



Annual Report 1968

The Zoological Society
of London

THE ZOOLOGICAL SOCIETY OF LONDON

The Society was founded in 1826 by Sir Stamford Raffles, Sir Humphry Davy (President of the Royal Society) and other eminent naturalists,

'for the advancement of Zoology and Animal Physiology and the introduction of new and curious subjects of the Animal Kingdom',
and was incorporated by Royal Charter in 1829. A new Charter was granted to the Society in January 1963.

The Society's Gardens in Regent's Park, which were first opened to the public in 1828, now cover an area of 36 acres. Of the original features and buildings designed by Decimus Burton, the old Camel House with its clock tower, the Ravens' Aviary and the Giraffe House are still in existence. In 1927 the Society acquired 500 acres of farm and downland at Whipsnade and has developed them into a Zoological Park.

The existence of the Zoological Society as an Institution under a Royal Charter depends on the fulfilment of the object for which it was founded. Being primarily a scientific society it undertakes and encourages scientific research in zoology by members of its staff and by visiting scientists, and also spreads zoological knowledge through its educational activities. Scientific meetings, commencing at 5 p.m., are held in the Meeting Room on the second Tuesday in the months February to June and October to December. At these meetings the results of new research are communicated and discussed, and specimens and films of zoological interest are exhibited. Symposia on special subjects are arranged on other dates, which are notified as occasion arises. The Society owns one of the finest zoological libraries in the world, containing approximately 120,000 volumes, including many complete sets of scientific journals.

The Society publishes:

The *Journal of Zoology*, being the *Proceedings of the Society* – the papers cover all fields of zoology and are fully illustrated with plates and text figures. Three volumes (12 parts) are published annually.

The *Transactions* are published at irregular intervals.

The *Symposia* record the papers read at the Symposia.

The *Zoological Record*, a comprehensive bibliography of zoological literature with subject and systematic indices, is available either as a complete volume or separately in 20 parts dealing with the different animal groups.

The *Nomenclator Zoologicus* contains the names of all the genera and subgenera in zoology from the 10th Edition of Linnaeus 1758 to the end of 1955, with a bibliographical reference to the original description of each. The work contains approximately 260,000 entries, and is published in 6 volumes.

The *International Zoo Yearbook*, published annually, provides authoritative information on developments in the zoo world.

Report of the Council 1968

The Council has pleasure in presenting its 140th Annual Report to the Annual General Meeting of the Society to be held on Tuesday 29th April 1969 at 4 pm in the Society's Meeting Room at Regent's Park

The Zoological Society of London

Report of the Council 1968

The Council met on the 15th of January 1968 at the University of London. The meeting was held in the presence of the following members of the Council: Sir John Peel, President; Sir John Peel, Vice-President; Sir John Peel, Secretary; Sir John Peel, Treasurer; Sir John Peel, Chairman of the Finance Committee; Sir John Peel, Chairman of the Publications Committee; Sir John Peel, Chairman of the Education Committee; Sir John Peel, Chairman of the Research Committee; Sir John Peel, Chairman of the Honorary Treasurer's Committee; Sir John Peel, Chairman of the Honorary Secretary's Committee; Sir John Peel, Chairman of the Honorary Treasurer's Committee; Sir John Peel, Chairman of the Honorary Secretary's Committee.

The Council has been very busy during the year and has considered a large number of matters. It has approved the annual budget for 1968 and has also approved the proposed changes to the constitution of the Society. It has also considered the report of the Honorary Treasurer for 1967 and has approved the accounts for that year.

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THE ZOOLOGICAL SOCIETY OF LONDON

PATRON: HER MAJESTY THE QUEEN

COUNCIL 1968-1969

President: HRH The Prince Philip, Duke of Edinburgh, KG, KT

Treasurer: Sir Terence Morrison-Scott, DSC, DSc

Secretary: Professor Sir Solly Zuckerman, OM, KCB, DSc, FRS

Professor E. J. W. Barrington, MA, DSc, FRS, *Vice-President*

E. Michael Behrens

The Earl of Bessborough

Aubrey Buxton, MC, *Vice-President*

Charles Clore

The Earl of Cranbrook, CBE, MA, TreasLS, *Vice-President*

The Duke of Devonshire, PC, MC

Raymond Greene, MA, DM, FRCP, *Vice-President*

The Viscount Head, PC, GCMG, CBE, MC

The Marquess of Lansdowne, PC, DL

The Hon Ivor Montagu

Sir Michael Perrin, CBE, FRIC

W. Lane-Petter, MA, MB, BChir, FIBiol

Air Vice-Marshal G. Silyn Roberts, CB, CBE, AFC, MSc

Professor G. P. Wells, ScD, FRS

G. E. W. Wolstenholme, OBE, FRCP, FIBiol, *Vice-President*

Woodrow Wyatt, MP

Frank Yates, CBE, ScD, FRS

LIST OF MEMBERS

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FINANCIAL ACCOUNTS, WITH AUDITORS' REPORT

In the pocket on back cover

Membership

COUNCIL

At the Annual General Meeting held on 2nd May the following members of the Council retired:

The Hon William Fraser
Sir John Ritchie
Peter Scott
Dr J. Eric Smith

The late Mr Maxwell Knight, who died on 24th January 1968, would have retired from Council in May.

The Fellows elected to fill these vacancies were: The Earl of Bessborough, the Viscount Head, Sir Michael Perrin, Professor G. P. Wells and Mr Woodrow Wyatt.

The Rt Hon Christopher Soames resigned from the Council on his appointment as Her Majesty's Ambassador in Paris and the Marquess of Lansdowne was appointed to fill the vacancy.

ROLL OF MEMBERS

At the end of the year there were 3,309 Fellows and 2,354 Associates.

OBITUARY

The Council records with deep regret the deaths of Mr Maxwell Knight, Professor G. E. Newell and Dr H. W. Parker. Mr Maxwell Knight, who had been a Fellow for many years, had served on Council for a total of ten years and had also been a member of many Committees where his kindly and expert advice had been of great value and benefit in the development of the Society's affairs. Professor G. E. Newell had given most valuable assistance as Chairman of the Education Committee. Dr H. W. Parker had for many years been a valued member of the Zoological Record Committee.

The Council also records with regret the deaths of Mr E. O. Pearson, Director of the Commonwealth Institute of Entomology, who was also a member of the Zoological Record Committee, and Professor Dr R. Spärck of the University Zoological Museum in Copenhagen who was elected a Foreign Fellow in 1946.

REGULATIONS

The regulation governing the subscription payable by Associates was amended to provide that when an Associate is elected after 1st October in any year the subscription for that year is remitted.

Council also decided to revise the procedure for the admission of Honorary Fellows and Foreign Fellows. A new regulation was introduced stating that British and foreign zoologists of distinction as well as others who had furthered the objects of the Society were eligible for admission in the one class of Honorary Fellows, the number being limited to twenty-five at any one time.

The terms of both new regulations are given in Appendix 1 page 35.

General Review

ATTENDANCES

In spite of the appallingly wet summer weather, attendances at Regent's Park exceeded the two million figure for the fourth year in succession, the figures in the early spring, late summer and autumn being noticeably higher than average. There were several reasons for this excellent result: the much improved appearance of the Gardens due to new buildings and other developments; the wide press coverage and extended advertising campaign, including advertisements on the television networks in August; the attraction of the young Polar Bear – 'Pipaluk' – born in December 1967; and the widespread interest in the Giant Panda 'An-An', who came to London from Moscow Zoo at the end of August for an eight-week visit which was later extended.

On the other hand attendances at Whipsnade were disappointing. The Park was still closed to visitors in the early part of the year as a precaution against the foot and mouth disease epidemic which was then at its height. When the Park re-opened in the spring attendances were satisfactory but the many wet weekends in July and August resulted in a serious decline.

FINANCE

Revenue was marginally below the 1967 figure. On the other hand, in spite of stringent economies and the deferment of minor improvements or adjustments which had been planned, expenditure rose. This was due to the increased costs of provisions, services and maintenance, together with increases in wages and salaries, and the cost of servicing short term loans. As a result we have ended the year with a deficit of £30,000.

Capital expenditure during the year was £157,000. For financial reasons it was not possible to start building the Primate House, although the plans and drawings are ready.

The Council now faces the very difficult task, in a highly inflationary period, of finding ways and means to continue and complete the rebuilding of the Regent's Park Gardens and of assuring the stability of the Society's affairs. What we have already achieved by way of rebuilding the Gardens and regenerating our scientific activities was only made possible through generous philanthropic support. The capital still required for the rebuilding programme cannot possibly be found from annual revenue, which is the only income on which we can count, and which depends mainly on admission charges. To fulfil our programme we shall certainly need to seek further support by way of gifts and grants at least as generous as those our efforts have gained in recent years.

DONATIONS

Through the generosity of Mr Henry Moore and Granada TV Network the Society was able, in 1961, to institute a series of awards in the form of contemporary sculptures for contributions to zoology. During the year two anonymous gifts and a gift of £1,000 from the Max Rayne Foundation were received to purchase sculptures by Miss Elisabeth Frink and Mr David Wynne and thus continue the awards for future years. The Council most gratefully acknowledges these gifts and also an anonymous gift to build an Otter Pool in the Regent's Park Gardens.

£150 was contributed privately to help towards the cost of installing ramps for invalid chairs in the older houses at Regent's Park where there are now only steps. All recent buildings have ramps incorporated in the design. The notice which this generous gesture stimulated will, it is hoped, lead to further contributions so that the backlog of work for this programme will soon be finished.

The Council gratefully acknowledges the grant of £5,000 from the Wellcome Trust in support of the further improvement of the Library.

A legacy of £50 was received from the late Mrs Elsbeth Fuhrhop.

AWARDS FOR CONTRIBUTIONS TO ZOOLOGY

At the Annual General Meeting, the President, HRH The Duke of Edinburgh, presented the following awards:

The Stamford Raffles Award to *Dr Maxwell Savage* of Welwyn, Hertfordshire, for contributions to our knowledge of amphibians. The award was a sculpture, *Wild Boar*, by Miss Elisabeth Frink.

The Scientific Medal (awarded to persons under 40 years of age for distinguished work in zoology) to *Dr J. B. Gurdon*, of the University Museum, Oxford, for his work on nuclear transplantation; *Dr J. E. Treherne*, of the University of Cambridge, for his work on insect physiology, particularly the absorption of nutrients; *Professor L. Wolpert*, of Middlesex Hospital Medical School, for his work on cell biology and embryology.

The Thomas Henry Huxley Award (for original work submitted as a doctoral thesis); **HIGHLY COMMENDED ENTRIES:** *Dr P. S. Lake*, University of Tasmania (formerly of Southampton University), for his thesis on 'Studies on growth, feeding, and neurosecretion of *Chirocephalus diaphanus* Prevost (Crustacea: Anostraca)', who was awarded a drawing by Miss Elisabeth Frink; *Dr M. D. R. Jones*, of Brunel University, for his thesis 'Studies on the acoustic behaviour of *Pholidoptera griseoptera* (Degeer) with some account of other species of Tettigonioidea'.

The Prince Philip Prize (for an essay on animal ecology or behaviour, submitted by a pupil of zoology taking the GCE 'A' level, or equivalent examination, in any school in the United Kingdom): **HIGHLY COMMENDED ENTRY:** Mr Michael Gavin Bird, formerly of Tiffin School, Kingston-upon-Thames (now at the University of Nottingham), for his essay 'Selected investigations from a series on *Euplanaria dorotocephala*'.

The London Zoo

Visitors during the year 2,081,479

Visitors to the Children's Zoo 475,555

Visitors to the Aquarium 370,797

GENERAL DEVELOPMENT

The major work undertaken during the year was the building of a viewing stand overlooking the Sealion pool, with new quarters for canines in the lower section. This building quickly proved its worth as a grandstand for one of the most popular exhibits in the Zoo.

Minor modifications and improvements were made in many buildings. The raising, for security reasons, of the inner wall of the moat in the elephant paddock of the Elephant and Rhino Pavilion has been skilfully accomplished, whilst some small alterations inside the Pavilion have been made to the reserve dens to ease the handling of animals.

The Charles Clore Pavilion for Mammals continues to win the praise and admiration of expert and lay visitors. A new sound-absorbing floor and some extra lighting was installed in the nocturnal section – the Moonlight World – to counteract the noise caused by crowds of visitors and parties of excited children. Modifications have also been made to some of the cages to improve the display, and additional water storage tanks have been installed.

It was necessary to amend the plans for the new Primate House, the basic design of which was approved in 1966, to take account of the rise in building costs. A mock-up of one of the cages was also built to test its general suitability and to try out the equipment. Several species of monkeys were housed in the mock-up cage during the year and a great deal of valuable experience was gained.

As part of the preparation for the building of the new Primate House, the Giant Tortoises were moved from the old South Mammal House, which has to be demolished before the Primate House can be built, to a new enclosure in the former Frog Lobby of the Reptile House, while the frogs and other amphibians were moved to the Aquarium. Both these small but important items of development show how resourceful design by

the architect and careful background preparation by the keeper staff can transform somewhat uninteresting corners of old houses.

The planning of new projects is always a long and complicated process involving consultation with the many different zoo interests as well as the collection of a great deal of information and plans have always to be up-dated. Thus the first plans for the development of the North-West area of the Gardens proved to be too expensive in relation to the accessibility of the area and a new and more modest plan was prepared. This provides paddocks for large birds from the Ostrich House and leaves for future planning the proposed new holding and quarantine quarters for the hoofed animals which are destined for Whipsnade.

Other plans, prepared and approved by the consultative committees during the year, include improvements to the Insect House, additional quarters for the smaller canines adjoining the new Sealion Viewing Stand and an Otter exhibit.

As always several minor improvements added to the overall pattern of progress in the Gardens. The Zoo Shop was extended; the tapir enclosure was provided with a pond (an important part of the equipment of an enclosure for these water-loving animals); the Dingo runs in the Broad Walk were altered and renovated to make a new home for the Cheetahs which were moved from the North Mammal House when this house was closed at the end of the year.

The Film and TV Unit has been fully occupied in the preparation of programmes. Amongst the items arranged were a ten-minute colour film in the Rank Organization's cinema series 'Look at Life', showing the ways in which the animals are cared for at Regent's Park, and a twenty-minute colour feature film prepared by the British Travel Association for publicity purposes in Britain and overseas. The first full television programme showing the Zoo in colour was transmitted on BBC2 in May. The Film Unit has also continued to add to the library of colour transparencies of animals in the Collection and to supply colour film to illustrate the lectures given by the Education Department.

THE COLLECTION

Mammal section With the generous co-operation of the Moscow Zoo authorities the attempt to mate the only two Giant Pandas in captivity outside China and Korea was continued. The arrival of the male 'An-An' from Moscow on August 30th was undoubtedly one of the noteworthy events of the year.

The female Giant Panda 'Chi-Chi' has been in the London Zoo since 1958 and earlier negotiations had resulted in her spending some months in the Moscow Zoo in 1966. When in Moscow she and 'An-An' lived peacefully in adjoining dens but they fought when first put together and had to be separated; the second and following encounters were no more successful.

'Chi-Chi' returned to London and negotiations for another meeting of the two animals were immediately started and resulted in 'An-An' being brought to London by the Director of Moscow Zoo, Mr Igor Sosnovskii and Dr Stanislav Kudryavtsev. Although it had originally been agreed that 'An-An' should stay only until the end of October, 'Chi-Chi' did not come into oestrus during this time and the Russian authorities agreed that the male should remain in London until the end of the year.

Both the more romantic appeal of this episode and the scientific importance of the experiment has captured the news headlines. The Giant Panda is one of the rarest mammals in the world and it would undoubtedly have been wrong, even if the experiment is finally unsuccessful, not to have attempted to bring about a fruitful mating of the only pair of animals available.

The Polar Bear cub 'Pipaluk', born on December 1st 1967, was greeted with a blaze of TV and Press publicity when he was shown to the public on March 13th and, during the summer, became very popular with all visitors.

