens by her presence was on the 14th of March, 1877, when Her Majesty was accompanied by the Princess Beatrice, and was conducted round the Gardens by the Secretary and late Superintendent, Mr. A. D. Bartlett. Queen Victoria likewise visited the Gardens on March 20, 1875, and March 26, 1874.

An address of condolence and loyalty had been previously forwarded to the King, and the Council had "the great pleasure of announcing that His Majesty had been graciously pleased to become the Patron of the Society in succession to Her late Majesty Queen Victoria." The King had been a Fellow since 1863, in which year he became Vice-Patron; the late Duke of Saxe-Coburg and Gotha (the Duke of Edinburgh) was admitted in 1866; the Duke of Connaught in 1878, and the Prince of Wales (then Duke of York) in 1894; H.R.H. became Vice-Patron in March, 1902.

Although the great contest for the Secretaryship did not take place till the Anniversary Meeting of 1903, it was evident about the middle of 1901 that matters were shaping for a fight. Dissatisfaction was publicly expressed at the management of the Gardens, and especially with the housing. A good deal of this was unfair; some had its origin in sentimentalism and want of acquaintance with the conditions of the case; and some appeared to be the outcome of personal feeling—an attack on individuals rather than on a bad condition of things, brought about by lack of adequate supervision. The strange part of the business

Photo : Cassell & Co., Ltd.

JINGO CARRYING IN THE BROAD WALK. (*See p.* 238.)

PLATE 46.

was the concern displayed for the better management of the Society by men who till this time were practically unknown. To Mr. M. D. Hill, whose action led to the discussion of grave matters, these words, however, do not apply. At the Monthly Meeting of June 20, 1901, he moved:

> That the Council be recommended to consider the condition of the Parrot, Kangaroo, and Fish Houses, also of the Northern Aviary, as being of neither scientific nor educative value, and tending to the infliction of needless discomfort on their occupants.

Between July 18, when the motion should have been discussed, and the November meeting, to which by consent it was adjourned, Mr. Hill published a pamphlet, addressed to "the President, Council, and Fellows of the Zoological Society of London," and intended to let them know his line of argument. It contained a protest against the exaltation of comparative anatomy and the neglect of bionomics. Many of the "Suggestions" have since been adopted, and some were under consideration when the pamphlet appeared.

Nearly a hundred members were present at the meeting of November 21, but only seven hands were held up in favour of Mr. Hill's motion. Nothing daunted by his defeat, he at once gave notice of two other motions:

> That the Council be recommended to consider the Guide Book of the Society.
>
> That the condition of the Vultures' Aviary, Kites' Aviary, Small Cats' House, Raccoons' Cages, Gulls' Pond and Seal Pond be considered as being in an unsatisfactory condition. (Afterwards withdrawn by consent.)

With regard to the first motion, Mr. Hill had the sympathies of many who had not the courage of their opinions; for, as the *Field* (December 21) remarked, "It is undoubtedly somewhat of an anomaly that an officer of the Society should hold the property of the official Garden Guide." Dr. Sclater, however, had the winning cards, and the late Colonel Irby read an extract from the Minutes of Council, which showed that that body had formally acquiesced in the arrangement.

It is not clear how the question was first raised; but at the Council Meeting of June 20, 1866, the Secretary "read a statement as to the history and proprietorship of the Garden Guide." The matter was then referred to the Garden

Committee, with a request that they would report as to the expediency of making any alterations in the arrangements.

On June 25 the Garden Committee* met, and Dr. Sclater put in a statement, from which it appeared that at the Council Meeting of December 16, 1857, Mr. Gaskoin alluded to the inconvenience felt at the absence of a Guide, and moved "that one should be forthwith printed and published at the Society's expense." Then the resolution given on p. 124, as being moved by Dr. Sclater and seconded by Mr. Gould, was adopted. Up to the date of the meeting of the Garden Committee eighteen editions of the Guide had been published, and the Secretary's profits for 1863, 1864, and 1865 were returned by him in his statement at £68 13s. 5d. £88 9s. 5d., and £107 16s. 7d. respectively.† The Committee reported that "the existing system had worked well, and that it would not be expedient to make any alteration in it."

To return to recent times—the meeting on February 20 was chiefly noticeable for the fact that it led to an alteration in the bye-laws. Some motions were brought forward which appeared to be thinly veiled attacks on Dr. Sclater, and as such they were warmly resented by a majority of the Fellows present, notably by Sir Henry Howorth, who uttered a strong protest. Over thirty proxies signed by lady Fellows were tendered in support, but they were valueless; for they bore only a penny stamp, though so widely drawn as to be practically powers of attorney, which require a ten-shilling stamp. As a consequence chap. iii. section 4 of the bye-laws, giving lady Fellows the power to vote by proxy, was repealed.‡

* Present: Viscount Walden (in the Chair), Mr. Robert Hudson, V.P., Dr. Hamilton, and the Secretary.

† To an article in *Der Zoologische Garten* (1872, S. 353-364) by Herr Ernst Friedel, the author appends a note, which is worth quotation. "Der Guide to the Gardens of the Zoological Society of London. By Philip Lutley Sclater, von dem 1871 schon 201,000 à Sixpence verkauft waren, ist noch in vieler Beziehung mangelhaft. Er erhält nicht die Namen aller Thiere, und hat, unbegreiflich, weder ein lateinisches noch Trivials-Namens-Verzeichniss."

‡ Mrs. Rose Haig Thomas and Mrs. Charlotte Norman were present—the first lady Fellows to exercise the right of personal voting—at any rate, in recent times. It seems probable that in the early days of the Society lady Fellows did vote; but prolonged search at the office, No. 3, Hanover Square, has not resulted in finding the date at which they lost the privileges referred to on p. 25.

