



Annual Report 1966

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 and a comprehensive reference section on zoos.

Report of the Council 1966

The Council has pleasure in presenting its 138th Annual Report to the Annual General Meeting of the Society to be held on Tuesday 9th May 1967 at 4 pm in the Society's Meeting Room at Regent's Park

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The Council has pleasure in presenting its 138th Annual Report to the Annual General Meeting of the Society to be held on Tuesday 7th May 1967 at 4 pm in the Society's Meeting Room at Regent's Park.

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PATRON: HER MAJESTY THE QUEEN

COUNCIL 1966-1967

President: H.R.H. The Prince Philip, Duke of Edinburgh, K.G., K.T.

Treasurer: Sir Terence Morrison-Scott, D.S.C., D.Sc.

Secretary: Professor Sir Solly Zuckerman, K.C.B., D.Sc., F.R.S.

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Professor P. L. Krohn, F.R.S.

The Earl of Mansfield, *Vice-President*

The Hon. Ivor Montagu

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Sir John Ritchie, C.B., F.R.C.V.S., *Vice-President*

Sir Malcolm Sargent, Mus.D., F.R.C.M., F.R.S.A.

Peter Scott, C.B.E., D.S.C., *Vice-President*

J. Eric Smith, Sc.D., F.R.S.

The Rt Hon. Christopher Soames, C.B.E.*

At the Annual General Meeting the following members of the Council retired:

Professor M. Abercrombie, F.R.S.

Professor C. F. A. Pantin, F.R.S.

Sir Alexander Samuels, C.B.E., J.P., F.R.S.A.

The Marquess of Willingdon

G. E. W. Wolstenholme, O.B.E., F.R.C.P., F.I.Biol.

While this report was in preparation the Council learned with deep regret of the death of Professor C. F. A. Pantin. He had been a valued member of the Society for many years having served on the Council and on a number of its committees, where his skill and knowledge was of great assistance to the Society.

*Elected at the Annual General Meeting held on 29th April.

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In the pocket on back cover

Foreword

OUR POINT IN TIME

We are at the half-way point in the rebuilding of the Regent's Park Gardens. It is, therefore, appropriate that this year's Report should start with a brief review of what has been achieved over the past ten years and of what remains to be done. We need to be alert lest we underrate the task which lies ahead.

When we started our problem was clear enough. No new animal quarters had been built in the Regent's Park Zoo for nearly thirty years, and what with bomb damage and the difficulty of carrying out essential maintenance in the post-war years, our Houses were not only out of date but also very run down. In 1951 an ambitious plan for the rebuilding of the Gardens was announced, but its implementation proved impossible for lack of the necessary resources. Unlike other national institutions, such as Kew Gardens or the National Gallery, we are not supported out of Exchequer funds. What we can spend we have to raise ourselves. But gate receipts and the relatively small revenue we receive from members is barely sufficient to meet our recurrent costs. Any major piece of building has to be financed by gifts.

Because we were unable to finance the plan prepared in 1951, the Council ten years ago commissioned Sir Hugh Casson to prepare, in association with the Society's own Architect Mr F. A. P. Stengelhofen, a new Master Plan which, while controlling developments, would be more elastic than the 1951 plan in relation to the resources which the Society could muster for the task.

The new plan was adopted by the Council in 1958 after it had received the approval of the Crown Estate Commission, the Ministry of Works, the Fine Arts Commission, and the London County Council. The purpose of the plan was to transform our Gardens so that the north end of Regent's Park became a major feature of London, from the point of view of architecture as well as that of landscaping, and in this way to maintain our reputation as curators of the finest Zoological Gardens in Europe. This objective remains unchanged and is now well on the way to fulfilment.

BEHIND THE SCENES

Before the plan was formulated work had begun on the demolition of the works, supplies and service buildings which were scattered in various parts of the Gardens and which, in most cases, were veritable slums. This was clearly a first step in any plan. By early 1960 the Hospital, the Supplies building, the Workshops for carpenters, metal workers, wire workers, plumbers and electricians, and the garages had all been rebuilt in a group behind the Mappin Terraces, away from public routes. This first step was essential to clear the way for new animal houses.

TOWARDS A MODERN ZOO

Much of the rest of the Zoo has since been transformed. Quite apart from the many buildings which have been renovated, and the other areas which have been cleared and replanted, nearly three quarters of the mammals in the Collection are already, or soon will be, accommodated in new houses or in old quarters which have been improved. The ungulates are exhibited in four new houses and paddocks, built around the completely reconstructed Decimus Burton Giraffe House, the whole group forming the Cotton Terraces along the Canal. The Elephant and Rhinoceros Pavilion, which received the 1965 R.I.B.A. Architecture Award for London, contains our collection of African and Indian Elephants and two pairs of rhinoceroses. Our large collection of small mammals will soon be moved to magnificent new quarters in the Middle Gardens.

The Snowdon Aviary – the first ‘walk-through’ aviary in the Zoo – is now a major feature of the north bank of the Canal, and an elegant new bridge between the North and Middle Gardens has greatly helped to ease the flow of traffic on crowded days.

Many other smaller improvements have been completed. An education centre, a new zoo shop, a social club for the staff and two Curators’ flats have all been built, the main restaurants have been renovated and modernized, and other services, including the drainage system which dated from the last century, have been improved.

While the programme of rebuilding the Zoo was advancing, substantial grants from the Nuffield Foundation, the Wellcome Trust and the Ford Foundation enabled us to build new research Institutes, which are mentioned later in this review, and when doing so the opportunity was taken to build a new meeting room within the main research building. A grant of £100,000 from the Wolfson Foundation made it possible to modernise part of the Society’s Headquarters and to convert the old meeting room as a modern library with sufficient stacks to hold the vast collection of zoological literature which the Society owns. The rest of the grant is earmarked for the building, alongside, of a Wildlife Centre to house the principal conservation societies of this country.

These developments would never have been possible without the princely generosity of many benefactors. Already well over two million pounds has been spent – a sum which the Society could never have hoped to find from its own resources. A gift of £250,000 from the late Mr Jack Cotton brought the Terraces and Animal Houses along the Canal Bank within our reach; his further gift of £50,000 helped materially with the Aviary designed by Lord Snowdon. A grant of £250,000 and a long-term loan of a similar amount from H.M. Government, and a grant of £100,000 from the London County Council have speeded up our work, and the many smaller but most welcome gifts from others have all helped us to reach the stage at which we now are.

This year a munificent gift of £200,000 from Mr Charles Clore made possible the building of a new Pavilion for small mammals, the Zoo’s collection of which has always enjoyed a world-wide reputation. At the time of writing this Report the building was nearly completed; it will be called the Charles Clore Pavilion for Mammals, and will undoubtedly prove to be one of the most popular and enduring features of the Gardens.

Visitors to this house, which has been designed by Black, Bayes and Gibson,

will find well over 100 different species of mammals displayed in a series of galleries. In one area a group of small carnivores – martens, weasels, stoats and skunks; in another a group of squirrels; a small wallaby paddock; a marmot enclosure and a marmoset gallery. In the lower ground floor the lighting will be so adjusted that nocturnal animals will be seen scurrying around as they would at dawn or dusk in their natural habitat. This will be one of the biggest exhibitions of nocturnal mammals in the world, and will include many unusual species as well as the more familiar bush-babies, genets and civets.

There can be no pause in the momentum of the rebuilding programme. What we have already achieved throws into sharp relief the older buildings which still have to be replaced. This is the problem we now face. Throughout 1966 we have been planning and designing urgently needed new quarters for primates. We hope to start the building in 1967. We have also reviewed the overall plan in the light of what has been completed in the last seven years, and the revised rebuilding plan mentioned later in this Report is a guide to the developments which must be undertaken in the coming decade.