Later in the year a young female African Elephant 'Pole Pole', presented by the Kenya Government to replace 'Diksie' who died as a result of an accident in September 1967, quickly rivalled 'Pipaluk's' popularity.

During her South American tour HM The Queen was presented by the City of Brasilia with two Jaguars; these animals, an adult female in the black form and a young male, were deposited at Regent's Park.

It was a relatively good year for breeding in the mammal section. Again two litters of Lion cubs, three Pumas, two Chinese Leopards and among the ungulates, Blesbok, Bactrian Camel, Giraffe, Barbary Sheep, Mouflon, Wild Boar, Timor Deer, Blackbuck, Red Deer and a Przewalski's Wild Horse were born. The young Giraffe, a female born in June, was the fifth calf born to 'Grumpy', the matriarch of the herd.

In the Charles Clore Pavilion for Mammals the good results of the first year were more than met and there were several births, the most notable being Marmosets of four species, of which, sadly, only the White-fronted survive, Ring-tailed Lemurs, Slender Loris, Douroucouli, Silver-grey Phalanger and Crested Porcupine.

In other mammal houses notable births were a Barbary Ape, three Pig-tailed Macaques, a Chimpanzee, a litter of Crab-eating Foxes and, for the first time in many years, a Canadian Beaver.

Towards the end of the year the North Mammal House, one of the older houses in the North Gardens and due for demolition in the redevelopment plan, was cleared of its animals, mainly cats. Most of them were moved to the Lion House and the Cheetahs to the modified Dingo runs.

Apart from the classic example of the Giant Pandas and normal transfers between Regent's Park and Whipsnade, the pairing of animals with other zoos for breeding purposes was carried out where possible. A male Bobcat was sent to Twycross Zoo, a male puma to Dudley and a female Margay came to Regent's Park from Jersey Zoo.

The ban on feeding of the animals by the public came into effect at the beginning of 1968 and, in general, the public have responded in a most co-operative manner. Information was given through signs, the loud-speaker system and press publicity and, although there were always some who, either ignorantly or wilfully, disregarded the warning, the results, in terms of animal health and cleanliness in the animal houses, were most satisfactory.

Bird Section After the partial success in 1967 of hatching out two Princess Stephanie's Bird of Paradise chicks which, unfortunately, did not survive, complete success was achieved in 1968 when the chick hatched out in August was reared to independence.

A special achievement in the bird collection was the breeding of eight different species



Polar Bear 'Pipaluk' at six weeks old, London Zoo
The Zoological Society of London



'An-An' Giant Panda from Moscow Zoo, with Dr Kudryavtsev
Daily Sketch

or sub-species of owls, including a West African Wood Owl, a Magellan Eagle Owl and an Abyssinian Eagle Owl, all of which were believed to be the first of their kind to be bred in Britain.

Among eleven forms of birds new to the Collection (two genera, five species and four sub-species) were two Roadrunners (*Geococcyx californiana*) and a Spotted Morning Warbler (*Cichladusa guttata*).

The Snowdon Aviary has been one of the most popular features in the Gardens since its opening in 1965 and has attracted many millions of visitors. The general health and behaviour of the birds continues to be most satisfactory and Cattle Egrets, Night Herons, Sacred Ibises, Grey-headed Gallinules and Speckled Pigeons have been bred.

Aquarium The year was marked by the opening of the new amphibian section in the Aquarium. This provides excellent accommodation for these rather difficult animals and the records already show that there has been a marked improvement in the health of the stock.

The general efficiency of the Aquarium has benefited by the replacement of the refrigeration plant which keeps the circulating water cool during the warmer months of the year. As a result of this new installation the health of the coastal fishes has much improved.

The usual fishing trips by the staff as well as the collections received from Madeira and elsewhere have resulted in a very comprehensive stock list, amongst which nine King Crabs (*Limulus polyphemus*) from the U.S.A. are particularly interesting specimens.

Insect House A small termite colony has been received during the year and is now established and feeding on pine. This particular species, *Zootermopsis alvadensis*, comes from Oregon.

Breeding results during the past year have been well up to standard. In addition to locusts, spiders, butterflies and moths, leaf-insects and many species of unusual stick-insects have been bred in large numbers.

Reptile House As mentioned earlier the new Giant Tortoise enclosure was completed on the site of the old Frog Lobby, the amphibians having been transferred to the Aquarium. The enclosure, which has been very imaginatively planted by the Gardens staff, is now occupied by two Aldabra and seven Galapagos Tortoises which can, for the first time, be seen by visitors throughout the year.

A 21ft Reticulated Python, the largest snake to arrive for over 20 years, was purchased from Malaya and other interesting arrivals included two Schlegel's False Gharials and a Siamese Crocodile, all of which have settled down well.

The crocodile dens have been completely renovated and made more attractive, and six fibreglass isolation tanks have been adapted to serve as quarantine cages for new arrivals, particularly the venomous reptiles.

VETERINARY AND PATHOLOGY REPORTS

During the year the number of cases receiving veterinary attention, excluding routine new arrival screening, was 562 out of a total of 3,129 animals. Seventy new arrivals were screened in the Hospital and 16 animals passed through the Quarantine Section.

Arrangements have been made for all transfers of animals within the Gardens to be made *via* the Hospital. This gives an opportunity to examine the animals when in transit and to detect the presence of occult disease, while at the same time obviating the need for unnecessary handling and reducing the risk of introducing diseases into the new quarters.

A survey of canines in the Collection showed that their general health was good and there were no signs of faulty nutrition.

It is interesting to record that two operations on a Blesbok (*Damaliscus dorcas phillipsi*) for a severe chest injury were successful. After its recovery, the animal was sent to Whipsnade.

During the year 849 autopsies were made on animals which died in the Zoo, including new arrivals which were not acclimatized to captivity.

Bacteriological and parasitological examinations were made on 430 specimens, comprising 275 submitted by the Hospital, 50 from external sources and 105 specimens from Whipsnade.

There have been two suspected outbreaks of infectious disease in primates. Early in the year five marmosets and tamarins died and this was later followed by the loss of all but one of the breeding colony of Ring-tailed Lemurs (*Lemur catta*). In spite of intensive investigations the cause of these unfortunate losses was not ascertained, although in both outbreaks a virus was thought to be responsible.

Animals of all kinds (except fish and invertebrates) at the London Zoo

On 1st January 1968	3,244
Received in 1968 by presentation, exchange, deposit, purchase, and transfer from Whipsnade	955
Born and hatched in the Menagerie during 1968	398
	4,597
Died, sold, sent in exchange, returned to depositors, and transferred to Whipsnade	1,033
In the Gardens on 31st December 1968	3,564

Whipsnade Park

Visitors during the year 531,820
Visitors to the Children's Zoo 184,310
Cars brought into the Park 43,032

ORGANIZATION

Mr E. H. Tong retired as Director on October 31st having held the post since January 1947. Mr V. J. A. Manton, the Deputy Director and Veterinary Officer, was appointed in his place with the title of Curator, Whipsnade Park.

Some departmental responsibilities were re-allocated, the posts of Assistant Public Relations Officer and Assistant to the Director being abolished and replaced by a new post - that of Park Manager. Mr O. C. Chamberlain, previously Senior Overseer, was appointed to this post.

DEVELOPMENT

During the year the second stage of the redevelopment of the Cloisters Cafeteria complex was substantially completed. This included the provision of new stores, catering offices and cloakroom and rest room facilities for the staff. The construction of a new staff canteen was started in September and it is hoped that it will be finished by Easter 1969. The closure of the Park until mid-February caused considerable delay in building operations and, as a result, the Cloisters Cafeteria was not open to the public until well after the Spring Bank Holiday. The Avenue Cafe, which was being used temporarily for storage during building operations, was not open at all during the year. In order to provide some facilities for visitors during the peak Easter and Whitsun periods mobile refreshment services were set up by the Empire Catering Company.

The main developments in the Park itself were a new house and run for the now well-established Cheetah colony, and new quarters for the small but valuable Musk Ox herd. The building of a Chimpanzee exhibit was also started and it is hoped that it will prove a major attraction to visitors.

THE COLLECTION

The Government of Zambia most generously made good the loss of one of two young elephants which had been bought by the Society in 1967 by sending a new young animal, together with a companion which had been ordered separately. The two new animals arrived in October, making three African and one Indian in the stock of young elephants at Whipsnade at the end of the year. Unfortunately another young Indian Elephant which had been acquired in March as part of the re-stocking process, proved to be a weak specimen and died later in the year.

The litter of Cheetah cubs reared in 1967, the first to be born in Britain and one of the very few ever born in captivity, suffered a series of misfortunes. One of the three cubs died early in 1968. The other two were subsequently found to be weak in the hindquarters, possibly due to a calcium deficiency, and had to be sent to the Hospital at Regent's Park for tests and general care. The one male recovered but the female made no progress. Happily, however, the Cheetahs 'Juanita' and 'Jack', who produced the first litter in 1967, had three more cubs, again a male and two females, in July. Lessons learned from the feeding of the first litter were applied and the new cubs appear to be very healthy.

The rare European Bison herd has gone from strength to strength, increasing its number to eleven with the births of four calves during 1968.

Important births included Brown Bears, Pere David's Deer, a Bactrian Camel, an Arabian Camel, Przewalski Wild Horses, Thomson's Gazelles and White-bearded Gnu. Herds of Impala, Sitatunga and Brindled Gnu arrived in September after being in urban confinement at Chester. One calf was born to each group after it arrived at Whipsnade; a young Impala had also been born while the herd was still at Chester.

A group of young tigers, two females and a male, were bought to replace the former breeding pair broken up by the death of the female. A pair of Spectacled Bears were transferred from Regent's Park in the hope that they will breed at Whipsnade and eventually replace Brown Bears as the main bear exhibit.

VETERINARY REPORT

The health of the animals has been maintained at a satisfactory level and undoubtedly the continued regular use of anthelmintics is an important factor in achieving this. The Cap-Chur Gun has increasingly been used to administer tranquillizing agents when it has been necessary to transfer mammals from one paddock to another, and when carrying out minor surgical procedures. Further studies have been made on the use of Etorphine hydrochloride and Cyprenorphine hydrochloride as sedative agents in a variety of Ungulates.

Mr Martin Senior (Consulting Veterinary Surgeon) and Mr V. J. A. Manton carried out 427 autopsies; 163 on birds and 264 on mammals.

GENE BANK

In the light of discussions held with various organisations interested in the development of the sheep flocks in the Gene Bank, the Council decided to transfer part of the flocks to the Department of Agriculture, Reading University (Professor J. C. Bowman) and the remainder to the National Agricultural Centre (Royal Agricultural Society).

The flocks sent to Reading were:

3 male	11 female	Hirta Soay Sheep
1 male	9 female	Cotswold Sheep
1 male	11 female	Portland Sheep

and to the National Agricultural Centre:

1 male	12 female	Woodland White-faced Sheep
1 male	21 female	Lincoln Longwool Sheep
5 male	8 female	Norfolk-horned Sheep
	3 female	Pure bred Suffolk Sheep
	6 female	Norfolk × Suffolk Sheep
4 male	3 female	Manx Loghtan Sheep

The cattle herds retained are:

Longhorn Cattle	27
Chartley Cattle	18

Animals of all kinds (except fish and invertebrates) at Whipsnade Park

On 1st January 1968	2,105
Received in 1968 by presentation, exchange, deposit, purchase, and transfer from Regent's Park	161
Born and hatched in the Park during 1968	487
	2,753
Died, sold, sent in exchange, returned to depositors, and transferred to Regent's Park	588
In the Park on 31st December 1968	2,165

Scientific Activities

SCIENTIFIC MEETINGS

Many of the papers given at the eight meetings held during the year have been published in the *Journal of Zoology*. The following contributions were among the many interesting items which were not intended for publication: Reproductive patterns and gonads of some wild and captive toothed whales (Odontoceti) by Professor R. J. Harrison; histological and ultrastructural characteristics of the dolphin stomach by Professor F. R. Johnson and Professor R. J. Harrison; poisonous butterflies and moths by the Hon Miriam Rothschild; Mr J. Lucas spoke on the birds of west Antarctica and Miss J. King on seals in Australia. A film on tropical plankton was shown by Dr J. E. Paling and Mr P. D. Parks; Dr Barbara Weir gave an account of breeding hystricomorph rodents in captivity and Dr J. D. Pye of recording bat sounds in East Africa.

SYMPOSIA

The following Symposia were held:

May 9th/10th 'Diseases in free-living wild animals' organized by Dr A. McDiarmid.

September 10th/11th 'The biology of the Porifera' organized by Mr W. G. Fry.

PUBLICATIONS

Journal of Zoology

Transactions

Symposia series

Zoological Record

Nomenclator Zoologicus

Editor: Dr H. G. Vevers

Assistant Editor: Miss M. A. Edwards

The agreement made in 1965 by which the *Journal of Zoology*, the *Transactions* and *Symposia* series are published jointly with Academic Press Inc. (London) Ltd was renewed for a further four years.

Journal of Zoology Volumes 154, 155 and 156 were published. The number of papers submitted for publication continues to increase and the Council wishes to record its

gratitude to all those individuals who so willingly act as referees thus ensuring that a high standard of contributions is maintained.

Transactions Two parts were published. Volume 31 part 3 'Taxonomy of *Meloidogyne* (Nematodea: Heteroderidae) with descriptions of four new species', by A. G. Whitehead and Volume 31 part 4 'A taxonomic revision of the genus *Ditrigona* (Lepidoptera: Drepanidae: Drepaninae)', by Christopher Wilkinson.

Symposia The following volumes were published: Number 21 'Comparative nutrition of wild animals', edited by Dr M. A. Crawford. Number 22 'Studies in the structure, physiology and ecology of molluscs', edited by Dr Vera Fretter. Number 23 'Invertebrate receptors', edited by Dr J. D. Carthy and the late Professor G. E. Newell.

Zoological Record Nineteen sections of Volume 102 (recording the literature for 1965) have been published.

Eight sections of Volume 103 have been published and eight sections are in the press.

In the smaller sections the amount of literature to be dealt with remains more or less constant, but the number of papers recorded in the sections dealing with the larger animal groups shows an annual increase of about 10 per cent. In an attempt to keep pace with this increase and to reduce the delay in compilation the number of recorders has been increased, and a Managing Recorder has been appointed to organize the work of the recording team and to investigate the application of modern methods of information retrieval.

The Council wishes to thank the Director and Librarian of the British Museum (Natural History) who kindly made space available to accommodate the increased number of full-time Recorders; the Recorders and Searchers who compile the *Record* and also all those whose donations to the Zoological Record Fund are listed in Appendix 7.

International Zoo Yearbook

Editor: Mr J. Lucas

Advisory Editor: Dr H. G. Vevers

Of the 866 zoos known to the *Yearbook* 526 returned the annual questionnaire. Many also completed breeding lists and the rare animal census; and articles, notes and records have been prepared by Zoos throughout the world.

Volume 9 has been published and the contents follow the established pattern: Section 1 consists of 37 papers on reptiles and amphibians in captivity, including a paper by M. Peaker on some aspects of the thermal requirements of reptiles in captivity; articles on the breeding of the Madagascan Tortoise *Testudo radiata* at Sydney Zoo by U. Peters and the breeding of the Galapagos Tortoise *Testudo elephantopus* at Honolulu Zoo by J. L. Throp; and observations on the breeding of the Rhinoceros Iguana *Cyclura cornuta cornuta* at San Diego Zoo by C. E. Shaw.

Section 2 contains 71 papers and notes on many aspects of zoo management, such as Architecture and Building, Breeding, Conservation, Education, Husbandry and Research, and Zoos.