On October 15 Dr. Sclater placed his resignation in the hands of the Council, and wished to relinquish his duties soon after the close of the year. At the Council Meeting of November 10 the following vote of thanks was proposed by Dr. Henry Woodward, and carried unanimously:

> The President, Vice-Presidents, and Council of the Zoological Society desire to record their sincere regret at the retirement of their Secretary Dr. Philip Lutley Sclater, after a service of over forty-three years.
>
> They wish to tender him their hearty thanks for his most valuable services to the Society during this long period, not only in the management of the Zoological Gardens, but also in the conduct of the publications of the Society, and in the general direction of its affairs.
>
> These affairs have prospered to a remarkable degree during his long term of Office. The income of the Society has doubled; the Membership has increased from 1,500 to 3,200; and the Society's Library has been entirely created.
>
> Dr. Sclater's own work as a Zoologist is held in universal repute, and it is no exaggeration to say that the very high position occupied at the present day by the Zoological Society of London in the world of science is largely due to the exertions and the personal character of its retiring Secretary.

Applications for the vacant post were invited; and at the same special meeting of Council, a Committee, consisting of Dr. Günther, the late Professor Howes, and Dr. Henry Woodward, was appointed to select suitable candidates. Twenty-three applications were received, and the Committee reported to the Council on December 17. Mr. William Lutley Sclater, son of the late Secretary, and Director of the Museum at Cape Town, was selected by ballot.

The retirement of Dr. Sclater was considered a good opportunity of thoroughly investigating the Society's establishments at Hanover Square and the Gardens. A Special Committee of the Council was therefore appointed to inquire into and report on the entire system of management. The members were:—

The Duke of Bedford, K.G., Chairman.
Mr. W. E. de Winton.
Mr. Herbert Druce.
Sir Joseph Fayrer, Bart., F.R.S.
Dr. Albert Günther, F.R.S.
* Prof. George B. Howes, D.Sc., F.R.S.
† Lt.-Col. L. Howard Irby.
Dr. P. Chalmers Mitchell.
Mr. Howard Saunders.
Mr. Oldfield Thomas, F.R.S.
Dr. Henry Woodward, F.R.S.
Sir Harry Johnston, G.C.M.G., K.C.B., Secretary.

* Died February 4, 1905.

† Died May 14, 1905.

The Committee examined all the principal officers and employees of the Society, and on their evidence drew up a report containing a number of recommendations.

The selection of Mr. W. L. Sclater as Secretary received some attention from the Press, to which communications were made by several prominent Fellows. Thus it was made known to the Fellows generally that, in accordance with the bye-laws, the selection of a Secretary by the Council need only be an appointment *ad interim*. Notwithstanding the long services of Dr. Sclater a number of Fellows, including some influential Members of Council, thought that a more decided change in the management of the Society was desirable than would be likely to follow if Mr. W. L. Sclater succeeded his father. An animated public controversy followed; eventually two candidates—Mr. W. L. Sclater and the present Secretary—were proposed to be voted on at the Annual Meeting.

Mr. W. L. Sclater was presented to the Monthly Meeting of January 22 by the President as the new Secretary. The most important business was the reading of the recommendations of the Reorganisation Committee, and their ratification by the Fellows present. The President gave a brief outline of the work of the Committee, and Sir Harry Johnston then read the Report, of which the principal points were:

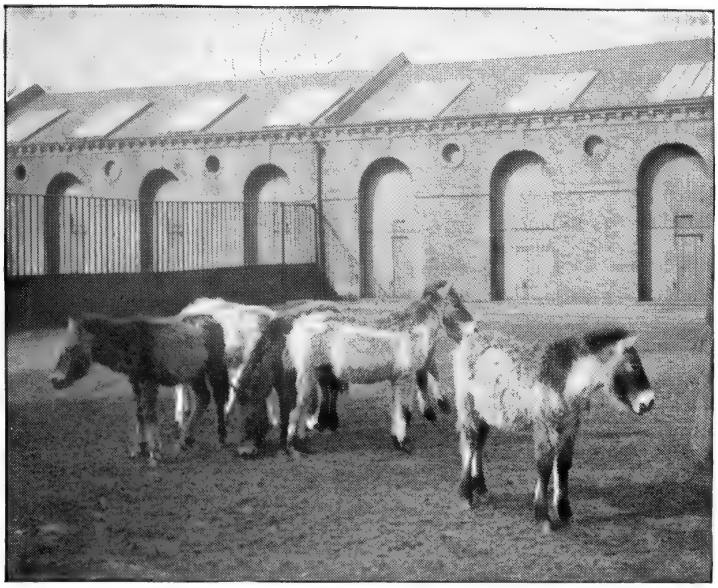
That the Garden Committee should consider the Report with respect to the question of dilapidations.

Definitions of the duties of the Secretary.

The retirement of the Superintendent on March 31, 1903, on a pension of £200 a year,* and the appointment of Mr. W. E. de Winton, a Member of Council, as Acting-Superintendent for a period of twelve months. He would confer with the Garden Committee, and with them undertake the reorganisation.† Till some progress had been made, and the Council had become acquainted with the work of the new Secretary, no

* Mr. Clarence Bartlett, who was in ill-health at the time, died on May 1; and a gratuity of £100 was granted to Mrs. Bartlett.

† Necessary works mentioned in the Report, which has not been printed and distributed, were: Improvement of the Fencing separating the Garden from the Park and the Road; protection from fire, and telephonic communication with fire stations; immediate attention to general dilapidations; the reconstruction of the giraffe house, hippopotamus house, bears' dens, small cats' and small mammals' houses; alterations at the monkey and antelope houses, the fish house, and the polar bears' dens and the provision of a paddock for wild cattle.



PRJEVALSKY'S HORSES. (*See p.* 237.)

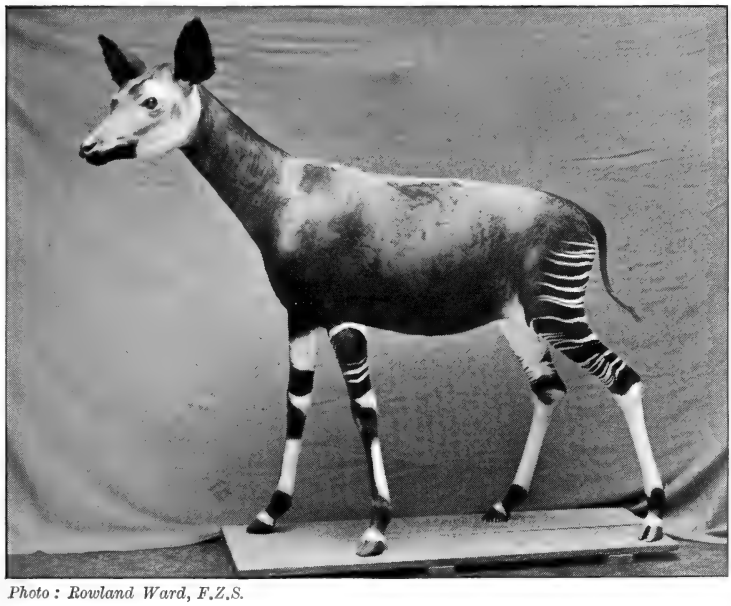


Photo : Rowland Ward, F.Z.S.