Following the completion of the Primate House we shall have to embark upon new houses for the big cats and the hippopotamuses, aviaries and houses for birds of prey, parrots, and tropical and other birds. A house for invertebrates is also wanted, and the Reptile House and Aquarium need to be refurbished. A major feature of our plan is a series of overhead walkways which will not only link many of the houses in the Main Gardens but will greatly improve the circulation of visitors during the crowded summer season, at the same time as they provide cover when it is cold and wet. A central 'piazza' area in which the zoo shop, the first-aid rooms, the information bureau and other services will be grouped, is also to be built. The Children's Zoo will be rebuilt to a less formal design, possibly on an island site. A Dolphin Pool at the foot of the Mappin Terraces is planned, and a very important feature is the replacement of the forbidding and rigid southern boundary fence by a series of linking pools. In this way the Zoo will merge into the softer landscape of Regent's Park. All this will demand as much if not more expenditure than the buildings that have already been provided.

WHIPSNADE

While the main emphasis in effort and expenditure has been on the rebuilding of the London Zoo, Whipsnade has also received considerable attention. A new entrance complex, which includes a zoo shop, kiosks, cloakrooms and other public services has been built. New offices have been built to replace those destroyed by fire; an education centre has been provided, there has been a continuous programme of road-widening, and of the replacement of high fences by ditches and moats.

NEW RESEARCH DEPARTMENTS

With the building of the new research laboratories, which were made possible by the financial support of the big Foundations, the scientific work of the Society has been greatly strengthened.

The constitutional basis of the Society's existence is our Royal Charter. It places on us a duty to 'advance zoology and animal physiology', and the Society's progress is

dependent on the balance it maintains between the interests of scientific zoology on the one hand, and the management of a national exhibition on the other. With the ever-increasing need to conserve the remaining fauna of the world, the time is long past when we would be justified in maintaining our large collection of animals in captivity solely as an exhibition; however successfully the Zoo is managed, the Society would in the long term cease to have any claim on the support of the public unless it fulfilled its obligation to study scientifically the uniquely varied collection of animals in its care.

RESEARCH IN ANIMAL BREEDING

The Wellcome Institute of Comparative Physiology was built with the grant of £60,000 from the Wellcome Trust, which this year gave a further £3,800 to provide additional animal accommodation. The Ford Foundation made a grant of \$645,000 to endow Research Fellowships in animal breeding.

RESEARCH IN COMPARATIVE MEDICINE

The Nuffield Foundation gave £140,000 towards the building of the Nuffield Institute of Comparative Medicine, and this year made a further grant of £80,000, over a period of five years, towards the running costs of the Institute. The equipment was purchased with over £100,000 raised by appeal, including £30,000 from H. J. Heinz Co. Ltd, and £20,000 from the Sembal Trust.

For the first time in its history the Society thus has available under its own direction the necessary laboratories and scientific staff to make systematic studies possible, and to increase significantly the contribution it can make to the medical, veterinary and zoological sciences.

THE WAY AHEAD

One of the Council's main preoccupations is to ensure the stability of the Society's affairs in a period of rapid development. The administration of the Society must be maintained on an even keel; the pace of rebuilding must proceed smoothly; the opportunities for scientific work must be exploited and consolidated; and financial commitments to support these activities must be envisaged many years ahead.

The cornerstone of our financial planning is the fact that we can rely on attracting at least 2½ million visitors in any year to Regent's Park and Whipsnade. The income from admission charges provides the major source of revenue, now running at about £900,000 a year, and from this all expenditure by way of salaries, wages, animal feeding costs, maintenance of buildings, and the background support for our scientific programme must be met. In the interests of sound administration we have added to these commitments an annual contribution, at present £35,000, to the Pension Fund which is now established as a separate Trust Fund, and have started a Buildings Replacement Fund to which as large a sum as possible is fed each year. In 1966 the figure was £26,000.

Whilst the latter payment imposes a strain on our present resources, it is an important factor in providing the basis of future economic stability. In the past when the Society has needed to replace outdated buildings, it has been largely dependent on the surplus available in any particular year. In lean years when no money was

available, building operations had to be postponed and continuity of planning was impossible. On many occasions this has led to a general state of dilapidation in the Gardens, and an inability to modernize buildings to keep pace with changing needs in animal husbandry and exhibition.

Generous philanthropic support has enabled us to carry through the rebuilding programme to its present stage, and its continuation will undoubtedly depend on the further support we are given. The establishment of the Buildings Replacement Fund as a continuing annual charge on revenue will, however, ensure that from about ten years ahead the Society will have available £50,000 a year towards the replacement of buildings as they deteriorate or become unsuitable.

In order to keep pace with the rapidly increasing costs of wages, salaries and all services, admission charges to the London Zoo and Whipsnade were increased this year. Although past experience shows that initially attendances may fall this step should, in a year or two, provide a significant increase in revenue.

Undoubtedly the many improvements we have made are attracting more visitors to the Zoo, including many from abroad. As more capacious and attractive houses are built it becomes possible to see the animals indoors, as well as out of doors in their enclosures and this will, we hope, encourage more visitors to come in the spring and autumn thus extending the visiting 'season' more evenly and beyond the peak summer months.

At the moment the pattern of attendances varies only slightly from year to year – at Regent's Park one quarter of our two million visitors come in August, and nearly 24% on Sundays throughout the year. This in itself creates a problem, not only of overcrowding within the Zoo on some days, but of car parking within walking distance of the entrances. Public transport services are limited and, as more and more people come by car, the problem of parking becomes increasingly difficult. With the help of the Ministry of Public Building and Works a solution is being sought, but only a marked increase in the space available for parking will provide an answer adequate to meet the increasing numbers of visitors we attract.

Our plans envisage the completion of our rebuilding programme in the next decade. This is an immense undertaking. It will be achieved only if we maintain the same momentum and steady progress that we have during the past few years. But the end is in sight, and the Council is confident that what has already been completed will encourage still more support for the rebuilding programme, enabling us to maintain our status as the premier Zoological Society in the world, and as a national institution contributing materially to the development of the biological sciences.

General Review

FINANCE

Ordinary expenditure during the year showed a considerable increase over 1965, due chiefly to higher salaries and wages, increased short-term loan interest, and the additional running costs of the scientific institutes. However, the increase in entrance charges brought in sufficient revenue to balance the higher expenditure and the year ended with only a very small deficit on current account. Capital expenditure during the year amounted to £353,000, which was financed partly by the Government loan of £250,000 announced in the 1964 Report, and partly by short-term bank loans. A report on the rebuilding programme is given on page 15.

DONATIONS

The Council gratefully acknowledges a gift of £5,000 from Sir Jules Thorn, and a legacy of £100 from the late Miss Leida S. Suits; and, in support of the Nuffield Institute of Comparative Medicine, £300 from the Trustees of Lord Austin, deceased; £20 from R. C. B. Lane, Esq.; and £10 from Messrs Govett, Sons and Co.

Mr David Shepherd generously gave one of his paintings, an African Elephant, to be auctioned in aid of the Rebuilding Fund. It was sold for £320.

ROLL OF MEMBERS

At the end of the year there were 3,488 Fellows and 2,287 Associates.

ORGANIZATION

As already reported in the autumn Newsletter, Dr L. Harrison Matthews retired in June after 15 years' service, first as Director and Permanent Secretary and latterly as Scientific Director, in which capacity he was also Editor of the Society's scientific publications. Dr Matthews, who became a Fellow of the Royal Society in 1954, was responsible for animal management and, in addition, for research, scientific meetings and symposia, and he acted as secretary of a number of Committees. He contributed much to the scientific life and progress of the Society.

On his retirement the Council decided to take the opportunity to reorganize the senior management of the Society so as to make a clear division between the responsibility for research and scientific functions on the one hand, and the management of the London and Whipsnade Park Zoos on the other. On July 1st Major-General C. J. G. Dalton (previously Controller) became Director-General, being responsible for overall administration. Dr L. G. Goodwin was appointed Director of Science,

with the task of co-ordinating and supervising all research and scientific activities, while retaining the Directorship of the Nuffield Institute of Comparative Medicine. He is assisted by Dr H. G. Vevers who, in addition to remaining the Curator of the Aquarium, is responsible as Assistant Director of Science, for editing the Society's scientific publications and for the organization of symposia, scientific meetings and the library. Mr C. G. C. Rawlins was appointed to the new post of Director of Zoos, with overall responsibility for the management of both exhibitions, through the Curators at Regent's Park, and through the Director at Whipsnade.