Section 3, the reference section, was slightly altered in this volume to obviate the

repetition year by year of the list of 'Zoos and Aquaria of the World'. In future the full list will be printed only in alternate years and in Volume 9 only those zoos which have come to our notice since the preparation of Volume 8, or which require substantial alterations to their entries, have been included. In the years when the full list does not appear reprints of the previous year's list will be available to new subscribers. Details of zoo associations and federations; lists of species of wild vertebrates bred in captivity in 1967; a census of rare wild animals in captivity in 1968; and studbooks for rare mammal species continue to be included. The special feature of the reference section is a Guide to the study of wild animals in captivity, with an appendix on the preparation of basic zoo records.

LIBRARY

In 1964 the Wolfson Foundation gave the Society £100,000, this sum then being the estimated cost of altering the main office building and extending it to provide a national Centre for conservation organizations. The modernization of the Library which was the first step in this programme was completed in 1967, but unfortunately a licence to proceed with the rest of the plan has not yet been granted. In recognition of the help received from the Wolfson Foundation the Library has been named the Wolfson Library.

The grant of £5,000 from the Wellcome Trust mentioned on page 12, is being used to meet part of the cost of improving the book store, the purchase of equipment and the salaries of a cataloguer and typist to undertake the classification and recataloguing of the Library.

During the year 6,254 parts of 1,155 journals were added to the Library's stock. There was a steady increase in the use of the Library both by the Fellows and Associates of the Society and by the staff of our own research institutes and other scientific departments. The new Reading Room provides excellent facilities for working in the Library and the photocopying and postal loan services are much appreciated.

The Library has played an increasing part in the national library service more books and journals being sent on loan to other Libraries, and students from various library schools have visited the Library to gain experience of the procedures.

West African Wood Owl hatched in
the London Zoo, June 1968
The Zoological Society of London



Princess Stephanie's Birds of Paradise.
Chick hatched in the London Zoo,
September 1968
The Zoological Society of London





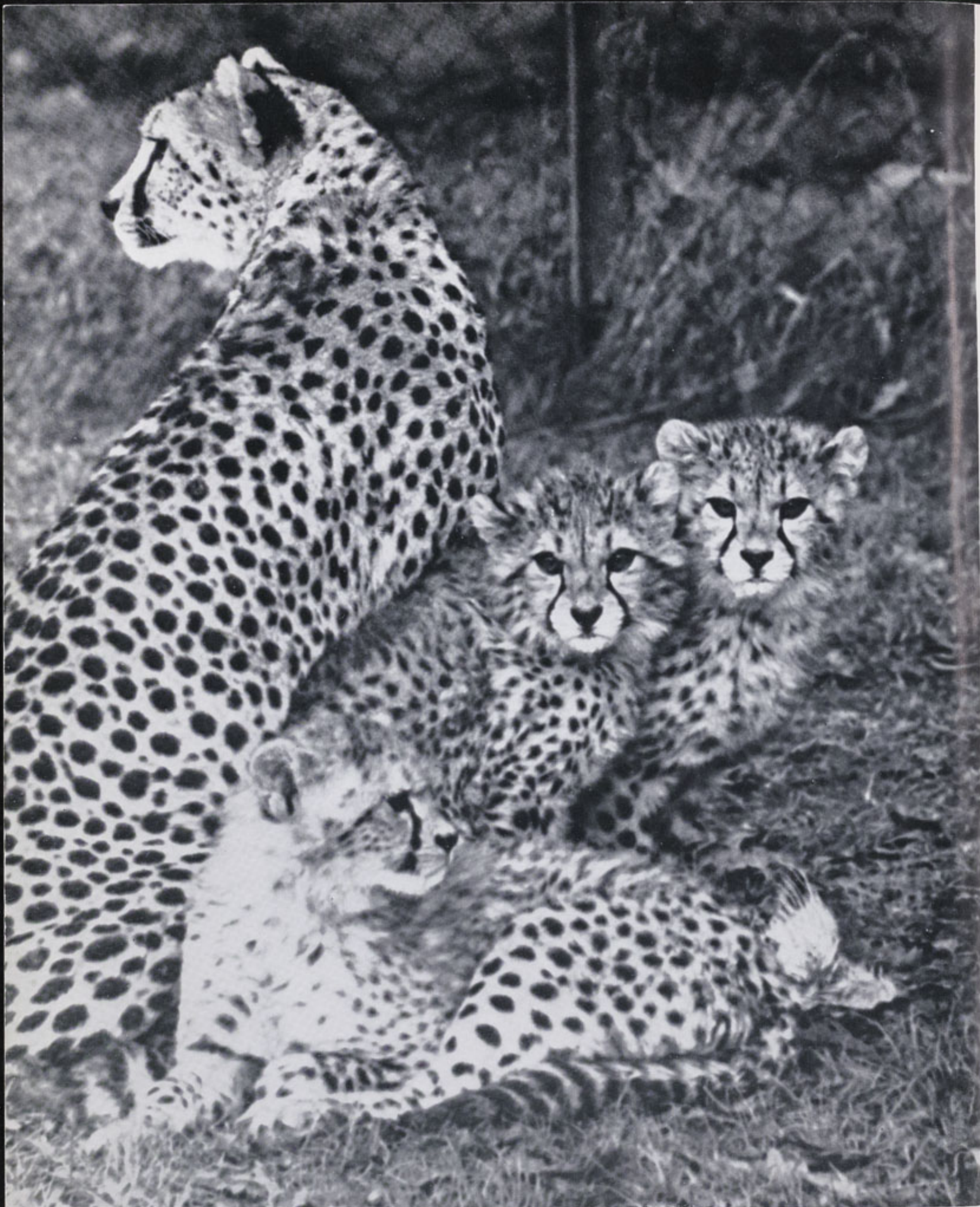
Elephants 'Peary', 'Valli',
'Kumara' and 'Katie',
Whipsnade Park
*The Zoological Society of
London*



European Bison,
Whipsnade Park
*The Zoological Society of
London*



Black Swans, Whipsnade Park
W. G. Vanderson, Fox Photos Ltd



Cheetah cubs six months old. Born July 1968. Whipsnade Park
Associated Press Ltd

Research

Dr H. G. Vevers has continued to work in collaboration with Professor N. Millott on the axial organ of echinoids.

THE NUFFIELD INSTITUTE OF COMPARATIVE MEDICINE Staff

Director: L. G. Goodwin, MB, BSc, MRCP, BPharm, BSc. *Biochemistry*: M. A. Crawford, PhD. *Infectious Diseases*: G. R. Smith, PhD, MRCVS, DVSM, DipBact. *Pathology*: R. N. Fiennes, MA, MRCVS. *Research Assistant Infectious Diseases*: D. E. Bidwell, BSc. *Laboratory Superintendent*: P. R. E. Wallace, FIST. *Administrative Assistant*: Miss P. E. Wright. *Visiting Graduates*: P. A. J. Ball, MD, MRCP; E. P. G. H. du Boulay, MB, BSc, DMRD, FFR; T. Cartwright, PhD; Miss M. M. Gale, BSc, DipEd; Miss C. M. Hawkey, PhD; R. T. Herbert, BSc; D. Reichl, IngChem, DrChem, CSc, Dozent (Prague); A. Voller, PhD; H. P. Voorheis, BA(ChemHons), MDMichigan, DCMTLondon; D. B. Yates, BPharm, MSc; A. S. Young, BSc; D. A. B. Young, MA, DPhil; Mrs R. J. Zalin, BSc.

There were 48 staff members of the Institute, of whom 12 were visiting graduates supported by grants, the total amount received in grants and donations in 1968 being £71,000.

Mr R. N. Fiennes was released to accept an invitation to work at the Primate Research Center, Covington, Louisiana for one year.

Dr M. A. Crawford visited Uganda with Professor A. T. Phillipson of the School of Veterinary Medicine, Cambridge, to investigate the possibility of a research project on game animals under the auspices of the International Biological Programme.

Dr C. M. Hawkey made a collection of vampire bats in Trinidad.

Mr A. S. Young is working in Tanzania with the Serengeti Research Project, studying blood parasites in wild animals.

Mr R. T. Herbert, Dr H. P. Voorheis and Dr D. Reichl joined the Biochemistry Department, supported by the Universities Federation for Animal Welfare, the Ministry of Overseas Development and the Medical Research Council respectively.

Miss C. Armstrong, Miss H. Henstall, Dr J. J. McCormack Jr, Dr B. Gooneratne and Mr J. Wandless have also been guest workers at the Institute during the year.

Dr G. H. du Boulay has received a grant from the Wellcome Trust to support studies

of the cerebral circulation and will work in collaboration with Dr Lindsay Symon, the National Hospital, Queen Square.

Dr D. A. B. Young, Locke Research Fellow of the Royal Society, has joined the Institute to work on insulin and insulin inhibition.

Mr P. F. L. Boreham (University of London) and Mr T. Cartwright (University of Birmingham) were awarded PhD degrees.

Research projects In 1967 Council prepared a full report on the research being undertaken by the Society and it has been decided to produce such a report every two years. The following research projects are therefore only given in outline.

Mr R. N. Fiennes, in collaboration with Dr du Boulay, Dr R. O. Murray, Dr H. A. Sissons and Mr J. M. Hime, made further studies of normal and diseased skeletal material from primates. Mr R. T. Herbert is investigating some biochemical aspects of bone disease.

Dr C. M. Hawkey and Miss S. V. M. Hook are preparing a handbook on the coagulation and fibrinolytic factors and the blood pictures of exotic animals; investigations of platelets and thrombocytes, using stereoscan electron microscopy, have been made in collaboration with Dr J. Clarke (St Bartholomew's Hospital Medical College). Further work has been carried out on an enzyme that reverses platelet aggregation and Dr Cartwright has separated and purified the plasminogen activators of vampire bat saliva and of salivary glands. It is possible that Hawkey and Cartwright's work on plasminogen activators may lead to improvements in the treatment of human thrombotic disease.

Dr G. R. Smith has studied vaccination against Mycoplasma infections, Dr P. A. J. Ball and Miss A. Bartlett have continued their work on nematodes and Mr D. E. Bidwell has correlated titres of non-specific inhibitors of arbovirus haemagglutination in serum with the concentration of low-density lipoprotein.

Dr A. Voller has collaborated with the World Health Organization in population surveys of malarial antibody and has studied immunity in simian malaria infections.

Dr J. J. Jaffe, Dr J. J. McCormack Jr, Dr H. P. Voorheis, Mr D. B. Yates and Dr L. G. Goodwin have investigated various aspects of the biochemistry and pathology of trypanosome infections.

Dr M. A. Crawford, Miss M. M. Gale and Mrs R. J. Zalin have continued their work on comparative nutritional problems; Dr Crawford has found differences in tissue unsaturated fatty acids between wild animals free to select their own food in Africa and domestic and captive species.

Dr G. H. du Boulay and Miss P. Verity, in collaboration with Mr R. N. Fiennes and other workers, have made further studies on the posterior vena cava, the cerebral circulation and cerebrospinal fluid pulsation by radiological techniques.

The Wellcome Radiology Museum now contains a collection of over 2,000 radiographic examinations of normal and diseased animals.

THE WELLCOME INSTITUTE OF COMPARATIVE PHYSIOLOGY Staff

Senior Research Fellow: I. W. Rowlands, PhD. *Research Fellows*: W. H. Tam, PhD; Miss B. J. Weir, MA, PhD; Russell C. Jones, PhD. *Research Student*: H. R. H. Tripp,

BA, MSc. *Research Assistants*: Miss D. Kleiman, BSc; R. R. Coutts, BSc; P. A. Racey, BA. *Senior Technician*: G. Nevill.

The Ford Foundation approved the transfer to the Society of part of the grant which they had previously allocated to the University of Birmingham to support a programme of research in reproductive physiology under the supervision of Sir Solly Zuckerman. Under the terms of the transfer the money was allocated to support and extend the existing research programme of the Institute and, in November, Dr Russell Jones was appointed to a Fellowship. He will extend the investigations which had previously been made at the Institute on the effect of freezing on the fine structure of spermatozoa of certain mammals.

Accommodation for 6 months was given to Mr Clive Spinage (Science Research Council Student) on his return from East Africa to complete his PhD thesis on reproduction in the Waterbuck.

Mr P. A. Racey was accepted as an Internal Student of London University in preparation for a higher degree.

Research projects Dr Rowlands and Mr Coutts have completed a study of the reproductive cycle of the Skomer Vole. In collaboration with Dr Tam further investigations have been made on the control of progesterone secretion in the guinea-pig and, with Miss Kleiman, the rate of secretion of this sex hormone is being correlated with a histological study of the ovary of the Acouchi during pregnancy. Various aspects of the physiology of reproduction in the Chinchilla have been studied by Dr Weir who has also obtained much information on the breeding of several species of hystricomorph rodents trapped in Argentina in 1967. The fertility of one of these, the Tuco-tuco, has been very low and seems to be associated with the development of many symptoms characteristic of diabetes in man; the condition is being investigated with Mr J. M. Hime (Veterinary Officer) and Dr P. Wise (Guy's Hospital Medical School).

Dr Tam is studying the bio-synthesis of adrenocortical and androgenic hormones in the Acouchi and, with Mr Racey, androgen secretion in hibernating male bats. Mr Tripp has obtained some breeding success with one species of Elephant Shrew (*Elephantulus intufi*) when kept in a near-normal habitat, and he has induced ovulation in *E. myurus*. A supply of another species (*E. rozeti*) was obtained recently. Mr Coutts procured further supplies of live stoats, including some complete litters of very young animals. The females of these litters were found to contain unimplanted blastocysts at a time when sibling males were sexually immature. Breeding has not occurred in the laboratory. Mr Coutts has added several valuable specimens to the Reference Collection of Reproductive Organs.

Miss Kleiman has completed her study of reproductive behaviour in the Acouchi and, with Mr Racey, has provided much information on the breeding of bats in captivity. Mr Racey is investigating many aspects of the reproductive cycle of British bats, particularly those relating to the survival of spermatozoa in the uterus during hibernation, and the control of the period of gestation.

Educational Activities

EDUCATION PROGRAMME FOR SCHOOLS

Over the years the number of pupils attending the lecture-demonstrations has increased steadily. The increase was maintained in 1968, the total being 7 per cent higher than in 1967. The figures were:

Regent's Park	- Spring Term (Secondary Schools)	14,860
	Summer Term (Primary Schools)	20,669
	Autumn Term (Secondary Schools)	15,411
Whipsnade Park - Summer Term (Secondary Schools)		2,618
		53,558

The record number of 5,927 sixth form pupils attended the 'A' level lecture-demonstrations which form part of the programme.

OTHER COURSES

Once again two successful courses for university students of zoology were held and the Council is most grateful to the professional zoologists who regularly give up their own time to conduct these courses.

An increasingly heavy demand for the provision of special demonstrations for students from universities, colleges of education and technical colleges was met by the staff of the department, who also undertook the training of the Society's menagerie staff in connection with the new arrangements mentioned on page 31.

YOUNG ZOOLOGISTS' CLUB

Club activities throughout the year have been well supported. Four film shows were held at London Zoo, and Zoo questionnaires were held both at the London Zoo and, for the first time, at Whipsnade Park. In May a party of 85 members visited Twycross Zoo in Leicestershire where they were most hospitably welcomed by the Directors and staff.

The special Christmas talk in January was given by Mr Peter Scott, who was received very enthusiastically by his audience. Mr Scott spoke about the work of the Wildfowl Trust and the importance of animal conservation. At another meeting Mr Jeremy Lingard described his experiences of keeping several British mammals and other animals, and brought to the meeting some of his pets and animals from the Verulamium Wildlife Zoo.

Three issues of 'Zoo Magazine', which contained contributions from Club members and three issues of the 'Zoo News Extra' broadsheet were published.

Plans are well under way for a two week 'Safari' holiday in East Africa for a party of some 80 XYZ Club members in the summer of 1969. Accompanied by members of the Society's staff, and by Messrs John and George Newmark, the party will visit Nairobi and Mombasa, and a number of Game Parks including Lake Manyara, the Ngorongoro Crater and Tsavo.

The Council would like to thank the many Members and friends of the Society who have helped and encouraged the Club during the year.