THE OKAPI IN TRING MUSEUM. (*See p.* 243.)

By the kind permission of the Hon. Walter Rothschild, M.P.

PLATE 47.

Superintendent would be appointed. The object of this was to obviate the difficulty which would arise if two new officers took up their respective duties at the same time. At considerable personal inconvenience Mr. de Winton accepted the appointment, and rendered valuable aid to the Council and the Committee.

The appointment of a foreman keeper.*

The rearrangement of the duties of the Prosector, who ceased to be Vice-Secretary.

The reorganisation of Committees.

The investment of composition fees.

The election took place at the Annual Meeting on April 29, at the Portman Rooms, Baker Street. Nearly 900 Fellows attended, though many only stayed long enough to record their votes. No discussion of the merits of the candidates was allowed; nor, indeed, was any necessary, as the Council had distributed their application and testimonials. The figures, as announced by the President, stood thus:

Dr. P. Chalmers Mitchell	530
Mr. W. L. Sclater	336
Majority	194

At this meeting Mr. North Buxton raised the question of what he termed a recreation ground for the animals, and in this he was seconded by Mr. Elwes. The President promised that this suggestion should be carefully considered. No mention, however, was made of the Kingston Farm Experiment. At the Annual Meeting in 1904 the Secretary announced that the Council had considered the establishment of a Sanatorium at some distance from London, but were of opinion that while it would be desirable to keep this in view, the funds of the Society did not admit of proceeding with it at present.

Dr. P. Chalmers Mitchell assumed office on May 1. In the Report for 1903 the Council recorded "their appreciation of the efficient manner in which Mr. W. L. Sclater had discharged his duties during the interim in which he had filled the office of Secretary, and tendered to him their best thanks for the services he had rendered to them and to the Society."

* A temporary appointment was made at once; and Mr. Bertling, formerly a clerk in the office, became head-keeper in 1904, with special charge of the birds.

On Dr. Sclater's retirement a pension of £700 per annum was granted him by the Council, but the question was raised whether this was not in excess of their powers. Counsel's opinion was taken, and the matter was submitted to the General Meeting of June 18, which after the formal business at No. 3, Hanover Square, was adjourned to the Morley Hall close by.

The question aroused a good deal of feeling among the opposition, in which two views were held, one being that the amount was excessive, considering that the present Secretary received only £600 a year;* and the other that the motion should be met with a direct negative. The matter was hotly discussed, and arrangements were made for opposing the grant. But on the day of the meeting no one moved an amendment, for the reason that those who had promised to support it found excuses for not doing so.

The first business was an official reply by Dr. Chalmers Mitchell to a question respecting the profits of the Garden Guide. It embodied what has already been told on pp. 225, 226, with respect to the grant by the Council to Dr. Sclater of the right to prepare and sell a Guide, and added that in recent years the profits had been about £400.

The President then put the motion:

That this Meeting approves of the grant by the Council of a pension of £700 per annum to Mr. P. L. Sclater, D.Sc., F.R.S., in consideration of his services as Secretary to the Society for forty-three years.

This was supported by Mr. E. North Buxton; but Dr. John Ince suggested that, considering the condition of the Society, Dr. Sclater would probably be satisfied with a warmly worded testimonial. Dr. Ince, who was only elected that year, spoke in absolute good faith, and seemed astonished that his suggestion created some amusement. Professor E. Ray Lankester seconded the motion, which was carried without a dissentient.

Unfortunately, the matter has not been allowed to rest there. It was a compromise, and the opportunity for objection having gone by, it seems scarcely fair to revive the question from time to time. The pension was voted by an influential majority, to which the minority should bow.

* Two years later, however, the salary of the present Secretary was raised to £800 a year.

At the Gardens the new pheasantry beyond the insect house was stocked in 1901. The two houses and paddocks in the centre are larger than the five on each side; and were at first used for peafowl—Javan, black-winged, domesticated and albino forms being represented. Of the true pheasants the following were exhibited: Reeves's, Elliot's, Mongolian, Japanese, Sœmmering's, Siamese, Swinhoe's, Rufous-tailed, Amherst, and Gold.

The yard for Moufflon and Punjaub sheep, just west of the elephant house, is of this date. "Both divisions," it was said in the Council's Report presented at the Annual Meeting of 1902, "contain cabins covered with rockwork, so that the animals may exercise their natural aptitude for climbing." In the same Report there was the following description of the new ape house:

> The portion of the building devoted to the animals has been divided into four roomy compartments, which it is believed will provide ample accommodation for a series of the principal anthropoid apes—the orang, the gibbon, the chimpanzee, and, it is hoped, the gorilla. The main feature of the new building is the entire separation by a glass screen of the part appropriated to the spectators from that in which the animals are lodged, whereby it will be possible to keep the animals in a higher temperature than that of the portion allotted to the spectators, and also to prevent their infection by external influences. This plan has been lately adopted in several ape-houses built in Holland and Germany, and will, the Council trust, be found to answer its purpose in the present instance, although it is to a certain extent a matter of experiment.*

The house was opened on June 25, 1902. The experiment has not been altogether successful. There was no provision for allowing the animals access to the open, and the arrangements for unpacking and shifting leave much to be desired. Under the new management an outside cage has been made on the level of the lower windows, and here a large gibbon spent the winter; and probably some attempt will be made to provide others. The smaller chimpanzees and orangs are now taken out to exercise in charge of the keepers, and excite a good deal of interest among the visitors.†

* It is doubtful if the apes do not lose in spirits as much as they gain in freedom from infection, as they are all extremely curious and inquisitive, and like to make friends with visitors.—Official Guide (1904), p. 18.