COLLECTIONS POLICY

During 1966, the Council reviewed the policy governing the general development of the Collections at Regent's Park and Whipsnade, the basis of which has been to maintain collections sufficiently representative to be worthy of the Society's leading position in the zoological world. However, as modern standards of exhibition demand far more space, it is sometimes necessary, particularly in the limited area of the Regent's Park Gardens, to decide whether to exhibit a fully representative group which from a zoological point of view would be ideal, or to exhibit fewer species in more spacious conditions. Clearly a fair balance must be maintained between the claims of scientific zoology on the one hand, and aesthetic considerations on the other, but the Council decided that whilst it is desirable to maintain a Collection which is as representative as possible, this overall principle must, where necessary, be subordinate to the concept that the animals should be displayed only in conditions that are agreeable for them and aesthetically satisfactory to the visitor.

AWARDS FOR CONTRIBUTIONS TO ZOOLOGY

At the Annual General Meeting the President, H.R.H. The Duke of Edinburgh, presented the following awards:

The Silver Medal to *Mr David Attenborough*, for his contribution to the understanding and appreciation of zoology and natural history.

The Scientific Medal (awarded to persons under 40 years of age for distinguished work in zoology) to *Dr E. H. Ashton*, The Medical School, University of Birmingham, for his work on the functional anatomy of primates: *Mr B. B. Boycott*, University College, London, for his work on vertebrate and cephalopod nervous systems: *Dr R. M. Laws*, Nuffield Unit of Tropical Animal Ecology, Queen Elizabeth National Park, Uganda, for his work on the ecology and physiology of large mammals.

The Stamford Raffles Award to *Dr Ernest G. Neal*, of Taunton School, Somerset, in recognition of his distinguished contributions to zoology.

The Thomas Henry Huxley Award (for original work submitted as a doctor's thesis) to *Dr J. S. Gray*, now at the University of Leeds, for his thesis on 'The behaviour and ecology of mesopsammic archiannelids'.

The Prince Philip Prize (for an essay on animal ecology or behaviour submitted by a pupil of zoology taking the G.C.E. 'A' Level, or equivalent examination in any school in the United Kingdom) to *M. E. Greenhalgh*, then a pupil of Kirkham Grammar School, for his essay on 'Ruff migration on the Ribble Estuary'.

INFORMATION FOR THE PUBLIC

One of the most important responsibilities of any Zoo is to make full use of the opportunities a visit to the Collection affords of learning more about wild animals – their life, their behaviour, and their biology. The development of the formal education scheme for school parties, started in 1959, has been highly rewarding but endless opportunities also exist of stimulating the interest of the more casual visitor. How much information can effectively be given, the selection of the facts which will arouse most interest, and how these can best be interpreted in visual form are not easy problems to solve.

Early in the year the Council set up a small Working Party to study this subject. It was composed of the Hon. Ivor Montagu as Chairman and the following members: Mr A. M. Hassell (Publicity Media Services Division, Shell International Petroleum Co. Ltd); Mr Richard Levin (Head of the BBC Television Design Department); Mr John Miles (Typographical Consultant).

Their recommendations were accepted in principle and a three year programme of improvements in this sphere has now been set in train.

The Council is very grateful to the members of the Working Party for their constructive approach to the task, and for giving so much time to help the Society.

FILMING AND GENERAL PUBLICITY

A very successful 'Zoo Quest' competition was organised in the London Zoo in conjunction with the Boy Scouts Association. Over 16,000 Scouts and Cubs took part.

The Film Unit has continued to provide facilities for filming, television and still photography, and the well-known Granada TV series 'Zoo Time' appeared each week through the year, ten new programmes being recorded in August.

Eight programmes for schools, illustrating the work of zoos, were filmed in the London Zoo by Rediffusion Television, and many shorter filmed items appeared in educational, feature, and documentary programmes on other television channels.

Films prepared this year by the Society's photographer include a colour film record of the attempted mating of the Giant Panda in Moscow, three films on veterinary subjects and further short sequences for use by the Education Department.

THE FEDERATION OF ZOOLOGICAL GARDENS OF GREAT BRITAIN AND IRELAND

During the course of the year a Federation of Zoological Gardens of Great Britain and Ireland was established with the object of encouraging the proper care of wild animals in captivity. The Society played a leading part in its formation and has provided office accommodation for the Secretary.

Membership is granted on the basis of an examination to assess the standards of accommodation, veterinary care and animal management maintained by the applicant. The Society has been accepted as a member of the Federation.

WOLFSON WILDLIFE CONSERVATION CENTRE

Pending the building of this Centre, which has been delayed because of the ban on office building in London, temporary offices have been provided in the Zoo for the Council for Nature.

The London Zoo

Visitors during the year 2,003,300.
Visitors to the Children's Zoo, 482,600.
Visitors to the Aquarium 396,600.

REBUILDING PROGRAMME

The plan

As mentioned earlier, the 1958 Development Plan was reviewed during the year by a Working Party of consultants, and officials and amendments were approved in principle by the Council. The salient features of the previous layout are retained in the revised plan, the main differences being the retention of the Children's Zoo on its present site; the grouping of the public services (zoo shop, left luggage office, first aid rooms, etc.) in the area of the present Ostrich House, half of which will be retained and converted for this purpose; and the construction of a new Hippopotamus House and Invertebrate Section on the site of the present Lion House. A new feature of the plan is the inclusion of a Dolphin Pool at the lower end of the Mappin Terraces, and an open air walk-through aviary on the site of the present Eastern Aviary.

New construction and improvements

The main feature of 1966 was the completion of The Charles Clore Pavilion for Mammals (see page 8).

The South Gate has been altered to incorporate a special entrance for organized parties and other ticket holders, and the turnstiles have been replaced by ticket machines. These have proved very successful and a similar conversion is now planned for the Main Entrance. The kiosks for the sale of guides and plans near each of the zoo gates, which were mentioned last year, were completed in time for the summer season, as was the Information Bureau in the centre of the Gardens. They all proved their worth.

Improvements were made to the camel riding track which was re-made and properly drained, thus enabling it to be used after heavy rain.

Future work

New quarters for the Giant Panda in the old Cattle Sheds, and new public lavatories at the South Gate, were being built at the end of the year. Other major works which it is hoped to start in 1967 include the first stage of the new Primate House which is to be built on the site of the present South Mammal House and Great Aviary, and which is being designed by Mr F. A. P. Stengelhofen.

The new Sealion viewing stand, with quarters for canines below, which was planned for 1966 but postponed on economic grounds, will be started as soon as possible.

THE COLLECTION

Mammal section The main event of the year was the visit of 'Chi-Chi', the female Giant Panda, to Moscow Zoo. Following preliminary negotiations, the Senior Veterinary Officer and a Head Keeper flew with 'Chi-Chi' to Moscow in March. The first introduction of the two animals resulted in a fight and it was agreed to leave 'Chi-Chi' in Moscow until her anticipated period of sexual activity in the autumn. She spent the summer there and came into breeding condition at the beginning of October. The Curator of Mammals, Whipsnade's Veterinary Officer and the Zoo's Photographer went to Moscow immediately and another attempt to introduce the pair was made on October 6th. There was no serious fighting on this occasion, but the mating attempt was unsuccessful although 'An-An' showed great interest in 'Chi-Chi' and approached her repeatedly. He made several attempts to mate with her but she refused all his advances, despite the fact that she was in breeding condition. After many hours of being together and a number of separate introductions it was decided to abandon the attempt, and 'Chi-Chi' returned to London on October 17th.

During the year there have been a number of exciting breeding successes at Regent's Park. A Red-and-White Flying Squirrel, believed to be the first born in captivity, has been reared in the temporary nocturnal quarters in the Children's Zoo. A Lar Gibbon was born in the outside Gibbon Enclosure, the first at Regent's Park for many years, and has proved a great attraction through the summer. Two mammal species in danger of extinction, Przewalski's Wild Horse and the European Bison, have both bred this year. The Chinese Leopards have also produced two offspring and both species of camel, the Arabian and the Bactrian, have reared offspring in their new Cotton Terrace quarters.