CHRISTMAS LECTURES

Three meetings were held immediately after Christmas for the children and young friends of Members of the Society. Mr Clifford Owen gave an illustrated talk on 'William the Conqueror and his Ferrets', Mr David Stanbury gave a talk on 'Expedition to the Galapagos Islands' which he illustrated with his own film and, at the third meeting, the film 'The African Lion' was shown. These meetings were greatly appreciated.

Staff

During the year Mr J. M. Hime, the Veterinary Officer, obtained a Diploma in Veterinary Radiology.

At the end of the year the permanent staff of the Society totalled 602, eleven fewer than at the end of 1967. A list of senior members of the staff is given in Appendix 3.

RETIREMENTS AND RESIGNATIONS

As mentioned earlier Mr E. H. Tong, Director of Whipsnade Park, retired on 31st October after nearly 22 years' service.

Other retirements included Mr A. J. Lanworn, Herpetologist; Mr F. J. Myers, Clerk of Works; Mr H. Corbett, Senior Laboratory Technician, Pathology Laboratory; Mr J. C. Alldis, Senior Head Keeper, North Mammal House; Mr C. Wheatley, Foreman Gardener and Mr A. F. Meakins, Head Keeper, Carnivore Section, Whipsnade Park, all of whom had served for 40 years or more. Mr C. Ansell, Head Gatekeeper, also retired and Mr E. D. Day, Assistant to the Director, Whipsnade Park, retired when the post was abolished in November.

Regent's Park appointments and promotions

Mr L. G. Taverner *Building Manager*

Mr P. E. Fisher *Staff Manager and Training Officer, Catering Department*

Mr N. Chiswell Jones *Publicity Liaison Officer*

Mr A. Garstin *Assistant Manager (Café group), Catering Department*

Whipsnade Park appointments and promotions

Mr V. J. A. Manton *Curator*

Mr O. C. Chamberlain *Park Manager*

Mr F. L. Gladman *Senior Overseer*

Mr G. C. Stanbridge *Overseer*

TRAINING

In 1958 the Society instituted an internal Diploma of Animal Care and Husbandry for which all the keeper staff were encouraged to work, but promotion was not made dependent on success in the examination. As a further step in improving the training and the career prospects of the keeper staff, it has been agreed with both the Trade Union concerned and the Staff Association that helpers will in future qualify as Keepers by examination. Further promotion will be dependent on the attainment of additional qualifications as well as length of service. At the same time a new wage structure was introduced. This is based on a gradual reduction in the number of keepers, which will be achieved by the reorganization of certain sections in Regent's Park, and an improvement in the wage scales of the new grades of Head Keeper, Senior Keeper and Qualified Keeper.

The agreement, which will be implemented over two years, has been approved by the Department of Employment and Productivity.

Three members of the Society's staff – Head Keepers A. E. Scrivener and D. J. Ball, and Hospital Technician H. Senior – qualified for the Associateship of the Institute of Animal Technicians. Mr A. Fitzgerald qualified as a Registered Animal Nursing Auxiliary under the rules of the Royal College of Veterinary Surgeons.

Catering Department The training scheme started last year for training the catering staff at Regent's Park and Whipsnade has made good progress and, since the appointment of Mr P. E. Fisher to the post of Staff Manager and Training Officer, many courses – both external and internal – have been arranged.

MEDALS AND AWARDS

The Society's Bronze Medal was awarded to Mr L. R. F. Spanner, Chef de Cuisine, for meritorious service over 30 years, and to Mr F. L. Gladman, Overseer, Whipsnade Park, also for long and meritorious service.

In the Catering Department, Mr W. N. Hill, General Manager, Catering, was elected National Vice-Chairman of the Cookery and Food Association and was also awarded a trophy and Diploma d'Honneur for his services to the Salon Culinaire at the International Hotel and Catering Exhibition at Olympia in January 1968. The cooks in the Restaurant kitchens entered the culinary competitions staged at this exhibition and gained four awards:

Mr L. R. F. Spanner, Chef de Cuisine – a Silver Medal

Mr E. Brauer, Sous Chef – Silver Challenge Cup and Gold Medal

Mr F. Clark, Chef Patissier – Bronze Medal

The Restaurant was also awarded a plaque for the restaurant menu which was one of 50 chosen for display during the Exhibition.

Acknowledgments

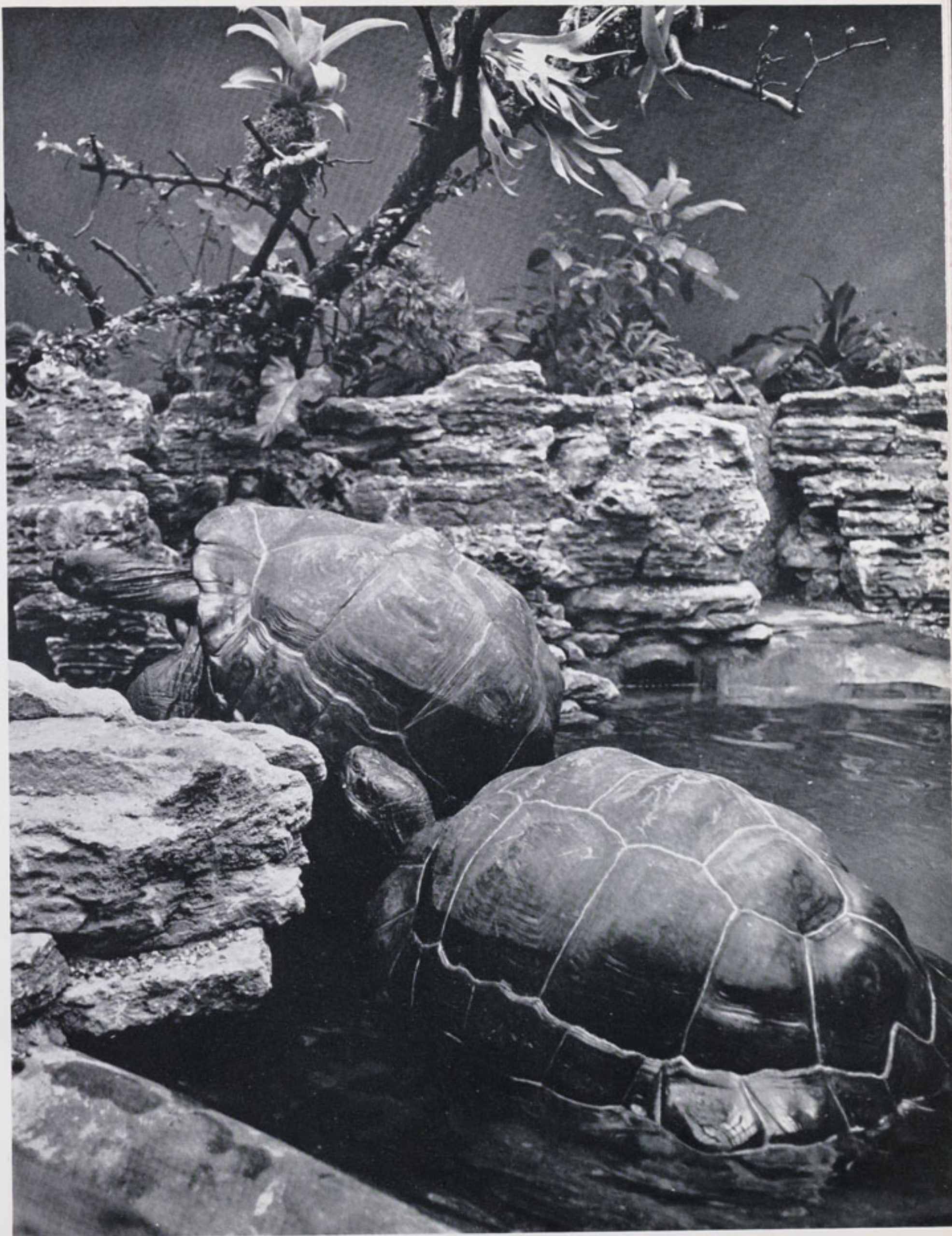
The Council records its gratitude for the invaluable assistance given by the members of its committees, whose expert advice is of great assistance.

The Council is also grateful to Press representatives and photographers for their co-operation and interest in the Collection and in the activities of the Society, and to Mr Gordon Fraser for his co-operation and advice in the production of the Society's Christmas card.

The Society is indebted to the many Fellows and others who have sent specimens for the Collection both at Regent's Park and Whipsnade. The gifts are recorded in Appendix 6. Many other interesting animals have been received in exchange from zoological societies and institutions. The Council is grateful for their valuable co-operation, and also acknowledges the assistance of Dr G. Corbet and Mr J. E. Hill of the British Museum (Natural History) who, on a number of occasions, have been extremely helpful with the identification of new arrivals.

Senhora Hermione Blandy de Freitas Martins and Senhor Joao de Freitas Martins of Madeira, a Corresponding Member of the Society, have continued to take a lively interest in the Aquarium and have sent valuable collections of marine animals. Dr M. E. Coates has given very generous help in the setting up of a successful exhibition of hatching Japanese Quail in the Children's Zoo.

The Council is grateful to the many people and firms who have given valuable assistance to the Veterinary Officer and to the Pathologist and is particularly grateful to Dr J. K. A. Beverley, Department of Medical Microbiology, University of Sheffield and Dr R. O. Murray, Consultant Radiologist, Institute of Orthopaedics, University of London; Dr Joan Taylor and Dr K. P. Carpenter, Public Health Laboratory Service, the Salmonella Reference Laboratory for *Salmonella* and other bacterial identifications; Messrs P. K. C. Austwick, G. Peppin and J. Thompson for help with the identification of fungi; and Mr B. S. Hanson, also of the Central Veterinary Laboratory, Weybridge for psittacosis diagnosis. Professor J. J. Buckley and Professor G. Nelson, for identification of helminths, Professor P. C. C. Garnham, CMG, FRS, and Dr R. S. Bray, the London School of Hygiene and Tropical Medicine, for assistance in identifying protozoa and Dr B. R. Laurence and Dr M. G. R. Varma also of the London School of Hygiene



New enclosure for Giant Tortoise. London Zoo
The Zoological Society of London



Pig-tailed Macaques. Young born August 1968. London Zoo
The Zoological Society of London

and Tropical Medicine for identification of arthropod parasites, Dr T. Clay, British Museum (Natural History), who helped with the identification of arthropod parasites, Dr E. C. Appleby, Professor E. Cotchin both of the Royal Veterinary College, Dr R. Finlayson, The Royal College of Surgeons of England, Dr J. W. Landells, The London Hospital, Dr P. Wise, Guy's Hospital Medical School, and Dr M. J. Mitchinson, University of Cambridge who helped in various ways with histopathology. Dr D. I. H. Simpson, Microbiological Research Establishment, Ministry of Defence, Porton Down, who has assisted with virus isolation from various primates. Dr Deans Rankin, Agricultural Research Council, Compton, who undertook to investigate *Mycobacterium* spp. isolated from amphibia.

Grateful acknowledgment is made to the many organizations that have given assistance to the Nuffield Institute of Comparative Medicine, especially the Medical Research Council, the Wellcome Trust, the Nuffield Foundation, the Ministry of Overseas Development, the National Research Development Corporation, the Universities Federation for Animal Welfare, the World Health Organization and A. Wander Ltd who have provided grants for the research projects.

In addition, the Institute is indebted to Dr R. Finlayson, Dr C. Symons, Dr H. A. Sissons, Professor A. T. Phillipson and Dr C. R. Spittle for their continued advice and help with research matters. The staff is also grateful to the Tropical Diseases Hospital for provision of blood samples for malaria studies, Mr R. Killick Kendrick of the London School of Hygiene and Tropical Medicine for provision of protozoal strains and assistance with histology, the Radcliffe Infirmary, Great Ormond Street and Royal Free Hospitals for blood and plasma samples for cardiovascular studies, New End, St George's and the London Hospitals for co-operation with haematological and biochemical tests, the Uganda Game Department and Nuffield Unit of Tropical Animal Ecology for assistance in the collection of material from wild animals, the laboratories of the Government Chemists for help and advice with the analysis of fatty acids, Dr J. L. H. O'Riordan of the Middlesex Hospital for help with parathyroid hormone assays, Mr J. Currie and Miss T. Bostick of St Bartholomew's Hospital for help and advice with ventriculograms, Professor A. L. Stalker of Aberdeen University for help with microcirculatory techniques, Mr C. Weller of the MRC Laboratories, Hampstead, for the loan of equipment for telemetric recording of temperature, Mr M. Hardy of Reading University and Mr R. Lornegaard of the University of the West Indies for assistance in obtaining vampire bats in Trinidad. They are also grateful for gifts of chemicals, especially to Dr R. W. Hubbard of the USA Environmental Medicine Research Institute, Natick Massachusetts, for a generous supply of collagenase for biochemical studies, to Kabi Pharmaceuticals for supplies of streptokinase and plasma fractions, to Dr M. E. Mackay of the Lister Institute, Elstree, for a generous supply of human plasma fraction III for the preparation of pure plasminogen, and to T. Wall & Sons Ltd for supplies of pig salivary glands.

The generous assistance given by various organizations to provide additional scientific equipment at the Wellcome Institute of Comparative Physiology is gratefully acknowledged. A grant from the Wellcome Trust has enabled the purchase of a Zeiss Ultraphot microscope; grants from the Pig Industry Development Association (now Meat and Livestock Commission), and Unilever Research Laboratory, together with a further

contribution from the Wellcome Trust have made possible the purchase and installation of an ultramicrotome.

Supplies of Chinchilla for reproductive studies received from the Chinchilla Fur-Breeders Association and the Royal Veterinary College, London, are also gratefully acknowledged.

The Council is also greatly indebted to the World Health Organization for its continued support of the investigations into reproductive physiology made at the Wellcome Institute of Comparative Physiology.

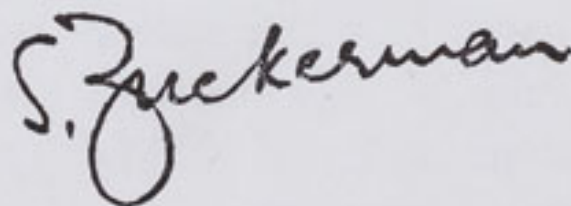
The Council is grateful for assistance at Whipsnade Park from Mr J. E. N. Sloan of the Cooper Technical Bureau; the Ministry of Agriculture, Fisheries and Food at Weybridge, Tolworth and Bedford; the British Red Cross Society for undertaking relief First Aid arrangements and the Board of Trade and HM Customs and Excise for their co-operation in arranging certain complicated imports and exports.

The Council is grateful to Messrs Harrison Barber & Co. Ltd, for their invaluable assistance in ensuring meat supplies during the difficult period of the foot and mouth epidemic.

Shipping and transport assistance has been given at Regent's Park and Whipsnade by the following: Air Ceylon; Air France; Air India; Antwerp-Thames Line; British Air Ferries; British European Airways; British India Steam Navigation Co. Ltd; British Overseas Airways Corpn; British Rail; British United Airways; East African Airways; KLM Royal Dutch Airlines; London Transport Executive; Lufthansa German Airlines; General Steam Navigation; J. F. Obree & Sons Ltd; Pan American World Airways; Port Lines; Qantas Airways; Sabena Belgian Airlines; Shaw Savill Line; South African Airways; Swissair; Trans World Airlines; United Shipping Co. Ltd; Union-Castle Line.

Special reference must be made to the generous help given by BEA in arranging the transportation of the Russian Giant Panda 'An-An' from Moscow to London, and also to British United Airways for their generosity and assistance in the transportation of an African Elephant from Kenya and a pair of Jaguars from Brazil.

The Council is grateful to the Rt Hon The Earl of Leicester for his kindness in continuing to provide evergreen oak for the Giraffes. Thanks are also due to Mr Barry Hilton, the Polkerris Boy Scout Troop, and Mr T. P. Vandeleur, JP for their assistance in providing a regular supply of bamboo for 'Chi-Chi' the Giant Panda.