† I was much disappointed, however, to find that no facilities for open-air exercise have been provided, as is the case in the Rotterdam Zoological Gardens.—H. Edye, in the *Standard*, July 1, 1902.

In reporting on the works at the Gardens in 1903, the Council said that very much was required to bring that part of the establishment into a condition worthy of the Society. The improvements, carried out in accordance with the Report of the Reorganisation Committee, included repairs and restorations, and better accommodation for housing. Under the former heading a good deal of work was done; telephonic communication was established with the fire station at Camden Town, and hydrants and hose were provided. The Resident Superintendent's house was thoroughly overhauled, enlarged, and fitted with proper office accommodation.

In the North Garden the canal bank was turfed and laid out with running water and rockwork as cranes' paddocks, where the birds are seen to advantage in natural surroundings. Beyond the pheasantry stables with railed courtyards were erected to accommodate surplus stock.

The canal bank aviary, opposite the moufflons' yards, was the most important work in the Middle Garden. It consists of an iron framework on concrete foundations and covered with wire netting. It is about 75 ft. long, 52 ft. wide, and over 30 ft. high. The interior contains a number of pollarded trees with nesting-boxes, and is laid out with running water, making several pools, and grass and shrubs. The stock at first consisted of crows, herons, gulls, pheasants, and parrots (using that term in a wide sense), but is now tenanted only by members of the last-named group. The plan of keeping these birds in the open has been very successful. The suricates' cage was put up in a corner of the beaver enclosure. It now, in addition, contains a colony of prairie marmots, which live in harmony with some burrowing owls. The outdoor cage for hardy small mammals dates from this year, as does the new kites' aviary on the eastern boundary walk near the refreshment-room. The old fish house, renamed the diving birds' house, was thoroughly restored; and a large tank was put up in the centre for the exhibition of the birds.

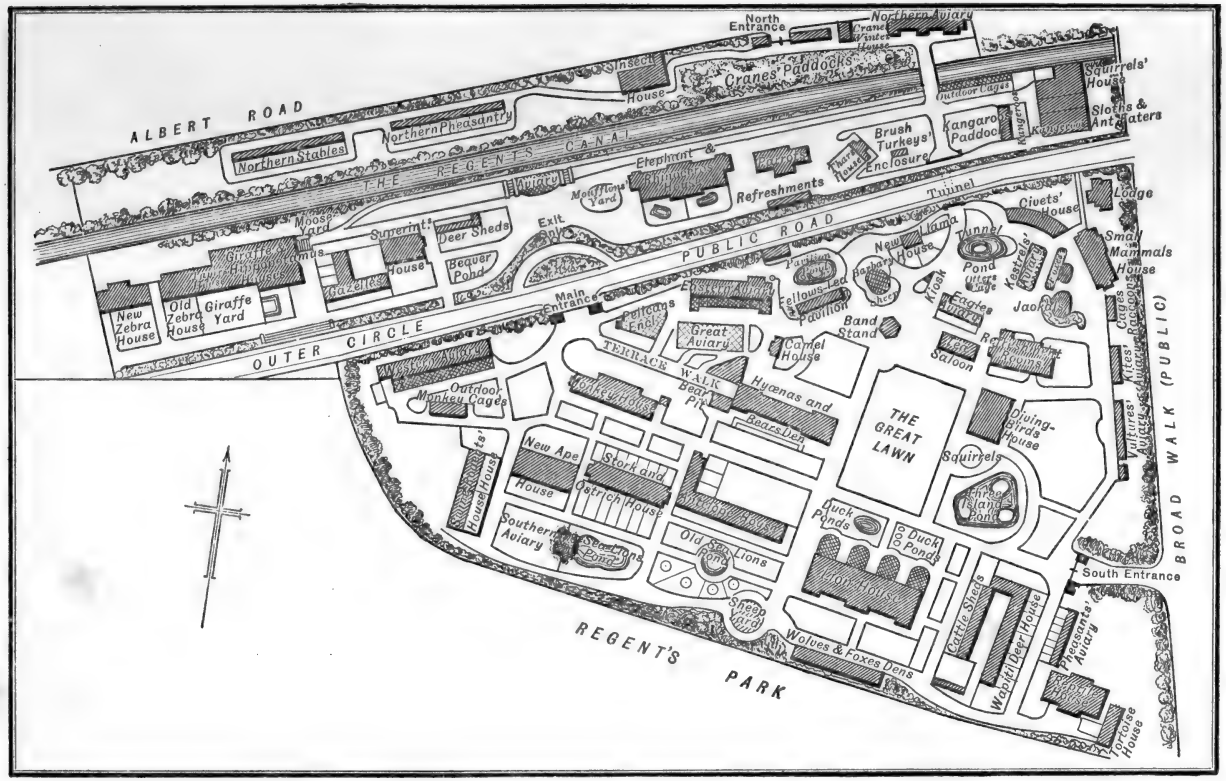
In 1904 restorations were effected in the small cats' house, which was then used for squirrels; elephant, giraffe, and zebra house; Main Entrance and South Entrance lodges, bears' den, antelope house, lion house, reptile house, and deer sheds.

PLATE XII.

THE SEA LIONS' POND.

(*See p* 234.)


Charles F. Flower



PLAN OF GARDENS, 1905.

The new house for small mammals was built and opened. It consists of a hall, with outbuilding for keeper, and stores. On each side the passage for visitors is a row of cages. That on the south contains fourteen, capable of enlargement or division by movable compartments, each communicating by a falling door with a cage in the open. Near this house, which is 72 ft. long by 35 ft. wide, are two open-air enclosures for jackals and foxes. The slope at the back of the kangaroo sheds was cleared, enclosed, and made into a paddock for these animals.

The house of the Assistant Superintendent was put in thorough order, and additional rooms built. The accommodation for the men, which had been inadequate, was provided by the erection of a keepers' lodge near the main entrance.