A major acquisition has been a young pair of Black Rhinoceroses, which are housed in the new Elephant and Rhino Pavilion. The male and female White Rhinoceroses already exhibited there were introduced to one another and it is hoped that both species of rhinoceros will breed. The complement of animals in the Elephant and Rhino Pavilion is now complete.

The Society has been particularly fortunate this year in acquiring a number of extremely interesting Australian marsupials including: Short-tailed Pademelon, Silver-grey Phalanger, Brush-tailed Rat Kangaroo, Banded Hare Wallaby, Common Wombat, Australian Echidna, Pretty-faced or Whip-tailed Wallaby and Müller's New Guinea Wallaby, all of which will add to the value and variety of the collection to be exhibited next year in the new Charles Clore Pavilion for Mammals.

In accordance with the Society's policy not to exhibit single animals, attempts have been made to obtain mates for the single specimens at present in the Collection. A male Cape Hunting Dog has been obtained to pair with the existing female, a female Malayan Tapir has been purchased as a mate for the male already in the Zoo, and a young male Orang-utan has been presented by the Government of Singapore to pair with 'Bulu', the female which was born five years ago in the Monkey House.

Polar Bear
'Amos' seen
underwater
from the
keepers'
observation
panel.
London
Zoo. *W G
Vanderson
Fox Photos*



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'An-An' and 'Chi-Chi' in Moscow Zoo
The Zoological Society of London



Sacred Ibises in the Snowdon Aviary, London Zoo
The Zoological Society of London



Feeding the young Sarus Crane. London Zoo
The Zoological Society of London



Sarus Crane hatched in the London Zoo
The Zoological Society of London

Bird section During the year, twenty-two new forms have been added to the collection of birds, including a representative of a family new to the Collection (Formicariidae). Among successful hatchings of young were two Sarus Cranes and two Gallinules, the latter in the Snowdon Aviary.

Some birds have been allowed to fly freely in the Gardens: a pair of peafowl and a pair of macaws, as well as storks and cranes that come out from the Three-island Pond and, of course, the budgerigars that come and go from their aviary. The experiment has, so far, been successful and the birds, particularly the large ones, make an attractive addition to the garden scene.

Aquarium The Aquarium has had considerable success in the exhibition of tropical marine fish which were received from Singapore and Ceylon. These collections have included dragonfish, damselfish, various butterflyfish, and also two species of anemone-fish which live among the tentacles of sea-anemones.

In connection with their exhibition, a number of adjustments have been made in the reserve part of the Aquarium, involving extra filtration, ozonization and improved lighting.

Insect House The Insect House has exhibited a large number of land and freshwater invertebrates. The outstanding event of the year was the mating and breeding of Bird-eating Spiders *Avicularia avicularia*. This brood yielded 120 spiders which are now feeding successfully. The Insect House also has no fewer than twelve species of stick-insect and most of these are breeding satisfactorily. They are fed on such varied food plants as privet, rhododendron, bramble, guava and eucalyptus.

Reptile House The last phase in the modernization of the snake cages is nearly complete. The cages now have under-floor heating and rounded walls painted with epoxy resin which stands up to the warm, humid conditions. Plans are now being made for modifications which will allow the Giant Tortoises to be exhibited in the Reptile House during the winter.

GARDENING DEPARTMENT

The usual fine display of flowers brightened the spring and summer seasons, with petunias and fuchsia this year replacing geraniums in the beds along the Broad Walk. Despite generally poor weather conditions, these flowers did well and provided the high standard of colour and form now expected in the Gardens. The dahlia display was once again a dazzling success and evoked much favourable public comment. The Society can claim to have one of the best exhibitions of this kind in the country.

The results of the 1965 plantings of bulbs of various kinds were spectacular and these, with the many new shrubs and ground cover plants added in the last two to three years, are now well established and the general horticultural picture is bright. Some difficulty was found in growing shrubs and plants in the Snowdon Aviary because of the constant attentions of the birds. Additional trees were planted towards the end of the year.

A start was made on the planting programme for the surrounds of the new Charles Clore Pavilion for Mammals, and for the decoration of the interior, including boxes which are to be placed, under suitable protection, inside the animal dens.

The labelling of most of the rarer trees in the Gardens has been completed.

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

On 1st January 1966	2,634
Received in 1966 by presentation, exchange, deposit, purchase, and transfer from Whipsnade	873
Born and hatched in the Menagerie during 1966	223
	<hr/>
	3,730
Died, sold, sent in exchange, returned to depositors, and transferred to Whipsnade	918
	<hr/>
Recorded figure 31 December 1966	2,812
	<hr/>
Revised figure after completion of stock-taking	3,017

Whipsnade Park

Visitors during the year 609,300.
Visitors to the Children's Zoo 175,200.
Cars brought into the Park 44,528.

The number of visitors to Whipsnade this year was well below the 1965 figure. In an attempt to identify the reasons for this decline the Council commissioned a public opinion survey of visitors during the summer. As a result, a number of short term improvements have already been put in hand. The Council has also decided to set up a planning group to advise on the development of Whipsnade Park during the next decade.

THE COLLECTION

Her Majesty The Queen deposited a white donkey at Whipsnade Park. This animal, a miniature variety, was presented to Her Majesty by Ex-President Segni of Italy and comes from the Island of Asinara.

This year's breeding successes include two Wild Horses, two Bactrian Camels, three Arabian Camels, four Père David's Deer, one East African Eland, five Nilgai, one African Buffalo, three North American Bison, one Impala, two Black-faced Kangaroos and six Red-breasted Geese.

A female Cheetah, 'Juanita', received in November, was presented to the Society by Commander H. F. P. Grenfell, D.S.C., R.N. (Retd).

The pair of rare European Bison presented to the Forestry Commission by the Polish Government and deposited in 1964 in the London Zoo, was transferred to Whipsnade at the end of the year, together with the calf which had been born in April. These three animals join the three females already there, to form a fine herd of a species which has only recently become re-established in the wild state.

GENERAL DEVELOPMENTS

The new office block was completed and occupied by the administrative staff at Easter. Road widening along Escarpment Avenue was in progress at the end of the year, and major alterations to the main Cafeteria were in hand, as well as other minor but nevertheless important improvements in catering, transport and other facilities.

THE GENE BANK

Work on the Gene Bank has continued throughout the year and the animals now held are:

	<i>No. remaining from original purchase or presentation</i>	<i>Present status of herds and flocks</i>
Longhorn Cattle	1 male 5 female	31
Chartley Cattle		27
Cotswold Sheep	1 male 4 female	13
Norfolk Horned Sheep	1 male 2 female	11
Lincoln Longwool Sheep	6 female	28
Manx Loghtan Sheep	1 male	6
Woodlands White-faced Sheep	1 male 4 female	10
Portland Sheep	1 male 3 female	10
Soay Sheep (Ex Hirta)	1 male 6 female	39

During 1966 a Portland Ram, Lincoln Longwool Ram and Cotswold Ram were acquired, in order to introduce new blood into these three flocks.

There are also birds of the following breeds:

	<i>Present status of flocks</i>
Silver Spangled Hamburgs	3 male 8 female
Lakenvelders	4 male 9 female
Sumatra Game Fowl	1 male 3 female
Indian Game Fowl	5 female
Old English Game Fowl	1 male 14 female
Buff Cochins	1 male 9 female
Redcaps	3 male 8 female
Silver Dorkings	4 male 11 female

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

On 1st January 1966	2,135
Received in 1966 by presentation, exchange, deposit, purchase, and transfer from Regent's Park	105
Born and hatched in the Park during 1966	482
	<hr/>
	2,722
Died, sold, sent in exchange, returned to depositors, and transferred to Regent's Park	493
	<hr/>
In the Park on 31st December 1966	2,229
	<hr/>

Scientific Activities

SCIENTIFIC MEETINGS

Eight meetings were held during the year. Many of the papers communicated have been published in the *Journal of Zoology*. Amongst the remainder, the following were of particular interest: The analysis of mastication in Wallabies, by Dr G. M. Ardran, Dr G. du Boulay and Dr W. D. L. Ride; the visit of the Giant Panda 'Chi-Chi', to Moscow Zoo, by Mr Oliver Graham-Jones, and a report by Dr Desmond Morris on the attempted mating of the Giant Panda; Argentinian Triassic reptiles by Professor A. S. Romer; the natural history of the Pika *Ochotona princeps* by Dr J. H. Severaid and aspects of environmental physiology of the Eland compared to Hereford cattle, by Dr C. R. Taylor.