SECRETARY

Regulations

Amendments to the Regulations were made by the Council pursuant to the power granted in Article 8 of the Charter, as follows:

Regulation 5 Admission of Honorary Fellows

Eminent and distinguished persons may be admitted by the Council under the following designations:

(i) *Honorary Fellows*

Eminent persons who have distinguished themselves as zoologists or who have in other ways promoted the objects of the Society may be admitted by the Council under the title of Honorary Fellows. They shall not at any one time exceed 25 in number.

In addition the principal officers for the time being of the following Societies shall be Honorary Fellows *ex officio*:

The Royal Society	President
The Linnean Society	President
The Geological Society	President
The Royal Horticultural Society	President
The Royal Geographical Society	President
The Royal Institution	President
The Royal College of Physicians of London	President
The Royal College of Surgeons of England	President
The Royal College of Veterinary Surgeons	President
The Royal College of Obstetricians and Gynaecologists	President
The Royal Entomological Society	President
The Royal Society of Edinburgh	President
The Palaeontographical Society	President
The Ray Society	President
The Royal Academy	President
The Royal Veterinary College	Principal
The Hudson's Bay Company	Governor

(ii) Deleted.

Regulation 8

'When an Ordinary Fellow or Associate is elected on or after 1st October in any year his subscription for that year shall be remitted.'

Committees 1968-1969

Gardens and Park Committee

Terms of reference: To consider matters relating to the layout, appearance, animal housing, and amenities other than catering, of the Society's Gardens, Regent's Park, and Whipsnade Park; to consult where necessary with other committees and to report to Council so that the advice of the Committee can be taken into account in planning future maintenance and development.

Members of Committee:

The Earl of Cranbrook, CBE, MA, *Treas LS, Chairman*
Sir Dudley Forwood, Bt
C. J. Harris
A. M. Hassell
S. Wilson Kitchen
The Earl of Mansfield
Mrs. R. Maudling
The Hon. Ivor Montagu
Geoffrey Schomberg, FLS
Peter Scott, CBE, DSC
Lady Daphne Straight
The Marquess of Tavistock
Lælia, Duchess of Westminster
The Marquess of Willingdon
Secretary: C. G. C. Rawlins, OBE, DFC

Animal Welfare and Husbandry Committee

Terms of reference: To advise Council on matters relating to animal welfare and husbandry both in the Collections at Regent's Park and Whipsnade Park, particularly in relation to the work of the Society's Veterinary Officers and Pathologist.

Members of Committee:

M. Crawford, MRCVS
Professor D. V. Davies, MA, MB, BS
Cecil A. Hoare, DSc, FRS
J. W. Landells, MA, MRCP
W. Lane-Petter, MA, MB, BChir, FIBiol
N. W. Pirie, MA, FRS
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Sir John Ritchie, CB, FRCVS *Chairman*
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H. V. Thompson, BSc, FIBiol
Professor W. H. Thorpe, FRS
W. L. Whitehouse, RD, MB, FRCS, MRCOG
Secretary: M. R. Brambell, MA, PhD, MRCVS

Breeding Policy Committee

Terms of reference: To report on the breeding records of animals in the Society's Collections and to make recommendations about any measures whereby the breeding of rare and other animals can be improved, and to advise Council on all matters relating to breeding research, including the appointment of research staff at the Wellcome Institute of Comparative Physiology.

Members of Committee:

Professor W. S. Bullough, DSc
Professor J. M. Dodd, BSc, PhD
J. F. D. Frazer, DM
Professor R. J. Harrison, MA, DSc, MD, BCh
Professor H. R. Hewer, OBE, MSc, ARCS
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Committee of the Nuffield Institute of Comparative Medicine

Terms of reference: To advise on all matters relating to research in comparative medicine; to receive and approve the Director's Annual Report to Council and the Statement of Accounts; and to advise on the appointment of research staff.

Members of Committee:

Professor M. Abercrombie, FRS
Professor A. O. Betts, MA, PhD, MRCVS
Professor W. I. B. Beveridge, DVSc
Professor G. M. Bull, MD, FRCP
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Dame Janet Vaughan, DBE, DM, FRCP
G. E. W. Wolstenholme, OBE, FRCP, FIBiol
Secretary: L. G. Goodwin, MB, BS, MRCP, BPharm, BSc

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Terms of reference: To advise Council on all matters relating to the Society's educational activities.

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J. H. Elgood, MA
Miss Barbara M. Gilchrist, PhD
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Mrs P. C. G. Arthur
H. Jones, PhD
L. Watt
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Publications Committee

Terms of reference: To advise Council on all matters concerning the publication of zoological research and to serve as an editorial board for the *Journal of Zoology* and the *Transactions* of the Society.

Members of Committee:

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Zoological Record Committee

Terms of reference: To advise on the scope and production of the *Zoological Record* and on methods of ensuring its widest distribution.

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Francis C. Fraser, CBE, DSc, FRS
J. P. Harding, PhD
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John Smart, DSc
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International Zoo Yearbook Committee

Terms of reference: To advise on the general policy, production, promotion and finance of the *Yearbook*.

Members of Committee:

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Professor F. Bourlière, MD, LSc
William G. Conway
The Earl of Cranbrook, CBE, MA, Treas LS, *Chairman*
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Peter Scott, CBE, DSC
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The President, Treasurer and Secretary are *ex officio* Members of all Committees.

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Director of Zoos : C. G. C. Rawlins, OBE, DFC
Architect : J. W. Toovey, AADipl(Hons), FRIBA
Building Manager : L. G. Taverner
Clerk of Works (New Zoo) : M. Carding
Chief Accountant : W. N. Pickford, MM, ACIS
Education Officer : M. K. Boorer, BSc
Establishments Officer : Col C. G. S. Bennett (ret),
 MBIM
General Manager, Catering : W. N. Hill, FHCI
Catering Manager London Zoo : G. A. J. Perkins
Catering Manager Whipsnade : J. Boswood
Public Relations Officer : J. A. Dale
Television and Film Officer : Miss Fae Hall, D Phil

London Zoo

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Curator of Reptiles : H. Gwynne Vevers,
 MBE, DPhil, FLS
Curator of Birds : J. J. Yealland, FLS
Curator of Mammals : M. R. Brambell, MA,
 PhD, MRCVS
Assistant to Curator of Aquarium : G. J. Ashby
Gardens Executive : J. Ward
Head Gardener : H. Hemmings
Overseer of Birds : D. G. Newson
Overseers of Mammals : H. Vinall, B. W. Smith
Supplies Officer : C. H. Johns, DPA

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Director of Science : L. G. Goodwin,
 MB, BS, MRCP, BPharm, BSc
Assistant Director of Science : H. Gwynne Vevers,
 MBE, DPhil, FLS
 (See also Publications Department and London
 Zoo.)
Nuffield Institute of Comparative Medicine : See
 page 25.
Wellcome Institute of Comparative Physiology : See
 page 26.
Pathologist : I. F. Keymer, PhD, MRCVS
Veterinary Officer : J. M. Hime, MRCVS, DVR
Hospital Superintendent : A. T. Wilson
Librarian : R. A. Fish, FLA
Publications Department : See pages 22, 23

Head Keepers

Aquarium : H. L. Ward
Aquatic Birds and Birds of Prey : A. E. Scrivener,
 AIAT
Bears : S. Morton
Bird House : W. G. R. Daines
Camels, Antelopes : J. Lambden
Children's Zoo : H. C. Dean
Elephant Pavilion and Aquatics : W. G. Crompton,
 G. E. Hughes
Giraffes and Cattle : H. G. N. Robinson
Insects : R. P. Humphrys
Lion House : T. W. Sangster
Monkeys : L. G. Smith (Senior Head Keeper)
Parrot House and Eastern Aviary : A. F. Shambrook
Pheasantry and Ostrich House : R. Barrow
Reptiles : D. J. Ball, AIAT
Small Mammals : H. W. Styles

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Park Manager : O. C. Chamberlain
Assistant Accountant and Office Manager : B. J. Iken
Clerk of Works : R. J. B. Phillips
Head Gardener : J. Folds
Senior Overseer : F. L. Gladman
Overseer : G. Stanbridge

Head Keepers

Central Ungulate Section : L. Warner
Southern Ungulate Section : H. Stevens
Northern Ungulate Section : A. G. Thorne
Carnivores Section : L. Conway
Elephant Section : J. Datlen
Bird Section : R. Hazzard
Pheasantry : B. Simmons
Children's Zoo : P. C. Milne

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Consulting Architect : Sir Hugh Casson, MA, RDI, FRIBA, FSIA
Consulting Landscape Architect : Peter F. Shephard, BArch, FRIBA, AMTPI, FILA
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Honorary Helminthologist : Professor J. J. C. Buckley, DSc
Honorary Veterinary Consultant : Sir John Ritchie, CB, FRCVS
Consulting Veterinary Surgeon (Whipsnade) : Martin Senior, MRCVS
Honorary Consultant : Geoffrey M. Vevers, FRCS
Adviser on Labour Relations : E. Bishop, OBE
Medical Referee : J. P. Horder, MA, MB, BCh, MRCP
Honorary Consultant Photographer : W. G. Vanderson
Consultant Typographers : Colin Banks, MSIA, John Miles

Publications by Society's Staff and Research Workers

(including those published in collaboration)

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List of animals received

(presented, purchased, received in exchange, deposited or born in the Menagerie)

Key

- G Genus new to the Collection
 S Species new to the Collection
 SS Subspecies new to the Collection

Note The author and the geographical distribution are given only in the case of forms new to the Collection.

In the column 'Number born or hatched in the menagerie', the figures in brackets indicate the number which have died.

		<i>Total number acquired</i>	<i>Number born or hatched in the Menagerie</i>
REGENT'S PARK	Mammals		
	MONOTREMATA		
	<i>Tachyglossus aculeatus</i>	2	
	MARSUPIALIA		
	<i>Caluromys lanatus</i>	6	
	S <i>Marmosa carri</i> J. Allen & Chapman, Trinidad	2	
	<i>Didelphis marsupialis</i>	5	
	<i>Trichosurus vulpecula</i>	2	2
	<i>Protemnodon eugenii</i>	2	1
	<i>Protemnodon bicolor</i> × <i>P. agilis</i>	5	5 (1)
	INSECTIVORA		
	<i>Echinops telfairi</i>	6	
	CHIROPTERA		
	<i>Pteropus giganteus</i>	1	
	<i>Eilodon helvum</i>	1	
	PRIMATES		
	<i>Lemur catta</i>	4	4 (3)
	<i>Loris tardigradus</i>	1	1 (1)
	<i>Arctocebus calabarensis</i>	1	1
	<i>Perodicticus potto</i>	1	
	<i>Galago crassicaudatus</i>	2	1 (1)

		Total number acquired	Number born or hatched in the Menagerie
<i>Aotus trivirgatus</i>	Douroucouli	1	1
<i>Lagothrix cana</i>	Smoky Woolly Monkey	1	
<i>Callithrix geoffroyi</i>	White-fronted Marmoset	3	3
<i>Callithrix argentata</i>	Silvery Marmoset	2	2 (2)
<i>Leontocebus oedipus</i>	Cotton-headed Tamarin	3	3 (3)
<i>Macaca nemestrina</i>	Pig-tailed Macaque	3	3
<i>Macaca sylvana</i>	Barbary Ape	1	1 (1)
<i>Pan troglodytes</i>	Chimpanzee	1	1
EDENTATA			
<i>Tamandua tetradactyla</i>	Tamandua	2	
LAGOMORPHA			
s <i>Ochotona pusilla</i> Pallas, North-eastern Asia	Steppe Pika	2	
RODENTIA			
ss <i>Ratufa macroura dandolena</i> Thomas & Wroughton, Southern Asia	Ceylon Rock Squirrel	1	
<i>Callosciurus bocourti</i>	Bocourt's Squirrel	1	
<i>Cynomys ludovicianus</i>	Prairie Marmot	5	
<i>Tamias sibiricus</i>	Siberian Chipmunk	1	
<i>Castor fiber canadensis</i>	Canadian Beaver	1	1
<i>Phodopus sungorus</i>	Striped Hairy-footed Hamster	10	4
<i>Cricetulus barabensis</i>	Chinese Hamster	7	5
<i>Clethrionomys glareolus</i>	Bank Vole	4	
<i>Tatera indica</i>	Indian Gerbil	13	13 (4)
s <i>Meriones unguiculatus</i> Milne-Edwards, Eastern Asia	Clawed Jird	3	1
<i>Rhabdomys pumilio</i>	Four-striped Rat	1	1
<i>Rattus rattus sladeni</i>	Sladen's Rat	5	5
<i>Acomys dimidiatus</i>	Arabian Spiny Mouse	21	21
<i>Glis glis</i>	Fat Dormouse	6	
<i>Eliomys quercinus</i>	Garden Dormouse	1	
<i>Jaculus blanfordi</i>	Blanford's Jerboa	4	
<i>Hystrix indica</i> × <i>H. cristata</i>	Indian/Crested Porcupine	5	5 (2)
<i>Atherurus africanus</i>	African Brush-tailed Porcupine	1	
<i>Erethizon dorsatum</i>	North American Porcupine	1	
<i>Myoprocta pratti</i>	Green Acouchy	1	1
<i>Lagostomus maximus</i>	Viscacha	1	
<i>Myocastor coypus</i>	Coypu	5	3
CARNIVORA			
<i>Canis latrans</i>	Coyote	2	2
<i>Fennecus zerda</i>	Fennec Fox	2	
<i>Cerdocyon thous</i>	Crab-eating Fox	3	3 (3)
<i>Otocyon megalotis</i>	Bat-eared Fox	2	
<i>Ursus arctos</i>	Brown Bear	1	1
<i>Nasua nasua</i>	Coati	1	

		Total number acquired	Number born or hatched in the Menagerie
<i>Mustela erminea</i>	Stoat	1	
<i>Eira barbara</i>	Tayra	2	
<i>Ictonyx striatus</i>	Zorilla	1	
<i>Paradoxurus hermaphroditus</i>	Common Palm Civet	1	
<i>Herpestes urva</i>	Crab-eating Mongoose	1	
<i>Crossarchus obscurus</i>	Kusimanse	2	
<i>Felis silvestris</i>	European Wild Cat	1	
<i>Felis serval</i>	Serval	1	
<i>Felis wiedi</i>	Margay	1	
<i>Felis concolor</i>	Puma	3	3
<i>Panthera leo</i>	Lion	7	7
<i>Panthera pardus japonensis</i>	Chinese Leopard	2	2
<i>Panthera onca</i>	Jaguar	2	
PINNIPEDIA			
<i>Pusa sibirica</i>	Baikal Seal	3	
PROBOSCIDEA			
<i>Loxodonta africana</i>	African Elephant	1	
PERISSODACTYLA			
<i>Equus przewalskii</i>	Przewalski's Wild Horse	1	1
ARTIODACTYLA			
<i>Sus scrofa</i>	Wild Boar	13	13
<i>Tayassu tajacu</i>	Collared Peccary	2	
<i>Lama guanicoe</i>	Guanaco	2	
<i>Camelus bactrianus</i>	Bactrian Camel	1	1 (1)
<i>Cervus timorensis</i>	Timor Deer	3	3 (2)
<i>Cervus elaphus</i>	Red Deer	4	4
<i>Giraffa camelopardalis</i>	Giraffe	1	1
<i>Cephalophus maxwelli</i>	Maxwell's Duiker	2	
<i>Damaliscus dorcas phillipsi</i>	Blesbok	1	1
<i>Antilope cervicapra</i>	Blackbuck	9	9 (1)
<i>Ammotragus lervia</i>	Barbary Sheep	10	10 (4)
<i>Ovis musimon</i>	Mouflon	9	9 (8)
DOMESTIC			
	Ferret	7	7
	Cattle	2	
	Goat	9	9 (3)
	Sheep	5	5 (1)
Birds			
CASUARIIFORMES			
<i>Dromiceius novae-hollandiae</i>	Emu	1	
TINAMIFORMES			
<i>Rhynchotus rufescens</i>	Rufous Tinamou	1	
SPHENISCIFORMES			
<i>Spheniscus demersus</i>	Black-footed Penguin	1	1