The scheme of work arranged in the autumn for 1905 included the thorough repair of, and additions to, the gardeners' lodge, by the North Entrance; a new roof and flooring in the parrot house, and the addition of outside cages. The new works were the sea lions' pond, with the Southern or Great Aviary, for gulls and herons, on its western side, in the South Garden, and an owls' aviary, between the insect house and the northern pheasantry. These have been completed and stocked; and Cologne can no longer boast of having the finest sea-lions' pond in Europe. The "squirrels' tree," near the diving birds' house, was opened while these sheets were passing through the press. With the exception of the new owls' aviary, all these new structures are marked on the plan on the preceding page.

Lectures were delivered at Hanover Square after the business meetings in April, May, June, and July, 1901 and 1902. The subjects in 1901 were the protection and nourishment of Young Fishes, Biological Stations, mimicry, and Rhinoceroses, and the lecturers, Professor C. Stewart, Professor W. A. Herdman, Professor E. B. Poulton, and Mr. F. E. Beddard. In 1902 Flying Reptiles, Horses and Zebras, the Okapi, and Elephants were treated respectively by Professor H. G. Seeley, Professor J. Cossar Ewart, Professor E. Ray Lankester, and Mr. F. E. Beddard. In accordance with the recommendatiou of the Reorganisation Committee, the interest of the Davis Bequest has been devoted to other purposes.

The Special Committee appointed to consider the prosectorial work consisted of the following Fellows:

Prof. G. B. Howes, V.P.*	Dr. Arthur Keith. ‡
Dr. H. Woodward, V.P.	Mr. F. G. Parsons. §
Dr. Chalmers Mitchell. †	Dr. R. N. Salaman. ‖
Mr. W. L. Sclater. †	

This Committee and the Council resolved to appoint a pathologist to investigate the causes of death "not only by ordinary post-mortem examination, but by the use of the microscope and bacteriological methods, and to point out not only the cause of death but also how such deaths might in the future be avoided." Other important resolutions were:

That a Prosectorial Committee should be appointed, to consist of three members of Council and the Secretary, and that this Committee should co-opt as members three Fellows of the Society specially interested in anatomy and pathology; That the Prosectorial Committee should direct and control the work of the Prosectorium and of its staff and report monthly to Council.

Dr. C. G. Seligmann, formerly Pathologist at St. Thomas's Hospital, became the Society's Pathologist, but did not take up his appointment till his return from the Cancer Expedition to New Guinea. Up to the end of 1904 in the more important deaths, the bodies were examined by Dr. R. N. Salaman.

In reporting on the work of 1903, Mr. F. E. Beddard, head of the department, divided it into five categories:

(1) Deaths in the Menagerie and Post-mortems.
(2) Anatomical research carried out in the Laboratory.
(3) Material supplied to anatomists elsewhere and to Museums, &c.
(4) Preservation and storing of material for anatomical and histological work.
(5) Information given by letter or to visitors upon zoological matters.

Soon after Mr. de Winton's appointment as Acting Superintendent at the beginning of 1903, the storekeeper and the clerk of works left the service of the Society. In announcing

* Died February 4, 1905. † Representing the Council.
‡ Lecturer on Anatomy at the London Hospital Medical College.
§ Lecturer on Anatomy at St. George's Hospital Medical School.
‖ Director of the Pathological Institute at the London Hospital.

that the vacancies had been filled, the Council informed the Annual Meeting of April 29, 1904 that the changes "had been of great advantage to the Society." Mr. de Winton resigned towards the close of the year, and was warmly thanked by the Council for his services; in December the Council selected Mr. R. I. Pocock from a large number of candidates, for the post of Resident Superintendent, and he commenced his duties on January 1, 1904.

The commissariat expenses for 1904 were less by £1,435 than they were in 1902, and the saving on the two articles of meadow and clover hay in 1904 was over £850.

Grant's zebra was received in 1901. This animal, the first of its kind to reach England, was presented to the King by the Emperor Menelek; it is of the Burchell type, but the ground-colour is white, and "shadow-stripes" are absent. In the same year a Parry's kangaroo was deposited, and marked "new to the collection." But the type certainly lived, for a very short period, in the Gardens in 1834. Bennett described it,* and named it in honour of the donor, Sir Edward (then Captain) Parry, from whom an interesting note was read with regard to its habits, and Owen dissected it. Many birds new to the collection were received, including cassowaries and parrots, the open-bill, and the painted snipe.

A fine young male eland from the Woburn herd was presented this year by the President. As particulars were given on p. 109 of the Knowsley herd, the following statement of the foundation and present condition of the Woburn herd, for which the author is indebted to the Duchess of Bedford, will be of interest. The herd was founded in 1892 with a pair obtained from the Zoological Gardens; since then seventeen others have been imported. Fifty-four calves have been born, of which thirty-two died (some shortly after birth); three have been killed by accident, or slaughtered because they were bad specimens; ten have been sent away (mostly in exchange for others, but three were presented to the Australian Government). The present total consists of twenty-eight, of which seven are males and twenty-one females.

This year the Windsor menagerie was broken up, and the

* *Proceedings*, 1834, p. 151.

Photo: Cassell & Co., Ltd.

JIM. (*See p.* 241.)

PLATE 48.

King presented the animals to the Society. The collection was much smaller than that formerly kept there; it consisted of:

2 Spanish cattle.
1 Black-faced kangaroo.
1 Yellow-footed rock kangaroo.
1 Grévy zebra (♀).
2 Somali ostriches.
1 American bison (♂).*
3 Zebus.
3 St. Kilda sheep.
3 Nubian goats.

Early in June His Majesty visited the Gardens, and conferred the Victorian Medal on the Superintendent.

Prjevalsky's horse came to the Gardens early in 1902, a pair being received in exchange and another pair on deposit.† These animals are of great scientific interest, as belonging to a truly wild species; but they had little attraction for the general public. A large herd was obtained by Mr. Hagenbeck's collectors near Kobdo, in Western Mongolia, the young ones being taken in nooses on the end of long sticks by mounted Mongols, and then fostered by common mares which had been deprived of their own young. An immature proboscis monkey was purchased soon after the ape house was opened, but its life was short in captivity; and a new guenon, Delmé-Radcliffe's monkey, was received, and described by Dr. Sclater.‡ The King presented an equine hybrid, bred between a male Burchell and a pony mare, that came into the British lines at the end of the South African war. It was sent home in the hope that Her Majesty might use it. Among the more noticeable birds were the spotted cassowary, the pheasant-tailed jaçana, the racket-tailed parrot, the Galapagan barn owl, the stork-billed kingfisher, the grey teal, and the wall-creeper; and the reptiles new to the collection included the strange scale-footed lizard, the fringed gecko, and the Southern or dwarf anaconda, which has since bred.