SYMPOSIA

The following were held:

- March 23rd/24th 'Aspects of marine zoology', organized by Mr N. B. Marshall.
- May 25th/26th 'Echinoderm biology', organized by Professor N. Millott.
- November 10th/11th 'Comparative nutrition of wild animals', organized by Dr M. A. Crawford.

PUBLICATIONS

Journal of Zoology

Transactions

Symposia series

Zoological Record

Nomenclator Zoologicus

Editor: Dr H. G. Vevers

Assistant Editor: Miss M. A. Edwards

International Zoo Yearbook

Editor: Miss C. Jarvis

Advisory Editor: Dr H. G. Vevers

Journal of Zoology Volumes 148, 149 and 150 have been published, the interval of four to six months between the acceptance of a paper and publication being maintained.

Symposia The following volumes in the *Symposia* series were published:

Number 15 'Comparative biology of reproduction in mammals' edited by Dr I. W. Rowlands.

Number 16 'The Cnidaria and their evolution' edited by Dr W. J. Rees.

Number 17 'Some recent developments in comparative medicine' edited by Mr R. N. T-W-Fiennes.

Number 18 'Play, exploration and territory in mammals' edited by Dr P. A. Jewell and Mrs Caroline Loizos.

Zoological Record Volume 100, recording the literature for 1963 was completed. Twelve sections of Volume 101 were also published, and eight sections are in the press. Starting with Volume 102 the typography of the *Record* is being changed, so that all sections will be in one style, and thus form a more homogeneous volume.

The Society wishes to express its thanks to the Recorders and Searchers who compile the *Record*, and to all those whose donations to the Zoological Record Fund are listed in Appendix 6.

International Zoo Yearbook Whereas in Volume 1 only 131 zoos contributed information for the *Yearbook*, in the current volume notes from some 500 zoos are included. The amount of data on wild animals in captivity thus being recorded for the *Yearbook* is considerable, and it is clear that this publication has done much to make zoos aware of the importance of the scientific data they can provide. The Society is grateful to all who contribute, and to all who help in many other ways to make the *Yearbook* a success.

Volume 7 is divided into three parts—Part 1 consists of 19 articles on penguins in captivity; Part 2, contains 103 papers and reports on various subjects, such as Architecture, Breeding, Conservation, Education, Husbandry, and Research; and Part 3, the reference section, contains detailed lists of zoos and aquaria of the world; changes in personnel; zoo federations and associations; numbers and species of vertebrates bred by zoos and aquaria in 1965; a census of rare animals in captivity in 1966; and a list of important recent zoological research and veterinary work undertaken at zoos and aquaria.

LIBRARY

The conversion of the old Meeting Room as a Library was completed, and the new Reading Room and the stacks for periodicals on the ground floor were brought into use in June. There are now ample facilities for working in the Library and it is also possible to display the newly acquired books and journals, while access to bound volumes in the stacks is also easier. The stock of the Library, now about 120,000 volumes, was arranged in a new order and placed on the shelving as this became available. At the same time the volumes which had been sent to an outside store were brought back and incorporated into this sequence. This operation was completed without any interruption to the normal service to Fellows, or to the Society's research staff. Work on the new periodical catalogue and subject index has continued.

In the course of the year a class from the School of Librarianship visited the Library, and two students of librarianship spent a month there as part of their studies.

CLINICAL DEPARTMENTS

Veterinary section, Regent's Park. The total number of cases passing through the Hospital in 1966 was 279, the recovery rate being 86%. Sixty-five animals passed through the Quarantine Station. The table below shows comparative recovery rates of notified cases for the past ten years:

<i>Year</i>	<i>per cent</i>	<i>Year</i>	<i>per cent</i>	<i>Year</i>	<i>per cent</i>	<i>Year</i>	<i>per cent</i>
1956	67	1959	81	1962	80	1965	81
1957	76	1960	85	1963	82	1966	86
1958	75	1961	79	1964	89		

Pathology laboratory During the year 519 autopsies were made on animals from amongst the resident acclimatized population which died in the London Zoo. A further 451 autopsies were made on newly arrived unacclimatized animals, and on animals from external sources.

768 diagnostic reports were made on specimens from living animals.

There have been no outbreaks of infectious diseases which have caused concern except a recurrence of trouble from helminthiasis and amoebiasis in snakes, which was mentioned in last year's Report.

Respiratory deaths amongst the ungulates are still lower than has been customary in previous years, which provides additional evidence that the new and modern accommodation available for these animals is having a beneficial effect on their health.

At Whipsnade Mr Martin Senior (Consulting Veterinary Surgeon) and Mr V. J. A. Manton carried out 261 autopsies, 116 on birds, 143 on mammals and 2 on reptiles.

Research

Dr H. G. Vevers has continued his work in collaboration with Professor N. Millott, Bedford College, on the axial organ of echinoids. A section of this work, prepared for the Society's Symposium on Echinoderm Biology in May, was presented in two papers, one by Professor Millott and the other by Dr Vevers. The major portion of the work is now being prepared for publication.

Mammal research Animal behaviour studies have continued throughout the year, and a number of ethology seminars have been held. Dr Frances Reynolds completed her study of hoarding behaviour in certain rodents, Miss Devra Kleiman has continued her work on the reproductive behaviour of acouchies and bats, and Mrs Caroline Loizos has carried out further work in her investigation into the play behaviour of chimpanzees and rats. Miss Elizabeth Evans has begun a research project on nutritional problems in mammals.

THE NUFFIELD INSTITUTE OF COMPARATIVE MEDICINE

Staff

Director : L. G. Goodwin, M.B., B.S., M.R.C.P., B.Pharm., B.Sc.

Biochemistry : M. A. Crawford, Ph.D. *Infectious Diseases* : G. R. Smith, Ph.D., M.R.C.V.S., D.V.S.M., Dip.Bact. *Pathology* : R. N. Fiennes, M.A., M.R.C.V.S. *Research Assistant Infectious Diseases* : D. E. Bidwell, B.Sc. *Laboratory Superintendent* : P. R. E. Wallace, A.I.S.T. *Administrative Assistant* : Miss P. E. Wright. *Visiting Graduates* : P. A. J. Ball, M.D., M.R.C.P.; E. P. G. H. du Boulay, M.B., B.S., D.M.R.D., F.F.R.; Miss M. M. Gale, B.Sc., Dip.Ed.; Miss C. M. Hawkey, Ph.D.; Professor W. Landauer, Dr. phil. nat.; A. Voller, Ph.D.; N. Wakasugi, M.Agric.; P. F. L. Boreham, B.Pharm.; Miss R. J. Atkinson, B.Sc.

During the year the staff of the Institute increased to 39, of whom 9 were visiting graduates. The research projects, supported by grants from the British Heart Foundation, the Medical Research Council, the Ministry of Overseas Development, A. Wander Ltd, the Wellcome Trust, the Picker Foundation and the National Science Foundation, are detailed below.

Pathology

Mr R. N. Fiennes and Dr G. du Boulay (Picker Foundation grant) have investigated the forces which control blood flow through the posterior vena cava in several species of animals by means of angiographic flow pictures and measurement of intracaval pressures. Bones from primates are being processed by new techniques in collabora-

tion with Dr H. Sissons (Royal National Orthopaedic Hospital) in order to correlate histological and radiological appearances in bone disorders. A collection of tissues from wild animals has been received from Dr A. Harthoorn in E. Africa; these will form a useful reference library for comparison with captive animals.

Miss S. K. Sikes (British Heart Foundation) left the laboratories in October 1966; she continues her work on arteries collected from animals in Africa at the Royal Holloway College. Her work on arterial lesions in elephants has been of particular interest.