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PELECANIFORMES			
<i>Phalacrocorax c. carbo</i>	Cormorant	2	2
CICONIIFORMES			
<i>Bubulcus ibis</i>	Cattle Egret	3	3 (1)
<i>Sphenorhynchus abdimii</i>	Abdim's Stork	1	
<i>Threskiornis aethiopica</i>	Sacred Ibis	3	3 (3)
ANSERIFORMES			
<i>Cygnus atratus</i>	Black Swan	4	
<i>Branta sandvicensis</i>	Hawaiian Goose	1	
<i>Cereopsis novae-hollandiae</i>	Cereopsis Goose	2	2
<i>Chloephaga poliocephala</i>	Ashy-headed Goose	2	
<i>Tadorna cana</i>	South African Shelduck	1	1
<i>Somateria mollissima</i>	Eider Duck	1	
<i>Netta peposaca</i>	Rosy-billed Pochard	2	
<i>Aythya ferina</i>	Common Pochard	1	1
<i>Aythya fuligula</i>	Tufted Duck	6	6
FALCONIFORMES			
<i>Haliastur indus</i>	Brahminy Kite	1	
<i>Hieraaetus pennatus</i>	Booted Eagle	1	
<i>Falco n. naumanni</i>	Lesser Kestrel	1	
GALLIFORMES			
<i>Tetrao urogallus</i>	Capercaillie	2	
<i>Lophortyx californicus</i>	Californian Quail	5	
<i>Alectoris graeca chukar</i>	Chukor Partridge	1	
<i>Alectoris rufa</i>	Red-legged Partridge	2	
<i>Francolinus pondicerianus</i>	Grey Francolin	3	
<i>Gallus gallus jabouillei</i>	Tonkinese Jungle Fowl	5	5
<i>Gallus lafayetii</i>	Ceylon Jungle Fowl	1	
<i>Gallus sonnerati</i>	Sonnerat's Jungle Fowl	9	9
<i>Lophura n. nycthemera</i>	Silver Pheasant	11	11
<i>Lophura swinhoii</i>	Swinhoe's Pheasant	2	
<i>Catreus wallichi</i>	Cheer Pheasant	7	7
<i>Syrmaticus ellioti</i>	Elliot's Pheasant	1	
<i>Syrmaticus reevesi</i>	Reeves's Pheasant	2	
<i>Phasianus colchicus</i>	Common Pheasant	2	
<i>Chrysolophus pictus</i>	Golden Pheasant	12	11
<i>Pavo cristatus</i>	Common Peafowl	5	5
<i>Pavo muticus</i>	Green Peafowl	1	
<i>Guttera edouardi</i>	Crested Guineafowl	1	
<i>Meleagris gallopavo</i>	North American Turkey	3	1
GRUIFORMES			
<i>Turnix suscitator</i>	Barred Bustard Quail	2	
<i>Grus antigone</i>	Sarus Crane	2	2 (2)
<i>Tribonyx mortieri</i>	Tasmanian Waterhen	2	2 (1)
<i>Porphyrio p. poliocephalus</i>	Grey-headed Gallinule	4	4
<i>Eurypyga helias</i>	Sun Bittern	2	

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CHARADRIIFORMES		
<i>Hydrophasianus chirurgus</i>	Pheasant-tailed Jacana	2
<i>Larus a. argentatus</i>	Herring Gull	2
<i>Larus marinus</i>	Great Black-backed Gull	2
<i>Larus novae-hollandiae</i>	Silver Gull	3
<i>Alca torda</i>	Razorbill	1
<i>Uria aalge</i>	Guillemot	10
<i>Fratercula arctica grabae</i>	Puffin	1
COLUMBIFORMES		
<i>Columba guinea</i>	Speckled Pigeon	1
<i>Streptopelia c. chinensis</i>	Chinese Necklace Dove	5
<i>Geopelia cuneata</i>	Diamond Dove	2
<i>Oena capensis</i>	Cape Dove	2
<i>Ocyphaps lophotes</i>	Crested Pigeon	2
PSITTACIFORMES		
<i>Nestor notabilis</i>	Kea	2
<i>Domicella garrula flavopalliata</i>	Yellow-backed Lory	1
<i>Trichoglossus haematod capistratus</i>	Edwards's Lorikeet	1
<i>Trichoglossus ornatus</i>	Ornate Lorikeet	2
<i>Kakatoe sulphurea</i>	Lesser Sulphur-crested Cockatoo	1
<i>Kakatoe moluccensis</i>	Rose-crested Cockatoo	3
<i>Nymphicus hollandicus</i>	Cockatiel	1
<i>Ara ararauna</i>	Blue and Yellow Macaw	2
<i>Ara macao</i>	Scarlet Macaw	1
<i>Aratinga erythrogenys</i>	Red-masked Conure	1
<i>Aratinga aurea</i>	Golden-crowned Conure	1
<i>Brotogeris pyrrhopterus</i>	Orange-flanked Parrakeet	4
<i>Amazona aestiva</i>	Blue-fronted Parrot	1
SS <i>Poicephalus robustus suahelicus</i> Reichenow, Southern parts of Africa	Brown-necked Parrot	2
<i>Poicephalus senegalus versteri</i>	Orange-bellied Senegal Parrot	1
<i>Psittacus e. erithacus</i>	African Grey Parrot	1
<i>Psittacula krameri manillensis</i>	Indian Ring-necked Parrakeet	1
<i>Psittacula cyanocephala</i>	Plum-headed Parrakeet	1
<i>Polytelis anthopeplus</i>	Rock Peplar	4
<i>Polytelis alexandrae</i>	Queen Alexandra's Parrakeet	1
<i>Alisterus scapularis</i>	King Parrakeet	6
<i>Agapornis fischeri</i>	Fischer's Lovebird	1
<i>Agapornis personata</i>	Masked Lovebird	1
<i>Platycercus e. elegans</i>	Pennant's Parrakeet	4
<i>Purpureicephalus spurius</i>	Pileated Parrakeet	2
CUCULIFORMES		
<i>Tauraco livingstonii</i>	Livingstone's Turaco	2
<i>Musophaga violacea rossae</i>	Ross's Turaco	2
<i>Corythaeola cristata</i>	Great Blue Turaco	3

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G	<i>Geococcyx californiana</i> (Lesson) South-western North America	Roadrunner	2
STRIGIFORMES			
	<i>Tyto a. alba</i>	Barn Owl	4 4
	<i>Bubo virginianus nacurutu</i>	Magellan Eagle Owl	1 1
	<i>Bubo b. bubo</i>	Great Eagle Owl	1 1
	<i>Bubo capensis mackinderi</i>	Kenya Eagle Owl	3 3
	<i>Bubo africanus cinerascens</i>	Abyssinian Eagle Owl	1 1
	<i>Bubo a. africanus</i>	Spotted Eagle Owl	1 1
	<i>Ketupa ketupu</i>	Javan Fish Owl	1 1
	<i>Ciccaba woodfordii nuchalis</i>	West African Wood Owl	1 1
APODIFORMES			
	<i>Trochilus p. polytmus</i>	Long-tailed Humming Bird	1
s	<i>Chlorostilbon gibsoni melanorhynchus</i> Gould, South America	Black-billed Emerald Humming Bird	1
CORACIIFORMES			
	<i>Alcedo atthis ispida</i>	Kingfisher	1
s	<i>Buceros h. hydrocorax</i> Linné, Philippines	Luzon Hornbill	1
PICIFORMES			
s	<i>Melanerpes formicivorus</i> (Swainson), Central parts of America	Acorn Woodpecker	2
PASSERIFORMES			
	<i>Calyptomena viridis</i>	Green Broadbill	2
	<i>Rupicola peruviana</i>	Scarlet Cock of the Rock	3
ss	<i>Pycnonotus melanicterus caecilii</i> Deignan, Malaysia	Malayan Black-crested Bulbul	1
	<i>Chloropsis sonnerati</i>	Javan Fruitsucker	2
	<i>Irena p. puella</i>	Fairy Bluebird	4
G	<i>Cichladusa guttata</i> (Heuglin) East Africa	Spotted Morning Warbler	1
	<i>Turdus dissimilis hortulorum</i>	Grey-backed Thrush	6 6 (1)
	<i>Turdoides s. striatus</i>	Jungle Babbler	2
	<i>Garrulax sukatschewi</i>	Kansu Babbler	5
	<i>Garrulax leucolophus</i>	White-crested Jay	
	<i>Leiothrix lutea</i>	Thrush	1
	<i>Leiothrix argentauris</i>	Pekin Robin	1
	<i>Yuhina nigrimenta</i>	Silver-eared Mesia	2
	<i>Anthreptes collaris</i>	Black-chinned Yuhina	2
	<i>Anthreptes orientalis</i>	Collared Sunbird	2
	<i>Nectarinia pulchella</i>	Violet-backed Sunbird	2
	<i>Zosterops palpebrosa</i>	Beautiful Sunbird	1
s	<i>Emberiza pusilla</i> Pallas, Europe and Asia	Indian White-eye	1
	<i>Emberiza elegans</i>	Little Bunting	1
s	<i>Emberiza rustica</i> Pallas, Europe and Asia	Yellow-throated Bunting	1
	<i>Paroaria cucullata</i>	Rustic Bunting	1
		Red-crested Cardinal	2

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<i>Richmondia cardinalis</i>	Virginian Cardinal	2	
<i>Lophospingus pusillus</i>	Black-crested Finch	2	
<i>Tachyphonus rufus</i>	Black Tanager	1	
<i>Ramphocelus nigrogularis</i>	Masked Crimson Tanager	1	
SS <i>Thraupis virens coelestis</i> Spix, North-western South America	Blue-grey Tanager	1	
<i>Tangara seledon</i>	Three-coloured Tanager	1	
<i>Serinus atrogularis</i>	Yellow-rumped Serin	4	
<i>Serinus mozambicus</i>	Green Singing Finch	2	
<i>Amadina fasciata</i>	Cut-throat Finch	1	
<i>Hypargos niveoguttatus</i>	Peter's Twinspot	1	
<i>Pytilia afra</i>	Orange-winged Pytilia	2	
<i>Lonchura punctulata</i>	Nutmeg Finch	1	
<i>Lonchura malacca</i>	Three-coloured Mannikin	2	
<i>Taeniopygia castanotis</i>	Zebra Finch	4	
<i>Amandava amandava</i>	Avadavat	4	
<i>Estrilda n. nonnula</i>	Black-crowned Waxbill	2	
<i>Estrilda troglodytes</i>	Common Waxbill	2	
<i>Estrilda melpoda</i>	Orange-cheeked Waxbill	1	
<i>Passer luteus</i>	Yellow Sparrow	1	
<i>Ploceus cucullatus</i>	Rufous-necked Weaver	1	
<i>Euplectes orix franciscana</i>	Orange Weaver	2	
<i>Euplectes o. orix</i>	Grenadier Weaver	3	
<i>Aplonis panayensis strigatus</i>	Malayan Glossy Starling	1	
<i>Spreo superbus</i>	Superb Glossy Starling	2	
<i>Sturnus sericeus</i>	Silky Starling	2	
<i>Sturnus cineraceus</i>	Grey Starling	2	
<i>Astrapia stephaniae ducalis</i>	Princess Stephanie's Bird of Paradise	1	1
SS <i>Garrulus glandarius atricapillus</i> G. St. Hilaire, South-western Asia	Black-crowned Jay	1	
<i>Urocissa caerulea</i>	Formosan Blue Pie	1	
<i>Cissa chinensis</i>	Hunting Cissa	1	
<i>Corvus c. corax</i>	Raven	1	
DOMESTIC			
	Budgerigar	50	
	Canary	6	
Reptiles			
TESTUDINES			
<i>Chelydra serpentina serpentina</i>	Snapper	23	
<i>Pseudemys scripta elegans</i>	Red-eared Terrapin	18	
<i>Pseudemys ornata callirostris</i>	Ornate Terrapin	1	
<i>Clemmys caspica leprosa</i>	Spanish Terrapin	2	
<i>Emys orbicularis</i>	European Pond Tortoise	2	1
<i>Geoemyda punctularia punctularia</i>	Rough Terrapin	1	
<i>Geoemyda grandis</i>	Burmese Terrapin	1	
SS <i>Kinixys belliana nogueyi</i> (Lataste) (West Africa)	Bell's Hinged Tortoise	2	
<i>Testudo graeca</i>	Mediterranean Spur-thighed Tortoise	5	

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<i>Testudo hermanni</i>	Hermann's Tortoise	2	
<i>Testudo elegans</i>	Starred Tortoise	1	
<i>Testudo denticulata</i>	Jaboty Tortoise	3	
<i>Pelusios subniger</i>	African Mud Turtle	2	
<i>Chelodina longicollis</i>	Australian Snake-necked Turtle	1	
<i>Trionyx spiniferus spiniferus</i>	Spiny Soft-shelled Turtle	1	
<i>Cyclanorbis senegalensis</i>	Senegal Soft-shelled Turtle	1	
CROCODILIA			
<i>Tomistoma schlegelii</i>	Schlegel's False Gharial	2	
<i>Crocodylus siamensis</i>	Siamese Crocodile	1	
<i>Crocodylus porosus</i>	Estuarine Crocodile	1	
<i>Osteolaemus tetraspis</i>	Broad-fronted Crocodile	1	
<i>Alligator mississippiensis</i>	American Alligator	2	
SAURIA			
<i>Teratoscincus scincus</i>	Turkestan Plate-tailed Gecko	3	
<i>Gonatodes vittatus</i>	Striped Gecko	1	
s <i>Gonatodes ocellatus</i> (Gray) (Trinidad, Tobago)	Eyed Ground Gecko	5	
s <i>Hemidactylus flaviviridis</i> Rüppell (India, Pakistan, Iran, Arabia)	Indian House Gecko	4	
<i>Hemidactylus mabouia</i>	Moreau's Gecko	7	
<i>Gekko gekko</i>	Great-house Gecko	3	
<i>Eublepharis macularius</i>	Leopard Ground Gecko	2	
<i>Anolis carolinensis</i>	Carolina Anole	6	
<i>Polychrus marmoratus</i>	Marbled Syclop Lizard	1	
<i>Iguana iguana</i>	Iguana	6	
<i>Basiliscus basiliscus</i>	American Basilisk	1	
<i>Sauromalus obesus</i>	Chuckwalla	2	
<i>Crotaphytus collaris baileyi</i>	Western Collared Lizard	4	
<i>Crotaphytus wislizenii</i>	Leopard Lizard	4	
s <i>Uta stansburiana stansburiana</i> Baird and Girard (W. United States)	Northern Side-blotched Lizard	3	
s <i>Sceloporus occidentalis biseriatis</i> Hallowell (W. United States)	San Joaquin Fence Lizard	8	
<i>Phrynosoma cornutum</i>	Texas Horned Lizard	3	
<i>Ceratophora stodarti</i>	Stodart's Lizard	4	
<i>Otocryptis wiegmanni</i>	Wiegmann's Lizard	7	3 (2)
G <i>Cophotis ceylanica</i> Peters (Ceylon)		4	
<i>Calotes versicolor</i>	Indian Changeable Lizard	3	
<i>Calotes calotes</i>	Helmed Agama	1	
s <i>Calotes nigrilabris</i> Peters (Ceylon)	Black-lipped Agama	2	
s <i>Calotes liolepis</i> Boulenger (Ceylon)		2	
<i>Agama caucasica</i>	Caucasian Agama	2	
s <i>Agama erythrogaster</i> (Nikolsky) (E. Iran)	Meshid Agama	2	
s <i>Agama sanguinolenta</i> (Pallas) (S.E. Asia)	Blood-red Agama	1	
<i>Agama stellio</i>	Hardun	2	