The King deposited in the Gardens two Grévy's zebras (♀ ♀), sent as a Coronation gift by the Emperor Menelek. Three American bison, from the Woburn herd, were presented by the President; and two giraffes, for which the Society was

* Fell dead during the operation of boxing.

† The horses in the Duke of Bedford's collection at Woburn have bred twice. The herd was brought there in 1901, and then consisted of twelve (5 ♂ and 7 ♀).

‡ *Proceedings*, 1902, i. 237, pl. xxv.

indebted to Colonel MacMahon, Governor of Kordofan, were brought home by Mr. Thomson.

No very remarkable new mammal came to the Gardens in 1903, but among the rarer species were a pair of Grévy's zebras, presented by Lieut.-Colonel Sir John Harrington, and a fine male chimpanzee from the Albert Nyanza, the first example received from Eastern Africa. Among the birds were the winking owl, the whistling swan, the Alaska goose, Ross's snow goose, the Masai ostrich, the American golden plover (captured at sea), and Scoresby's gull.

Jingo, the great African elephant, was sold to Bostock in February, 1903. In the previous year it had shown signs of temper, and consequently did no carrying, but was kept in its stall, as was Suffa Culli for a similar reason. There appears to have been some attempt to create public excitement, but the matter fell flat. The price was said to have "run into four figures" —as a matter of fact, it was only £200. Jingo was taken by train to Liverpool, shipped on board the *Georgic*, and died at sea.

As there was not the danger with Jingo that existed with Jumbo, it is to be regretted that he was sold. Although in bad condition, he was still a fine elephant, with a good pair of tusks, and might well have been retained as making a good show in the house.

Schweinfurth's chimpanzee from the Bagamo Forest, Uganda, was first received in 1904, a pair having been presented by Mr. Stanley C. Tomkins; the male is probably the largest yet exhibited in the Gardens. Among other new species were Pousargue's, Du Chaillu's, Wolf's and Schmidt's guenons, the dwarf buffalo from Senegal, the ferret badger, two Turkestan wapiti stags presented by the President, and the antelope and Alligator River kangaroos. An example of Buffon's kob was received in June, and reported in the *Proceedings* (1904, ii. 177), as new to the collection. If, however, early literature is to be trusted, one was living in the Gardens in the 'thirties.

The specimen from which the accompanying figure * was taken was presented to the Society by John Foster, Esq., where [*i.e.* in the Garden] it lived for about three years. It was of a very savage disposition, having during its confinement worn its horns down to within two inches of its

* Louis Fraser: "Zoologia Typica," pp. 48-49, pl. xx (London, 1849).

skull by continually striking against the bars and sides o its den. Upon a recent visit to the Earl of Derby's aviaries at Knowsley I saw specimens of a male and female . . . which I believe to be the same as above; these, together with a female, said by Mr. Ogilby to have been exhibited in the Surrey Zoological Gardens, some ten years since, are the only specimens I have ever seen or heard of.

The true Rüppell's colobus and the Angolan species also figure in the list.

Among the new birds were two king birds of paradise, the first brought alive to Europe, the Philippine hornbill, the golden-throated barbet, a number of parrots, the Andaman banded crake, and the Soudan crowned crane, which was also new to science.*

Two young female gorillas were purchased on August 19, but they were not in good health when they arrived; Venus, the larger animal, died before the end of the month, and Chloe on September 15. In both cases dysentery was the cause of death. The skins were sent to Tring Museum.

There is little of importance to chronicle about the births in 1901; but in the following year a brindled gnu calf was thrown, and there was a litter of red river-hogs. In neither case was it the first occurrence of the kind; but both are worth mention. Much more important was the birth of an elephant calf, the first instance in the Gardens. The dam belonged to Messrs. John Sanger and Sons, and was deposited by them on September 19, 1901. The young elephant, though of full term, was dead when found by the Assistant Superintendent.†

Losses by death were heavy, and included the giraffe and proboscis monkey already mentioned, and a Grévy's zebra.

A hybrid waterbuck, between the West African sing-sing (♂) and the common waterbuck (♀) was born in October, 1903. In colour it favoured the dam, but there was practically no trace of the elliptical white rump mark, probably indicating reversion to the original colour.

The fine well-grown Polar bear, which had been a public favourite, died suddenly on November 1. Mr. Salaman's *post-mortem* showed that the cause of death was the rupture of

* Dr. P. Chalmers Mitchell in *Proceedings*, 1904, ii. 200.

† *Proceedings*, 1902, ii. 320.

an aneurysm of the aorta into the thoracic cavity.* In the *Proceedings* (1834, p. 9) is a note by Mr. W. C. L. Martin on an aortic aneurysm in a brown coati; and at the scientific meeting of January 19, 1904, others, from the collection of the Royal College of Surgeons, were exhibited by Mr. Macleod Yearsley.

Owing to more favourable weather the breeding season of 1904 was better than that of 1903; but the Council expressed the hope that part of the results might "be attributed to improved conditions and management." Two lion and three leopard cubs were born; the first-named were imperfectly formed and died soon after birth; the latter were eaten by the dam. Eight timber wolves were born in 1903, but all died; a similar litter was thrown in 1904, and of these four were left with the mother, and the other four, which proved to be the stronger animals, were reared by a collie. In all, five attained maturity. The Duke of Bedford's, Altai, and Japanese deer bred, and a hybrid was produced between the last-named species (♂) and a Formosan deer (♀). The breeding of the screamers has been mentioned; three chicks were hatched, and two lived for some months. Three cases of hybridity in doves are worth record,† and there were a good number of pheasants reared.