Dr C. M. Hawkey (British Heart Foundation grant) has continued the study of blood coagulation, fibrinolysis and platelet behaviour in animals and man. Many species have more active clotting systems than humans, suggesting that increased clotting activity is unlikely to be responsible for the high incidence of thrombotic disease in man. The rapid breakdown of platelet masses that occurs in many animals may be important in preventing thrombosis. In conjunction with Dr C. Symons (Royal Free and New End Hospitals), the study has been extended to a comparison of platelet aggregation and its reversal in patients with cardiovascular disease and in healthy subjects. The work has been greatly helped by 150 members of the Society's Staff who volunteered to give blood samples for the tests.

Dr Hawkey has also found several interesting substances in the saliva of vampire bats; one has the ability to dissolve blood clots by activating the fibrinolytic system. A grant has been awarded by the Medical Research Council for further study of these substances.

Professor W. Landauer and Mr N. Wakasugi (National Science Foundation grant) have worked on the effects of drugs as teratogenic agents in chick embryos. A specific genotype was found to protect embryos against malformations of the maxilla caused by acetazolamide and N-ethylnicotinamide but not against defective development of tibia and fibula caused by the latter drug. The teratogens probably interfere with NAD functions and oxidative phosphorylation in the embryo.

Infectious Diseases

Dr G. R. Smith continued the study of mycoplasmata responsible for pleuropneumonia and contagious agalactia in animals. Mouse infections were suppressed by previous treatment with serum from animals that had recovered, thus providing a method for research on vaccination and immunity in this disease. Examination of isolates of *Pasteurella pseudotuberculosis* from the Society's Collection suggested that strains from rodents may differ from those that infect reptiles.

Mr D. E. Bidwell, with the aid of a Medical Research Council grant, has examined sera from animals in the Collection for the presence of inhibitors of arbovirus haemagglutinins. None so far have contained antibodies but many contain non-specific inhibitors. These substances are being separated and studied in collaboration with Dr C. E. Gordon Smith (Microbiological Research Station, Porton).

Dr A. Voller (Medical Research Council grant) has continued his work on the effect of pregnancy and of cross-immunity on rodent malaria infections. In conjunction with Dr R. Schindler (Tropeninstitut, Hamburg) a critical assessment of the value of serological tests in simian and human malaria has been made. Immunological studies have also been carried out on about 800 sera from a Nigerian population, provided

by the World Health Organization. The effect of *Eperythrozoon coccoides* on the development of concomitant viral and protozoal infections is also being studied.

Dr P. A. J. Ball (Medical Research Council grant) has made further studies of immunity in hookworm infections. Haemagglutination, complement fixation and fluorescent antibody tests have been assessed as indicators of recent infection. In collaboration with Dr Voller, hookworm antibodies have been measured in the collection of human sera from Nigeria.

Pharmacology

Mr P. F. L. Boreham (Ministry of Overseas Development grant) who is studying kinin-like substances in trypanosome infections is at present at the East African Trypanosomiasis Research Organization in Uganda, working on human and bovine infections. Collaborative work by Mr Boreham, Dr G. du Boulay and Dr. L. G. Goodwin demonstrated, by X-ray angiography, increased vascular permeability and arterial constriction in chronic trypanosomiasis in rabbits.

Radiology

The department is now in full operation. Dr G. du Boulay and Miss P. Verity (Picker Foundation grant) have studied the anatomy of the cerebral circulation in a wide variety of post mortem specimens; this is the first stage of a project on cerebrospinal fluid pulsation. Some light has been thrown on the function of the rete cerebri. In collaboration with Mr Lindsay Simon (National Hospital, Queen Square) a study of cerebral arterial spasm has begun and further financial support is being sought. A series of skeletal radiographs have revealed mineral deficiencies in the bones of animals in the Collection and attempts are being made to improve diets. The department has contributed to many of the projects detailed elsewhere in this report.

Electron Microscopy

Mr D. Taylor joined the laboratories as electron microscopist in April 1966 and the apparatus is in full operation. The current projects include the examination of blood vessels in cardiovascular disease and infection, nematode larvae and the larval stages of cestodes. The instrument is also used for a project on sperm morphology by Mr P. Healey of the Wellcome Institute of Comparative Physiology.

Biochemistry

Dr M. A. Crawford and Miss M. M. Gale (Ministry of Overseas Development grant) have begun a study of the effects of diet in the development of endomyocardial fibrosis. Indole and amino acid metabolism has been investigated in normal guinea pigs and in animals given tryptophan, metabolites of tryptophan and amine oxidase inhibitors. The pattern of lipid composition in arterial lesions in herbivores and carnivores is being studied by gas-liquid chromatography.

Miss R. Atkinson (Wander Research Fellow) has begun work on the nitrogen metabolism of various herbivores. The department is also collaborating in the study of bone disease in the Society's Collection.

Mr R. Young (University of California) spent his summer vacation at the laboratory and studied the effect of pH on the metabolism of renal tissue.

THE WELLCOME INSTITUTE OF COMPARATIVE PHYSIOLOGY

Staff

Senior Research Fellow: I. W. Rowlands, Ph.D. *Research Fellow*: R. M. Sadleir, Ph.D.
Research Assistants: P. Grubb, B.Sc., Miss D. Kleiman, B.Sc., R. R. Coutts, B.Sc.,
P. A. Racey, B.A.

Research Students: Miss B. J. Weir, B.A., H. R. H. Tripp, B.A. *Senior Technician*:
P. Healey, A.I.M.L.T.

Research Facilities The Society is grateful for the grant of £3,800 received from the Wellcome Trust to provide open-air pens on the roof of the Institute. Construction is expected to begin early in 1967.

Closed-circuit television equipment has been purchased by the Society for use by members of the scientific staff, and is maintained at the Institute.

Staff changes The Fellowships held by Drs P. A. Jewell and G. H. Manley ended during the year and Mr G. Clough resigned to take up a Ford Fellowship at the Nuffield Unit of Tropical Animal Ecology in Uganda. Several new appointments have been made.

A Studentship for one year was given to Miss B. J. Weir to complete her post-graduate studies for the Cambridge Ph.D., followed in 1967 by a Fellowship to extend her work on the reproduction of hystricomorph rodents. Mr H. R. Howard Tripp was appointed to a Research Studentship for three years and Mr R. R. Coutts was selected to replace Mr Clough, as research assistant to the Senior Research Fellow. Mr P. A. Racey joined the staff as research assistant under the W. H. O. grant, to study reproduction in bats. A Fellowship to take effect during 1967 has been offered provisionally to Mr W. H. Tam for biochemical studies on sex steroids.

Research

The Senior Research Fellow, Dr Rowlands, has continued his histological study of the reproductive cycle of the Skomer Vole. Evidence is accumulating which indicates that fertility at the beginning of the annual breeding season is considerably delayed by the recurrence of several oestrous cycles in which mating, if it does occur, does not lead to pregnancy. It is hoped that these studies will explain the cause of this initial period of temporary sterility.

In collaboration with Drs R. B. Heap and J. S. Perry of the Institute of Animal Physiology, Babraham, Dr Rowlands has made further studies of the role of the uterus and the pituitary gland on the secretion and release of progesterone from the ovary of the guinea-pig. He has also investigated, with Mr Clough, the effect of the decidual reaction on hormonal secretion.

Dr P. A. Jewell's studies of the Soay sheep on Hirta (St. Kilda) are being continued by his research assistant, Mr P. Grubb, who has remained for long periods on the island, principally to make detailed observations at tugging and lambing periods.

Dr Sadleir has continued his investigation of breeding problems in zoo mammals. Special attention has been given to some felids including documentation of oestrous cycle and gestation lengths and the induction of ovulation. The egg-transfer technique has been applied to increase fertility in the Norfolk Horned Sheep in the Gene Bank at Whipsnade. The physiological responses of these rare sheep were consider-

ably lower than expected, and only two extra lambs were born. The assistance of Mr L. E. Rowson and his colleagues in this work is gratefully acknowledged.

Semen has been collected by electro-ejaculation from the rams of the Gene Bank breeds and preserved by freezing. Dr Sadleir has also investigated, with Mr D. Richardson of University College Hospital, the effect of various protective agents during the freezing of human spermatozoa.