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<i>Leiolepis belliana</i>	Bell's Agama	2	
<i>Uromastyx hardwickii</i>	General Hardwicke's Dabb Lizard	10	
<i>Chamaeleo chamaeleon</i>	Common Chameleon	1	
<i>Chamaeleo gracilis</i>	Graceful Chameleon	5	
<i>Chamaeleo dilepis</i>	Flap-necked Chameleon	5	
<i>Chamaeleo bitaeniatus ellioti</i>	Montane Side-striped Chameleon	16	10 (10)
<i>Chamaeleo fischeri</i>	Fischer's Chameleon	1	
<i>Egernia cunninghami</i>	Cunningham's Rock Skink	1	
<i>Mabuya varia</i>	Variable Skink	2	
<i>Mabuya striata</i>	Grant's Skink	7	
<i>Lygosoma (Sphenomorphus) quoyii quoyii</i>	Australian Water Skink	1	
<i>Riopa (Mochlus) sundevalli</i>	Sundevall's Skink	10	
<i>Riopa (Mochlus) fernandi</i>	Fernand's Skink	3	
s <i>Riopa (Mochlus) modesta</i> (Günther) (Arusha, Tanzania)	Brown Writhing Skink	9	
<i>Ablepharus wahlbergi</i>	Wahlberg's Skink	1	
<i>Eumeces schneideri</i>	Schneider's Skink	1	
s <i>Eumeces taeniolatus</i> (Blyth) (S.E. Asia)	Yellow-bellied Mole Skink	1	
<i>Chalcides chalcides striatus</i>	Cuvier's Three-toed Sand Skink	2	
ss <i>Latastia longicauda revoili</i> (Vaillant) (E. Africa)	Southern Long-tailed Lizard	1	
s <i>Nucras boulengeri boulengeri</i> Neumann (Arusha, Tanzania)	Uganda Savannah Lizard	4	
<i>Lacerta viridis</i>	Green Lizard	4	
<i>Lacerta lepida</i>	Eyed Lizard	1	
<i>Lacerta vivipara</i>	Common Lizard	1	
ss <i>Takydromus sexlineatus ocellatus</i> Guérin (Hong Kong)	Long-tailed Striped Lizard	8	
s <i>Eremias velox</i> (Pallas) (Central Asia)	Asian Swift Lizard	3	
<i>Cnemidophorus tigris</i>	Striped Whiptail	1	
<i>Varanus exanthematicus</i>	Bosc's Monitor	1	
<i>Varanus bengalensis</i>	Bengal Monitor	1	
<i>Varanus niloticus</i>	Nile Monitor	1	
<i>Heloderma suspectum</i>	Gila Monster	2	
<i>Gerrhonotus coeruleus</i>	Northern Alligator Lizard	1	
ss <i>Cordylus warreni laevigatus</i> (Fitzsimons) (Transvaal)		1	
ss <i>Cordylus cordylus jonesii</i> (Boulenger) (S. Africa)	Jones' Arboreal Girdled Lizard	6	
ss <i>Cordylus cordylus niger</i> Cuvier (Cape Province)	Black Zonure	4	
<i>Platysaurus guttatus minor</i>	Lesser Flat Lizard	3	
SERPENTES			
<i>Typhlops punctatus</i>	Spotted Blind Snake	2	
<i>Leptotyphlops conjuncta conjuncta</i>	Jan's Worm Snake	1	

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SS	<i>Morelia spilotes variegata</i> Gray (Australia)	1	
	<i>Python reticulatus</i>	1	
	<i>Python sebae</i>	2	
	<i>Python regius</i>	2	
	<i>Corallus enydris enydris</i>	4	
SS	<i>Constrictor constrictor amarali</i> (Stull) (Central S. America)		
	<i>Eryx johnii</i>	8	8
	<i>Natrix natrix helvetica</i>	12	12
	<i>Thamnophis sirtalis</i>	11	10
S	<i>Thamnophis marcianus marcianus</i> (Baird and Girard) (S.W. United States)		
	<i>Boaedon fuliginosus</i>	3	
	<i>Lycophidion capensis</i>	4	
	<i>Pseustes sulphureus</i>	3	
	<i>Elaphe obsoleta obsoleta</i>	1	
	<i>Elaphe obsoleta quadrivittata</i>	1	
	<i>Masticophis flagellum testaceus</i>	4	4
	<i>Pituophis catenifer catenifer</i>	2	
SS	<i>Pituophis catenifer deserticola</i> Stejneger (W. North America)	1	
S	<i>Philothamnus angolensis</i> Bocage (Angola)		
	<i>Lampropeltis getulus californiae</i>	5	
	<i>Lampropeltis doliata triangulum</i>	2	
S	<i>Prosymna ambigua stuhlmanni</i> (Pfeffer) (Arusha, Tanzania)		
	<i>Dasypeltis scabra</i>	2	
	<i>Crotaphopeltis hotamboeia</i>	3	
	<i>Leptodeira annulata</i>	3	
	<i>Rhamphiophis oxyrhynchus rostratus</i>	1	
	<i>Psammophis sibilans</i>	1	
	<i>Ahaetulla prasinus</i>	2	2 (2)
G	<i>Aparallactus capensis capensis</i> A. Smith (Arusha, Tanzania)		
S	<i>Aparallactus guentheri</i> Boulenger (Arusha, Tanzania)		
	<i>Elapsoidea sundevalli guentheri</i>	3	
	<i>Ophiophagus hannah</i>	1	
	<i>Vipera berus</i>	4	
	<i>Vipera aspis</i>	1	
	<i>Vipera russelli</i>	4	
	<i>Bitis gabonica</i>	2	
	<i>Echis carinatus</i>	1	
SS	<i>Agkistrodon halys caucasicus</i> Nikolsky (Persia)		
	<i>Trimeresurus wagleri</i>	1	
	<i>Bothrops atrox</i>	1	
	<i>Crotalus (Sistrurus) miliarius</i>	4	
	<i>Crotalus (Sistrurus) miliarius barbouri</i>	1	
	Dusky Pygmy Rattlesnake	6	6

		Total number acquired	Number born or hatched in the Menagerie
ss <i>Crotalus (Sistrurus) catenatus tergeminus</i> (Say) (Central United States)	Western Massasauga	1	
<i>Crotalus atrox</i>	Western Diamond-back Rattlesnake	1	
<i>Crotalus scutulatus scutulatus</i>	Mojave Rattlesnake	2	
ss <i>Crotalus viridis lutosus</i> Klauber (W. United States)	Great Basin Rattlesnake	2	
s <i>Crotalus ruber ruber</i> Cope	Red Diamond Rattlesnake	1	
<i>Crotalus viridis oreganus</i>	Northern Pacific Rattlesnake	2	
<i>Crotalus adamanteus</i>	Eastern Diamond-back Rattlesnake	1	
<i>Crotalus horridus</i>	Timber Rattlesnake	2	
<i>Crotalus cerastes</i>	Mojave Desert Sidewinder	1	
Amphibians			
<i>Triturus marmoratus</i>	Marbled Newt	6	
<i>Triturus alpestris</i>	Alpine Newt	12	
<i>Cynops pyrrhogaster</i>	Japanese Newt	4	
<i>Salamandra salamandra</i>	European Spotted Salamander	6	
<i>Plethodon cinereus</i>	Red-backed Salamander	3	3
<i>Plethodon</i> sp.	Woodland Salamander	3	3
<i>Xenopus laevis</i>	Platanna or Clawed Toad	46	40
<i>Discoglossus pictus</i>	Painted Frog	1	
<i>Bombina bombina</i>	Fire-bellied Toad	4	
<i>Bombina variegata</i>	Yellow-bellied Toad	4	
<i>Bufo viridis</i>	Green Toad	8	
s <i>Bufo pardalis</i> Hewitt (S. Africa)	Leopard Toad	4	
<i>Bufo melanostictus</i>	Common Asiatic Toad	3	
<i>Bufo marinus</i>	Giant Toad	1	
<i>Hyla arborea</i>	European Tree Frog	26	
<i>Hyla cinerea</i>	American Green Tree Frog	1	
<i>Hyla regilla</i>	Pacific Tree Frog	7	
<i>Rana hexadactyla</i>	Six-fingered Frog	1	
<i>Rana tigrina</i>	Indian Bull Frog	1	
<i>Rana esculenta</i>	Edible Frog	7	
<i>Rana (Ptychadena) mascareniensis</i> <i>mascareniensis</i>	Mascarene Frog	8	
s <i>Rana fasciata merumontana</i> Lönnberg (Arusha, Tanzania)	Northern Tanganyika Striped Grass Frog	1	
<i>Rana pipiens</i>	Leopard Frog	1	
<i>Philautus variabilis</i>		2	
s <i>Philautus leucorhinus</i> (Lichtenstein and Martens) (Ceylon)		3	
s <i>Philautus schmardanus</i> (Kelaart) (Ceylon)		2	
s <i>Phrynobatrachus ukingensis mababiensis</i> Fitzsimons (Arusha, Tanzania)	Dwarf Puddle Frog	18	
<i>Hyperolius marmoratus</i>	Marbled Sedge Frog	17	1 (1)
<i>Kassina senegalensis</i>	Running Frog	13	
<i>Phrynomerus bifasciatus</i>	Red-banded Wood Toad	2	

WHIPSDADE PARK

Mammals

MARSUPIALIA

*Protemnodon rufogrisea frutica**Macropus canguru melanops*

Bennett's Wallaby 108 107 (3)

Black-faced Kangaroo 1 1

PRIMATES

Macaca mulatta

Rhesus Macaque 5 5 (2)

RODENTIA

*Cynomys ludovicianus**Glis glis**Dolichotis patagonum**Dasyprocta punctata*

Prairie Marmot 12 12 (1)

Fat Dormouse 4

Mara 1 1 (1)

Central American Agouti 2 2 (1)

CARNIVORA

*Canis lupus occidentalis**Tremarctos ornatus**Ursus arctos**Thalarctos maritimus**Felis bengalensis**Felis serval**Felis concolor**Panthera tigris**Acinonyx jubatus*

Canadian Timber Wolf 8 8

Spectacled Bear 2

Brown Bear 6 6

Polar Bear 2

Leopard Cat 1

Serval 1

Puma 1

Tiger 3

Cheetah 3 3

PROBOSCIDEA

*Loxodonta africana**Elephas maximus*

African Elephant 2

Indian Elephant 1

PERISSODACTYLA

*Equus przewalskii**Equus zebra hartmannae**Asinus hemionus onager**Asinus hemionus kulan**Tapirus terrestris*

Przewalski's Wild Horse 3 3 (1)

Hartmann's Mountain

Zebra 2

Onager 1 1

Turkmen Wild Ass 2 2

Brazilian Tapir 1 1 (1)

ARTIODACTYLA

*Tayassu tajacu**Lama glama**Lama guanicoe**Camelus bactrianus**Muntiacus sp.**Dama dama**Axis axis**Axis porcinus**Cervus duvauceli**Cervus nippon taiouanus**Cervus e. elaphus**Cervus elaphus canadensis**Elaphurus davidianus**Odocoileus virginianus*

Collared Peccary 3 3 (1)

Llama 9 9 (3)

Guanaco 2 2

Bactrian Camel 1 1

Muntjac 1

Fallow Deer 28 28 (2)

Spotted Deer 13 13 (4)

Hog Deer 3 3

Swamp Deer 2 2 (1)

Formosan Deer 13 13 (6)

Red Deer 18 18 (3)

Wapiti 3 3 (1)

Pere David's Deer 4 4 (1)

White-tailed Deer 1 1 (1)

		Total number acquired	Number born or hatched in the Menagerie
<i>Rangifer tarandus</i>	Reindeer	1	
<i>Hydropotes inermis</i>	Chinese Water Deer	70	70 (3)
<i>Tragelaphus spekei</i>	Sitatunga	3	1
<i>Boselaphus tragocamelus</i>	Nilgai	2	2
<i>Bison bonasus</i>	European Bison	4	4
<i>Bison bison</i>	North American Bison	1	1
<i>Damaliscus dorcas phillipsi</i>	Blesbok	9	
<i>Connochaetes t. taurinus</i>	Brindled Gnu	7	1
<i>Connochaetes taurinus albojubatus</i>	White-bearded Gnu	2	2 (1)
<i>Aepyceros melampus</i>	Impala	7	1
<i>Gazella thomsoni</i>	Thomson's Gazelle	8	8 (1)
<i>Ovibos moschatus</i>	Musk Ox	1	
<i>Ovis musimon</i>	Mouflon	5	5 (1)
DOMESTIC			
	Pygmy Donkey	1	1
	Ponies	6	6 (1)
	Arabian Camel	1	1
	Ankole Oxen	3	3
	White Goats	5	5 (2)
	Four-horned Sheep	46	46
Birds			
CASUARIIFORMES			
<i>Dromiceius novae-hollandiae</i>	Emu	1	1
SPHENISCIFORMES			
<i>Spheniscus humboldti</i>	Humboldt's Penguin	10	
PELECANIFORMES			
<i>Phalacrocorax c. carbo</i>	Cormorant	2	
CICONIIFORMES			
<i>Dissoura episcopus microscelis</i>	African Woolly-necked Stork	4	
<i>Phoenicopterus ruber chilensis</i>	Chilean Flamingo	26	
ANSERIFORMES			
<i>Cygnus atratus</i>	Black Swan	4	4 (1)
<i>Cygnus melanocoryphus</i>	Black-necked Swan	1	1
<i>Anser caerulescens atlanticus</i>	Greater Snow Goose	11	11 (2)
<i>Anser indicus</i>	Bar-headed Goose	3	3 (1)
<i>Branta leucopsis</i>	Barnacle Goose	4	4 (1)
<i>Branta ruficollis</i>	Red-breasted Goose	2	2 (1)
<i>Cereopsis novae-hollandiae</i>	Cereopsis Goose	1	1
<i>Chloephaga picta leucoptera</i>	Upland Goose	3	3 (1)
<i>Alopochen aegyptiacus</i>	Egyptian Goose	5	5 (4)
<i>Tadorna variegata</i>	New Zealand Shelduck	2	
<i>Tadorna cana</i>	South African Shelduck	9	9 (1)
<i>Lophonetta s. specularioides</i>	Crested Duck	7	7
<i>Aix sponsa</i>	Carolina Duck	2	2

		Total number acquired	Number born or hatched in the Menagerie
GALLIFORMES			
<i>Chrysolophus pictus</i>	Golden Pheasant	6	6
<i>Chrysolophus amherstiae</i>	Lady Amherst's Pheasant	3	3
<i>Pavo cristatus</i>	Common Peafowl	13	10
GRUIFORMES			
<i>Anthropoides virgo</i>	Demoiselle Crane	12	
<i>Balearica p. pavonina</i>	West African Crowned Crane	12	
<i>Balearica pavonina regulorum</i>	South African Crowned Crane	8	
<i>Bugeranus carunculatus</i>	Wattled Crane	2	
<i>Choriotis kori</i>	Kori Bustard	10	
CHARADRIIFORMES			
<i>Larus a. argentatus</i>	Herring Gull	2	
<i>Larus marinus</i>	Great Black-backed Gull	2	
PSITTACIFORMES			
<i>Trichoglossus haematod moluccanus</i>	Swainson's Lorikeet	4	
<i>Nymphicus hollandicus</i>	Cockatiel	6	4
<i>Psittacus e. erithacus</i>	Grey Parrot	1	
<i>Psittacula krameri manillensis</i>	Indian Ring-necked Parrakeet	1	1
<i>Psittacula derbyana</i>	Derbyan Parrakeet	2	
<i>Psittacula cyanocephala</i>	Blossom-headed Parrakeet	1	
<i>Polytelis swainsoni</i>	Barraband's Parrakeet	2	2
<i>Platycercus e. elegans</i>	Pennant's Parrakeet	2	
<i>Psephotus haematonotus</i>	Red-rumped Parrakeet	1	
<i>Neophema pulchella</i>	Turquoise Grass Parrakeet	2	
<i>Neophema bourkii</i>	Bourke's Grass Parrakeet	2	
<i>Neophema splendida</i>	Splendid Grass Parrakeet	2	
Reptiles			
SERPENTES			
<i>Python regius</i>	Royal Python	1	
AQUARIUM			
Fishes New to the Collection			
<i>Lepisosteus tristoechus</i> (Bloch & Schneider). S.W. Cuba, Isle of Pines			
<i>Pseudotropheus elongatus</i> Fryer. Lake Malawi			
<i>Pseudotropheus tropheops</i> Regan. Lake Malawi			
<i>Geophagus jurupari</i> Heckel. N.E. Brazil, Guiana			
<i>Lates niloticus</i> (Linnaeus). Africa (Nile, Senegal, Niger)			