The value of the birds reared in 1904 was £173 10s., which is in striking contrast with the return (£8 5s.) for 1903. There would seem to be no reason why surplus stock, as a result of breeding, should not be an important source of revenue, as it is, for instance, at the Antwerp Garden.

Besides the two gorillas, the Society lost this year an orang and a chimpanzee. A Grant's zebra, and the Grévy's zebra (♂) presented by Sir John Harrington, were also among the losses; the latter was said by some to have died from injuries received during breaking and training. Of this there is no evidence. It is to be regretted that so valuable an animal was made the subject of experiment—at any rate, till Milne, who had been successful with a young mare, had tried

* *Proceedings*, 1903, ii. 348.

† Dwarf turtle ♂ × Barbary turtle ♀; Barbary turtle ♂ × half-collared turtle-dove ♀; and green-winged dove ♂ × Christmas Island dove ♀.

ANTHROPOIDS FROM THE HON. WALTER ROTHSCHILD'S COLLECTION. (*See p.* 243.)

By the kind permission of the Zoological Society.

PLATE 49.

and failed. After being handled by Captain Hayes on Thursday, March 17, the stallion trotted back from the paddock apparently as well as ever. On Sunday morning he did not get up, and died the same evening.

Mr. Salaman made the *post-mortem* on March 23; and found the immediate cause of death to be heart failure, which could not be explained. An official report said:

> It is obviously impossible to be certain that the death was unconnected with the breaking in, but it is satisfactory to know that there was no sign of any injury to any of the internal organs, although the bones were unusually brittle, and the stallion was much older than had been supposed, or any indication that could in any way reflect on the judgment and skill of Captain Hayes.

Since then nothing has been done to utilise the zebra stock for draught, saddle, or parade. Strong opinions have been expressed as to the wisdom or unwisdom of attempting to train these animals for display purposes. It must be borne in mind that the Society had long been urged to "do something" with their fine equine stock. Anything was better than the old policy of "masterly inactivity"; and though everyone deplores the result, it should in fairness be remembered that the authorities had the sanction of Professor Cossar Ewart and Captain Hayes for their line of action.

That zebras can be broken to draught is well known. The Hon. Walter Rothschild's team is a case in point. A pair belonging to the Jardin d'Acclimatation are often driven through the streets of Paris. The late Mr. Cross, of Liverpool, used to drive a pair in 1886 from the Shipperies Exhibition down to his menagerie; and within the last six years Mr. W. Simpson Cross has had seven broken to harness so that they would go anywhere and everywhere amongst the Liverpool traffic. "In February, 1903," he writes, "they worked practically the whole day for one of our present Members of Parliament, taking voters to the poll just as horses might do."

Jim, the famous Indian rhinoceros, which had been presented in July, 1864, died in December, 1904, having been more than forty years in the Gardens, of which he was the oldest inhabitant. Guy Fawkes, the hippopotamus, born November 5, 1872, succeeded to that distinction; and Suffa Culli, the

female Indian elephant presented by the King (then the Prince of Wales) on July 24, 1876, comes next.

In the summer of 1901 a tablet was erected in the meeting room by the Council as a memorial to Sir William Flower.* It bears the following inscription:

THIS TABLET IS ERECTED BY THE ZOOLOGICAL SOCIETY OF LONDON TO THE MEMORY OF SIR WILLIAM H. FLOWER, K.C.B., LL.D., F.R.S., ITS LATE PRESIDENT, IN RECOGNITION OF HIS GREAT EMINENCE AS A ZOOLOGIST AND IN GRATITUDE FOR THE VALUABLE SERVICES RENDERED TO THE SOCIETY THROUGHOUT THE TWENTY YEARS DURING WHICH HE OCCUPIED THE PRESIDENTIAL CHAIR. 1879–1899.

On June 19, 1902, the Gold Medal was presented to Sir Harry H. Johnston, who had received the Silver Medal in 1894. "Since that date," said the Council's Report:

> Sir Harry has not ceased in his endeavours to promote the advance of zoological discovery in the several posts he has occupied in various parts of Africa; and has especially distinguished himself by the discovery on the confines of Uganda of the wonderful new African animal the okapi. Sir Harry has also been a frequent and generous contributor to our living collection.

At the same meeting the Silver Medal was awarded to Mr. Edmund William Harper of Calcutta, who had presented to the Society a large number of Indian birds new to the Collection, and taken great pains to ensure their safe transport to this country. It was also given to Mr. Arthur Thomson, Assistant Superintendent, at the Monthly Meeting, March 17, 1904, in consideration of his faithful services to the Society for a period of thirty-four years.

* Sir Stamford Raffles is the only other President whose services have been commemorated (see p. 159), and his bust in the lion house was the gift of a member of his family, not an official memorial. With the revival of the Society's bionomical work, one would like to see some lasting monument to Lord Derby, who was an original member of the Society. A panel should record the term of office of every President and Secretary.

Lady Flower was made an Honorary Fellow in February, 1901, and in the following year His Highness Sir Prabhu Narani Singh, Bahadur, G.C.I.E., Maharajah of Benares, who had kindly promised to supply the Society with Indian elephants whenever they might be required, was elected an Honorary Member of the Society.

The Scientific Meeting of May 7 will always be remembered by those who took part in it. Dr. Sclater exhibited a drawing of the Okapi by Sir Harry Johnston, who, in a letter to the Secretary, suggested that this wonderful new mammal was allied to some extinct form of giraffe. Two skulls and a skin sent by him were received at the British Museum on June 17, and were exhibited at the Scientific Meeting on the following evening on behalf of Professor E. Ray Lankester, who established the genus *Okapia* for the new mammal. That skin, now in the British Museum, was mounted by Mr. Rowland Ward, as was Mr. Rothschild's specimen (Plate 47).

Africa yielded something else of interest from the Semliki and other Central forests. During Stanley's expedition for the relief of Emin in 1888–90 he heard vague stories of a large pig-like animal, and the natives gave him highly-coloured accounts of its size and ferocity. Similar stories were afterwards brought to Sir Harry Johnston, to Mr. F. J. Jackson, the late Mr. W. D. Doggett, and others. Lieut. R. Meinertzhagen, of the East African Rifles, heard about this animal, and secured a perfect and an imperfect skull and pieces of skin, which he presented to the Natural History Museum. The skulls were exhibited at the Scientific Meeting of November 15, 1904, by Mr. Oldfield Thomas, who described and named the animal Meinertzhagen's forest-pig, in honour of the discoverer.