Dr G. H. Manley has made further studies of the reproductive behaviour of certain zoo mammals. The Snow Leopards have been studied in detail during oestrus in an attempt to determine the causes of their infertility and an extended study made of the effects of a mate-switch operation involving two pairs of Jaguars, one of which had consistently failed to breed. Although sexual behaviour was intensified by this operation, it was not sufficient to result in successful mating.

Dr Manley's investigation of the sexual cycles of the Chimpanzee, initiated in 1965, was continued, and an estimate of the optimal time for insemination of a particular female determined. Artificial insemination was performed by the Senior Veterinary Officer and Dr Sadleir, and further observations were made on the sexual skin. Although cyclical changes were maintained, as is not unusual in this species after conception, certain novel features were detected and menstrual bleeding was not observed until the fourth cycle. At this time the animal was considered not to be pregnant, but the possibility of pregnancy having been initiated and maintained for about four months cannot be entirely ruled out.

The birth and rearing of *Arctocebus* in the laboratory have been recorded by Dr Manley who has also made extensive observations on the brachial and other scent glands of prosimians. This and other studies on these animals have been concluded.

Mr G. Clough has continued the collection of reproductive and endocrine organs at *post mortem* examination. During the year material from 178 specimens has been documented and preserved for histological study. Material is now available from 12 mammalian orders including 170 species.

Mr Clough has investigated the thyroid glands of Lion cubs that have died in the Gardens. A large majority of these glands were in a hyperplastic condition and the evidence so far obtained suggests that the condition is hereditary.

Miss B. J. Weir has continued her studies on the Chinchilla. A breeding colony of Chinchilla has been maintained from which the pattern of reproduction in laboratory conditions has become better understood. Observations have been made on the hormonal induction of ovulation and semen collected by electro-ejaculation. Techniques for artificial insemination are being examined to provide pregnancies of known age for further investigation with Dr D. Billington (Oxford) of the deportation of trophoblast cells to the lung – a phenomenon which also occurs in man. Miss Weir is also studying the oestrous cycle of Agouti, Acouchi and African Porcupine.

The Senior Technician (Mr P. Healey) has rendered much assistance to Dr Sadleir in the development of electro-ejaculation techniques, and he has applied this method to the collection of semen from the Chinchilla, in collaboration with Miss Weir. Mr Healey has also been observing changes in the ultra-structure of spermatozoa when subjected to various concentrations of salt solutions and to other processes associated with the deep-freeze preservation of semen. Work on the normal ultra structure of Chinchilla spermatozoa is also in progress.

Mr Tripp has begun his studies on ovulation in elephant shrews from South Africa. A limited number of *Elephantulus myurus* and *Petrodromus tetradactylus* has been received.

Miss Devra Kleiman, during the first year of the W.H.O. project on delaying mechanisms in reproduction, has studied the behaviour of five species of British insectivorous bats in laboratory conditions. A cage for their maintenance has been devised, in which two noctules were born and reared. Physiological studies on delayed fertilization in bats will be undertaken by Mr P. A. Racey, who joined the staff in mid-November. Similar studies have been made on recently-introduced Stoats and a cage for their maintenance has been designed. An investigation of delayed implantation in this species is being undertaken by Mr R. R. Coutts.

Miss Kleiman has also continued to study the sexual behaviour of the Acouchi. Oestrous cycle and gestation lengths have been determined and quantitative data obtained on maternal behaviour.

Educational Activities

EDUCATION PROGRAMME FOR SCHOOLS

The attendances during the year increased by nearly 12% on the 1965 total. The figures were:

Regent's Park - Spring Term	11,746
Summer Term	12,352
Autumn Term	15,272
Whipsnade Park - Summer Term	2,783
	<hr/>
	42,153
	<hr/>

Whilst this steady progress is very encouraging it has meant that the size of the parties has become larger than is ideal, particularly during the tour of the Zoo which is an invaluable part of the demonstration. To cope with this it has been necessary to add one assistant education officer to the staff and, by converting the Mappin Cafeteria, to make available an extra lecture room during the winter season. As a result the number of lecture-demonstrations for secondary schools in the autumn and spring has been increased, and the average number of pupils in each class reduced.

A new series of special demonstrations for backward secondary school pupils has also been introduced at the request of many teachers, and 1,709 pupils attended courses at this level during the autumn term.

OTHER COURSES

Once again there was a keen demand for places at the short courses for university students, held during the Easter vacation. Special demonstrations were also arranged for students from technical colleges and colleges of education.

YOUNG ZOOLOGISTS' CLUB

As in previous years guided tours for members at the London Zoo and Whipsnade proved popular, and Club meetings held in the school holidays were well attended. At these meetings the speakers included Miss Caroline Jarvis who talked about the animals she had seen in Chinese zoos, and Dr Vernon Reynolds who spoke on 'The Chimp in the Wild'. There were also film shows and a quiz at which a team of Young Zoologists' Club members competed against a team from Pan's Garden, Leicestershire. At the Christmas meeting Mr James Fisher spoke about the fauna of Rockall, Dr Maurice Burton about anting in birds, and Dr Desmond Morris on the facial expressions of monkeys.

Three issues of the Zoo Magazine appeared during the year, and once again many contributions by Club members were included.

The Council is grateful to the Members and friends of the Society who have helped and encouraged the Club during the year.

CHRISTMAS LECTURES

Three meetings were held during the Christmas holidays for children and young friends of Members of the Society.

Dr Malcolm Lyall-Watson gave a talk on 'Making Faces at Monkeys', Messrs George and John Newmark spoke about their 'Creepy-Crawly Hunting Holidays' and at the third meeting the films 'The Islands of the Sea' and 'The Olympic Elk' were shown. All three meetings were fully attended by enthusiastic audiences.

Staff

At the end of the year the permanent staff of the Society totalled 599. Of these 132 were employed at the headquarters of the Society, 49 in the Research Institutes, 285 in the management and Menagerie of the London Zoo, and 133 were employed at Whipsnade Park.

A list of senior members of the staff is given in Appendix 2.

RETIREMENTS

As reported on page 12 Dr L. Harrison Matthews, M.A., Sc.D., F.R.S., Scientific Director, retired. Mr F. A. P. Stengelhofen, L.R.I.B.A., Architect, retired on 31st December, but has accepted the invitation of the Council to remain with the Society, on a part time basis, to undertake the design and building of the new Primate Section. During his 20 years' service he has designed many of the new buildings, and has been much involved with the development of the rebuilding programme. His unfailing good humour, his ready co-operation and wide knowledge of the particular requirements of animal housing have been a great asset to the Society.

Other retirements at Regent's Park included Mr A. J. Cotterill, Head Keeper of the Sealion Section, and Mr R. Frewin, Senior Keeper in the Parrot House.

At Whipsnade Park Mr R. Tulley, Head Gardener, retired.

RESIGNATIONS

As recorded in the Autumn newsletter Mr O. Graham-Jones, F.R.C.V.S., Senior Veterinary Officer since 1950, resigned to take up a senior appointment at the Royal Veterinary College. The Council wish him every success in his new appointment.

APPOINTMENTS

Mr C. G. C. Rawlins, O.B.E., D.F.C., was appointed to the new post of Director of Zoos.

A further step in the policy of integrating the administrative services common to both Regent's Park and Whipsnade was taken by the appointment of Mr W. N. Hill, F.H.C.I., formerly Catering Manager, Regent's Park, as General Manager, Catering. He is responsible for all the catering services of the Society, including Zoo Restaurants Ltd of which he was appointed Managing Director.

Mr G. A. J. Perkins was appointed Catering Manager, Regent's Park.

Mr J. Toovey, A.A.Dipl., A.R.I.B.A., was appointed Architect.

Mr J. M. Hime, M.R.C.V.S., was appointed Veterinary Officer.

Mr J. S. Williams was appointed Assistant Public Relations Officer, with particular responsibility for Whipsnade.

Mrs. L. René-Martin was appointed Production Manager, Publications Department.