List of donors of animals to the Society

REGENT'S PARK

- Adams, T., 1 Orange-flanked Parrakeet
 Allen, D., 1 Shama
 Allison, N., 1 Superb Glossy Starling
 Angliss, Mr, 1 Common Chameleon
 Antwerp Zoo, 1 Garden Dormouse, 1 Olm
 Appleby, L. G., 4 Adders
 Armstrong, Mr, 1 Jaboty Tortoise
 Atkins, Mr, 6 Budgerigars
 Axtell, J., 1 Smoky Woolly Monkey
 Ayling, Miss B., 4 Budgerigars
 Aylott, H. J., 6 Sail-fin Mollies
 Bacon, D. A., Indian Moon Moth ova
 Baker, D. B., 1 Persian Pit-viper
 Barata, Miss M., 1 Nutmeg Finch
 Batfield, R., 1 Hardun
 Bausfield, Mrs E., 1 Elephant Hawk Moth
 Bernasconi, Mrs, 1 Common Lizard
 Blake, Mrs, 1 Red-eared Terrapin
 Blissett, T. G., 1 African Python
 Booth, A., 2 Ornate Lorikeets
 Boston, P., 3 Great Blue Turacos, 2 Gaboon
 Vipers, 3 Sundevall's Skinks, 2 Spotted Blind
 Snakes, 1 Graceful Chameleon, 3 Montane
 Side-striped Chameleons
 Bourke, D. O'D., 7 Edible Frogs, 3 Edible Frog
 Tadpoles
 Bowyer, J., 2 Chinese Hamsters, 4 Bank Voles
 Broderick Hopkins, Miss E. M. S., 4 oysters
 Brown, D., 3 Texas Horned Lizards, 3 Eastern
 Checkered Garter Snakes, 2 Pink Coachwhips,
 1 Western Massasauga, 1 bird-eating spider,
 1 millipede, 1 mantid
 Brown, W. H., 1 Black-billed Emerald Humming
 Bird
 Brunhilde, Mrs, 1 Senegal Bushbaby
 Callegari, Dr E., 2 Acorn Woodpeckers
 Campanini, Mrs M., 1 *Plecostomus*
 Campbell, A. P. J., 1 Axolotl
 Campbell-Harris, Miss G., 2 Angelfish, 2 Bronze
 Catfish, 2 Spiny Eels, 1 Red-tailed Labeo,
 2 Black Mollies, 2 Red Platys, 6 Guppies
 Carr, Miss C., stick-insect eggs
 Cayzer, Mr, 1 Red-masked Conure
 Chaplin, Lord, 1 Cuvier's Three-toed Sand Skink,
 1 Eyed Lizard
 Chilvers, B. L., 26 Goldfish
 City of Glasgow, crew of, 1 Grenadier Weaver
 Cochrane, J., 1 crab spider
 Cornell, M. R., 1 Bengal Monitor
 Cutley, B. R., 2 Spanish Terrapins
 Davidge, Mrs S., 2 Diamond Doves
 Dawe, Mrs D., 2 Greek Tortoises
 Dawson, T. D., 1 Flap-necked Chameleon
 Dellar, C. S., 1 Firemouth Cichlid
 des Moulins, A., stick-insect eggs
 Dickenson, Mrs A. B., 1 Greek Tortoise
 Dickins, L. C., 1 Lesser Sulphur-crested Cockatoo
 Dixon, G., 2 Herald Snakes, 2 Angola Green Tree
 Snakes, 1 African House Snake, 1 Rufous
 Beaked Snake
 Dobbs, J. S., 1 scorpion
 Dolphin, D., 13 Goldfish, 3 Golden Orfe, 1 Roach
 Duckworth, Dr M., 1 European Spotted Sala-
 mander
 Dudley Zoo, 2 Coypu
 Durbin, Mrs B., 2 Grenadier Weavers
 Edmondson, W. B., 1 dragonfly
 Elder, D. D., 2 bird-eating spiders
 Elliott, K., 1 Roach
 Ellis, M., 5 scorpions, 1 chafer beetle, 1 assassin
 bug, chafer beetle larvae
 Evans, J., 1 Starred Tortoise
 Edwards, D., 1 cicada
 Farmiloe, Mrs, 1 Virginian Cardinal
 Flynn, Mrs R., Goldfish
 Freed, T., 1 Green Lizard
 Gardner-Stewart, Mrs A., 5 Canaries
 Garland, G. J., 1 longicorn beetle
 Genda, Lt Col A. P., 1 Royal Python
 Gerard, G. M. Ltd, 1 Garden Tree Boa
 Ghiggini, Mr A., 1 Australian Water Skink
 Ghiggini, Mrs, 1 Australian Snake-necked Turtle
 Goldrich, Mrs P., 2 Budgerigars
 Graham, Mr, 2 bird-eating spiders
 Gray, Mrs M., 1 Yellow-backed Lory
 Graystone, A., 1 Kingfisher

- Hamilton, C. J., 35 Indian mantid nymphs
Harding, Mrs G., 1 Pekin Robin, 1 Cut-throat
Finch, 4 Avadavats, 2 Common Waxbills,
1 Orange-cheeked Waxbill
Harrow, A. J. S., stick-insect eggs
Harvey, Mrs J., stick-insects
Hawes, Miss M. L., 1 Hardun
Head, Mrs E., 1 Yellow Sparrow, 4 Zebra Finches,
1 Tri-coloured Mannikin
Hickman, A. D., 4 Red-eared Terrapins
Hill, L. W., 1 Long-tailed Humming Bird
Hoare, Miss J. and O'Mahoney, Miss C., stick-
insects
Hornsey C.I.D., 1 crab spider
Hulbert, Mr and Mrs J., 1 Cuvier's Three-toed
Sand Skink
Johnson, Mrs, 1 Straw Coloured Fruit Bat
Jones, Mr, 1 Broad-fronted Crocodile
Jones, M., 1 Greek Tortoise
Jones, Miss T., 2 Slow-worms
Joshi, P. N., 2 African Mud Turtles, 1 Senegal
Soft-shelled Turtle
Kaeser, J., 3 Rose-crested Cockatoos
Kenny, Dr J. L. S., 1 Cananina Snake
Kenya Government, 1 African Elephant
Knight, Dr, 2 Giant Toads
Knight, J. R., 3 Mirror Carp
Lacey, Mrs R., 1 Blue and Yellow Macaw
Laloe, Mrs J., 1 Common Palm Civet
Larsen, B., 1 Orange-bellied Senegal Parrot
Laurie, J., 2 Orange Weavers
Lay, J., 1 Mole Cricket
Leburn, Mrs R., 1 Abdim's Stork
Lee, G., 1 European Spotted Salamander
Lines, D. H., 2 Orange-flanked Parrakeets
London School of Hygiene & Tropical Medicine,
1 Ceylon Rock Squirrel
Long, R., 1 dragonfly
Low, A., mantid ootheca
Lyttleton, M., 1 Painted Frog
Marlow, Miss J., silkmoth ova
Marshall, J. E., 51 *Ampullaria*
Mash, R. F., 2 Marbled Cichlids
Mason, Miss J., 1 carabid beetle, 1 Rhinoceros
Beetle
McKay, Mrs K., 1 Ross's Turaco
Medical Research Centre, Hampstead, 5 Virginian
Opossums
Merryhills School, 2 Red-eared Terrapins
Meyer, Mrs I., 1 Tri-coloured Mannikin
Middleton, Mr, 1 Tinsel Barb
Mills, J., 10 General Hardwicke's Dabb Lizards
Moll, P., 1 Cockatiel
Moore, J., 1 Indian Ring-necked Parrakeet
Moscow Zoo, 6 Dwarf Hamsters
Murphy, B., 1 crab spider
Murton, E., 6 Adders
Myerson, V., 2 African Egg-eating Snakes
Nash, Miss B., 2 Slow-worms, locusts
Naylor, Miss C. M., 1 European Pond Tortoise
Newlands, W. A., 3 Grey Francolins, 1 Chukor
Partridge, 1 Red-legged Partridge
Newmark, G. and J., Green, I., Spicer, S.,
11 Scolopendra sp., 9 mantid ootheca, 6 Two-
toned Scorpions, 9 Desert Scorpions, 9 *Nephila*
sp., 1 *Lactrodectus indistinctus*, 2 longhorn beetle
larvae, 3 longhorn beetles, 1 singing beetle,
1 stag beetle, 6 tiger beetles, 9 carabid beetles,
3 assassin bugs, 2 *Cyrtacanthacris* sp., 3 *Tapasia*
sp., 2 Variable Skinks, 9 Brown Writhing Skinks,
1 Wahlberg's Skink, 4 millipedes, 1 Fischer's
Chameleon, 4 Uganda Savannah Lizards, 12
Agamas, 1 Jan's Worm Snake, 2 African House
Snakes, 3 Cape Wolf Snakes, 3 East African
Shovel-snout Snakes, 3 Cape Centipede-eaters,
1 Black Centipede-eater, 1 Herald Snake, 2
Hissing Sand Snakes, 1 Western Garter Snake,
8 Mascarene Frogs, 1 Northern Tanganyika
Striped Grass Frog, 18 *Phrynobatrachus maba-*
biensis, 16 Marbled Sedge Frogs, 13 Running
Frogs
Nichols, Mrs G., 1 Red-crested Cardinal
Oughton, D., stick-insects
Owden, Miss S. E., 1 Hermann's Tortoise
Padmore, L. A., 1 crab spider
Patrickson, Mrs, 1 Indian Fruit Bat
Pearce, D. B., 2 Red-eared Terrapins, 1 Spanish
Terrapin
Penn, Mrs, 1 Red-eared Terrapin
Perkins, Mrs D., 1 Golden-crowned Conure
Pears, Miss V., 1 Masked Lovebird
Piedot, P., 1 Moonlight Gourami, 2 Tinsel Barbs
Prague Zoo, 2 Jirds
Pratt, D. A., stick-insects
Pyne, F. W. H., 9 Axolotls
Reed, the Lady, 5 Budgerigars
Restall, R., 5 Californian Quail, 1 Yellow-throated
Bunting, 1 Rustic Bunting, 2 Silver-eared
Mesias, 1 Superb Glossy Starling, 1 Malayan
Glossy Starling
Revett, C., stick-insects
Rice, S. J., 1 Plum-headed Parrakeet
Richards, D., 4 Chinchillas
Ridgewell, Mr, 1 Black Rat Snake
Ridout, B. V., 4 Fer-de-Lance
Roberts, D., 4 scorpions, 1 grasshopper
Romer, J. D., 8 Long-tailed Striped Lizards
Ross, Mrs V., 1 stag beetle
Russell, Miss A. C., 1 Booted Eagle, 1 Lesser
Kestrel, 1 Black-crowned Jay
San Diego Zoological Garden, 2 Roadrunners
Scheuer, Dr L., 1 Three-coloured Tanager

Searle, Dr K. C., 2 Pheasant-tailed Jacanas,
2 Javan Fruitsuckers, 1 Malayan Black-crested
Bulbul, 5 Kansu Babblers, 2 Silky Starlings,
2 Grey Starlings, 1 Formosan Blue Pie, 1 Crab-
eating Mongoose
Sells, P., 1 Green Lizard
Sherrington, Dr A., 1 American Green Tree Frog
Simmons, Miss J., 1 Red-eared Terrapin
Sims, K. J., 1 Estuarine Crocodile
Smith, B., Elephant Hawk Moth
Smith, Mrs B., 1 African Grey Parrot
Smith, Petty Officer D., 1 mantid
Spalding Grammar School, 1 Garden Tree Boa
Spastics Society, 1 Red-eared Terrapin
Spurling, Miss C. A., stick-insect eggs
Stean, Mrs, 1 Spanish Terrapin
Steven, Mrs G. J., 1 Hermann's Tortoise
Stuart-Williams, D., 1 Porcupine, 2 Kusimanses
Trollope, J., 1 Little Bunting
Turner, Mrs D., 2 Red-eared Terrapins
Tyssen-Gee, Mrs R. A., 1 Red-eared Terrapin
Unit of Grouse and Moorland Ecology, Banchory,
2 Capercaillie
University of Maryland, 9 King Crabs
Vevers, G., 2 Fat Dormice
Wall Hall College, Collection of guppies
Warmington, R. J., 1 American Basilisk

Warren, G., 1 Scarlet Macaw
Warwick, D., 1 Greek Tortoise
Way, D. E., 2 Gila Monsters
Webber, D., 1 John's Sand Boa
Weeks, D. G., 1 Rufous-necked Weaver
Welka, Miss J., 2 Red-eared Terrapins
White, P., 1 African House Snake
Whitaker Carr, Mrs V., 2 Black-crested Finches
Whitmore, A. J., 2 Green Lizards, 1 Diced Water
Snake
Wilkins, G. A., 2 Red-eared Terrapins, 1 Ornate
Terrapin
Williams, Miss B., 2 Green Singing Finches
Williams, G. L., 1 King Cobra
Willows, Mrs M., 2 Red-eared Terrapins
Wilson, Mrs O., 1 Ring-tailed Coati
Wood, M., 2 Iguanas
Yzer, M., Collection of tench and carp

WHIPSNADDE PARK

Debarbara, Mrs J., 2 Guinea Pigs
Foods-Kelsey, Mrs A. P., 4 Fat Dormice
Howell, Mrs J., 2 Muscovy Ducks
Johnstone, J. D., 3 Black-winged Peafowl
Stammers, Mrs F. G., 1 African Grey Parrot
Zambian Government, 1 African Elephant

Donations to the Zoological Record Fund

	£	s.	d.
Acadian Entomological Society	9	8	7
American Entomological Society	20	10	9
American Museum of Natural History	208	1	5
American Ornithologists' Union	20	14	7
American Society of Ichthyologists and Herpetologists	100	2	8
American Society of Mammalogists	124	16	11
Anonymous	100	0	0
British Museum (Natural History)	450	0	0
British Ornithologists' Club	5	5	0
British Ornithologists' Union	15	15	0
British Trust for Ornithology	2	0	0
California Academy of Sciences	11	10	5
Canadian Society of Zoologists	19	6	7
Challenger Society	5	5	0
Conchological Society of Great Britain and Ireland	2	0	0
Duke University, Department of Zoology	20	15	0
Entomological Society of Alberta	3	16	11
Entomological Society of America	83	6	0
Geological Society of London	5	5	0
Kennicott Club	10	6	2
Linnean Society of London	20	0	0
Liverpool School of Tropical Medicine	3	3	0
London School of Hygiene and Tropical Medicine	2	2	0
Malacological Society of London	2	2	0
Mammal Society of the British Isles	10	10	0
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Meetings during 1969

Scientific Meetings at 5 p.m.

Tuesday, 11th February

Tuesday, 11th March

Tuesday, 8th April

Tuesday, 13th May

Tuesday, 10th June

Tuesday, 14th October

Tuesday, 11th November

Tuesday, 9th December

Symposia

Friday and Saturday, 14th-15th November, 'Variation in mammalian populations'.

Thursday and Friday, 4th-5th December, 'The haemostatic mechanism in man and animals'.