Another noteworthy meeting was that of December 13, 1904, at which Hon. Walter Rothschild proposed a revision of the anthropoid apes. The paper was illustrated by a very fine collection of gorillas and chimpanzees, consisting of mounted specimens, skeletons and skulls, together with a number of life-size drawings. In this revision Mr. Rothschild followed Professor Matschie in separating the gibbons from the other anthropoids; but the most important part consisted of proposed changes of nomenclature.

In 1901 the "Record of Progress" was published. The fifth edition of the Library Catalogue came out in the autumn of 1902; the titles of about 11,000 books were given, exclusive of periodicals, to which a separate section was devoted. This is by far the largest and best collection of zoological works in this country, with the possible exception of that at the Natural History Museum, and now contains upwards of 26,000 volumes.

In Plate 50 there is a small and a large pile of books on the table in the foreground on the right. The former represents the Society's publications for the first decade (1831-40) and the latter for the decade 1891–1900.* Also in 1902 were published the "Index" to the *Proceedings* (1891–1900) and the "Index Zoologicus," containing in alphabetical order the names of new genera and sub-genera entered in the "Record" (1880–1900).

The late Secretary gave over the Guide entirely to the Society from the date of his quitting office. A new Guide was prepared by the present Secretary, and the copyright is the property of the Society. Of this three editions have been issued. Full profits accrued to the Society from the beginning of 1904, in which year pictorial postcards were prepared and sold.

At the end of the last decade it was decided that in future the *Proceedings* should consist of two volumes for each year, the matter being too much for inclusion in one. Beyond the subjects already alluded to as having been brought forward at the scientific meetings, the following papers are worth mention: Dr. Andrews, on Palæontological Discoveries in the Fayúm; Mr. Boulenger, on the Ichthyology of the Congo; Mr. Budgett's account of his Journey to Uganda; Dr. Goeldi, on the Rediscovery of *Dinomys*;† Mr. Lydekker, on the Sub-

* Ten large octavo volumes are needed to make this pile complete, for by an oversight the "Record" was omitted.

† This is an extremely rare South American rodent, described by Peters about thirty years ago, since which period no other example had been met with till a pair were sent to Dr. Goeldi, early in 1904. The story is not without a certain comic element, for the collector who obtained the type-specimen, killed it with "two powerful sabre strokes." Its rediscovery has shown that, so far from being ferocious, this rodent, which is like a páca with a tail, is good-tempered and peaceful.

Photo: Cassell & Co., Ltd.

LIBRARY OF THE ZOOLOGICAL SOCIETY. (*See p.* 244.)

PLATE 50.

species of the Nubian Giraffe; Dr. Forsyth-Major, on Remains of the Okapi in the Tervueren Museum; and Dr. A. Smith Woodward, on Fossil Remains from Patagonia, and Pliocene Remains from Teruel.

In 1901 the fifteenth volume of *Transactions* appeared, containing eight papers, illustrated by fifty-two plates. The most important memoir was that of the Hon. Walter Rothschild on the Cassowaries, all the known species well illustrated by coloured life-size plates of the head and wattles. This part cost nearly £900, of which the author contributed £450.* Next come Dr. Andrews's paper on the Extinct Birds of Patagonia, and that of Mr. Boulenger on the Ichthyology of Lake Tanganyika. The sixteenth volume, published in 1903, contained nine papers and thirty-eight plates. Professor Ray Lankester's monograph on *Okapia* stands first; the papers by Howes, on the Development of the Skeleton of the Tuatara; J. S. Budgett,† on the Breeding Habits of some West African Fishes, and Mr. Boulenger, on the Ichthyology of Lake Tanganyika, are of some considerable value.

New arrangements were made with printers, artists, and engravers, and these have effected "a very considerable economy."

At the beginning of 1903 a professional auditor was appointed. The accounts are now made up on an Income and Expenditure basis, instead of the old system of Receipt and Payments. The Composition account has been worked out by the Auditors on a fifteen-years' basis, only £2 being taken annually for the Income account. This is supplemented by the undrawn balances of Compounders dying in each year. Changes have also been made with regard to the banking account. Formerly definite sums were borrowed at interest, but now an overdraft has been arranged, and only on this is interest charged.

* The birds had been deposited in the Gardens; and, important as these were, they form but a very small part of the animals which Mr. Rothschild has from time to time entrusted to the care of the Society.

† One of the martyrs of science. He died January 19, 1904, the day on which he was to have laid before the Society an account of the material procured in Nigeria in the previous autumn (see note on p. 176). One would like to see some record of Forbes and Budgett in the Meeting Room.

The appreciation of the work of the Re-organisation Committee by the public and the Press has been marked, so that in April, 1905, the Council were able to congratulate the Fellows on the prosperous condition of the Society. They expressed the belief that a continuance of the same vigorous policy, combined with a careful scrutiny of expenditure, would lead to still better results; and no doubt they will achieve the success they undoubtedly deserve.

	Exhibited for the First Time.				Breeding Species.			
Year	Mammals.	Birds.	Reptiles.	Total.	Mammals.	Birds.	Reptiles.	Total.
1901	10	58	21	89	19	22	1	42
1902	7	33	8	48	21	12	...	33
1903	8	19	13	40	22	6	...	28
1904	24	21	3	48	23	31	...	54

Animals in the Menagerie.

Year.	Mammals.	Birds.	Reptiles.	Total.
1901	789	1,575	558	2,922
1902	735	1,498	550	2,783
1903	683	1,324	492	2,499
1904	640	1,448	343*	2,431

Fellowship Roll, Visitors, and Finance.

Year.	No. of Fellows.	Admissions to Gardens.	Income. £	Expenditure. £
1901	3,338	725,685	29,350	32,056
1902	3,413	694,496	29,077	32,458
1903	3,481	657,208	30,057	30,143
1904	3,557	706,074	31,528	33,545

* Including Amphibia; 121 fishes were also returned, bringing the total up to 2,542.

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