Young African Brush-tailed Porcupine.
Born in the London Zoo, October 1966 -
the first since 1948

W. G. Vanderson Fox Photos



Young Slow Loris - the first born in the
London Zoo

The Zoological Society of London



Bird-eating Spider. The young spider, 10 days old,
 $\frac{1}{2}$ " long, was one of 120 bred in the London Zoo

The Zoological Society of London



Brazilian Tapirs in Whipsnade Park

W. G. Vanderson Fox Photos

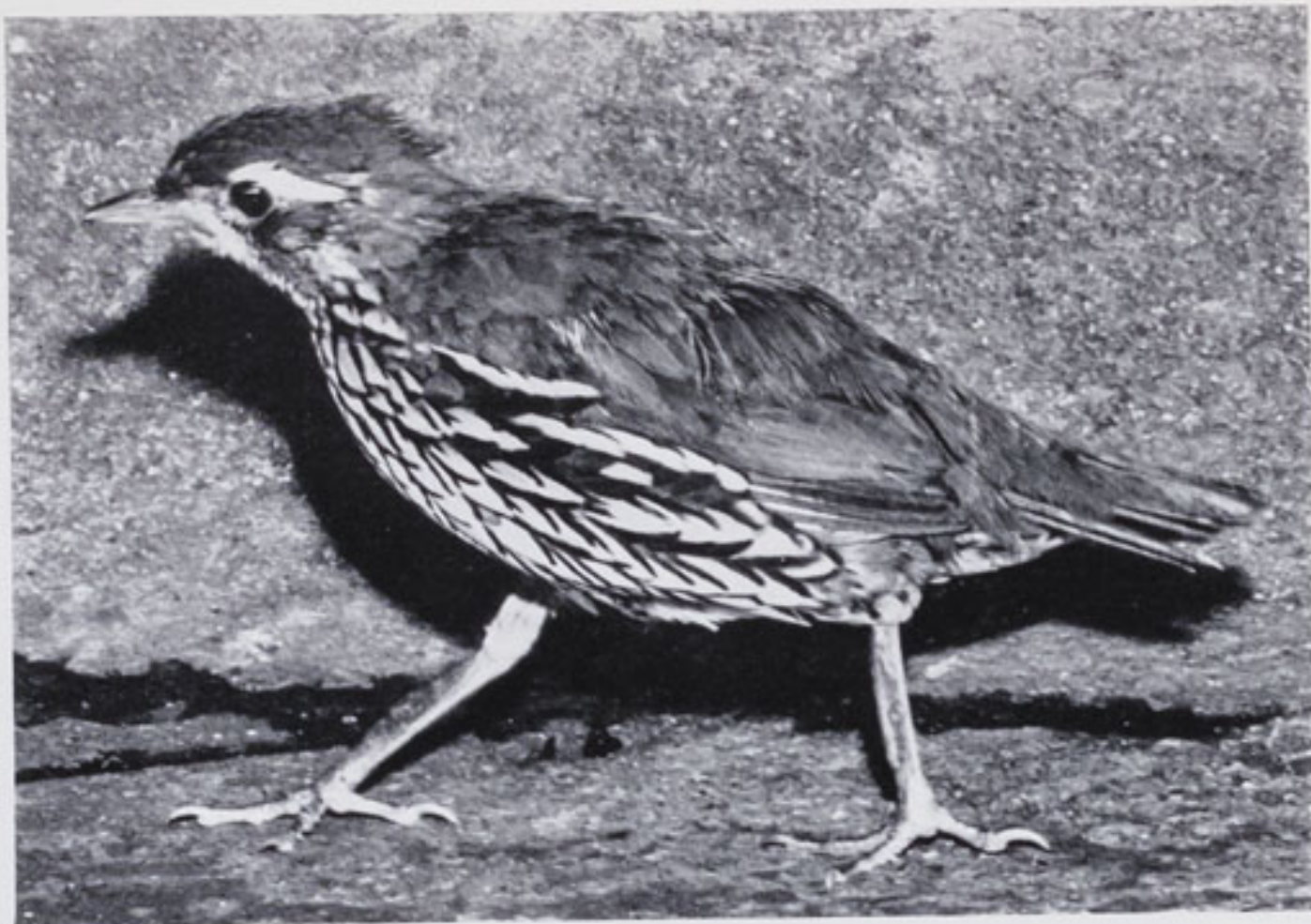
Collared Peccaries in Whipsnade Park

Associated Press



A Short-tailed Ant-thrush
(*Chamaeza campanisona*), the
first of the family Formicariidae
to be exhibited in the
London Zoo

The Zoological Society of London



Peafowl and Prairie Marmots in Whipsnade Park

Associated Press



DEGREES

Mr I. Keymer, Assistant Pathologist, was awarded the degree of Doctor of Philosophy by London University for his thesis 'Studies on blood protozoa of wild mammals from Central Africa'.

BRONZE MEDALS

Head Keeper H. W. Styles of the Small Mammals Section at Regent's Park and Head Keeper B. Simmons of the Pheasantry section at Whipsnade were awarded the Bronze Medal for long and meritorious service to the Society.

EUROPEAN TOUR

In May twelve members of the Menagerie, the Works and the Gardening staff of the London Zoo and Whipsnade, accompanied by the Director of Zoos (designate), Mr C. G. C. Rawlins, and Mr V. J. A. Manton, visited the zoos in Copenhagen, West and East Berlin, Hamburg and Cologne.

CATERING DEPARTMENT

At the International Hotel and Catering Exhibition held in London this year, Mr E. Brauer – the Sous Chef, was awarded a Bronze Medal for the preparation of an Hors d'Oeuvre in the culinary competitions. Zoo Restaurants Limited gained a Diploma for the Restaurant Menu, which was one of 50 chosen for special display at the Exhibition. Mr Hill was awarded a Diploma d'Honneur for services in connection with the administration of Le Salon Culinaire International de Londres.

OBITUARY

With deep regret the Council records the death of Mr Herbert Vinall, Bronze and Silver Medallist, the Curator of the Aquarium from 1947 until 1955 when he retired after 55 years' service with the Society.

Acknowledgments

The Council records its gratitude for the invaluable assistance given by the members of Committees, whose expert advice and continuing help to the Society is highly appreciated.

The Council is also grateful to those concerned with the visit of the Giant Panda to Moscow Zoo. In particular it would like to record its appreciation of the valuable help given by the staff of the British Embassy in Moscow, the officials of the Soviet Embassy in London, the Soviet Ministry of Culture, the staff of the Moscow Zoo, and to British European Airways for making special arrangements for 'Chi-Chi's' flight to and from Moscow.

The Society is indebted to the many Fellows and others who have sent specimens for the Collection. The gifts received are recorded in Appendix 5. 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 Mr R. W. Hayman and Mr J. E. Hill of the British Museum (Natural History) who continue to help identify certain of the new animals at Regent's Park.

We would also like to thank Dr Kenneth Searle for his continued interest in the Collections and for presenting further specimens of mammals and birds in 1966.

Senhora Hermione Blandy de Freitas Martins and Senhor João de Freitas Martins of Madeira have continued to take a lively interest in the Aquarium and have sent valuable collections of marine animals.

The Rangoon Zoological Gardens presented the Society with a pair of Leopard Cats for the Whipsnade Collection. The presentation was made by Colonel Hla Aung, Chairman of the Board of Management of the Gardens, during a visit to Whipsnade with His Excellency U Hla Maung, Ambassador of the Republic of the Union of Burma.

The Council is also grateful to the following for assistance at Whipsnade: Mr J. E. N. Sloan, Parasitologist of the Cooper, McDougall and Robertson Field Research Station at Berkhamsted, for the identification of parasites; Dr H. D. Holt, Director of the Public Health Laboratory Service, Luton, for bacteriological investigation; Dr J. Kelsall Thomas, Dunstable; The Ministry of Agriculture, Fisheries and Food, Weybridge; The British Red Cross Society for carrying out First Aid at Whipsnade; The Ministry of Agriculture, Fisheries and Food, Tolworth.

The Council wishes to record its thanks to many individuals at home and overseas for advice and assistance in the collection of animals for the Wellcome Institute. In particular, they would like to thank Dr P. D. L. Guilbride (Lima) and Dr J. R.

Contreras (Buenos Aires) for some hystricomorph rodents and Dr D. H. S. Davis (Johannesburg) and Mr R Le Mesurier (Oxford) for a supply of elephant shrews and Dr J. Meester (Pretoria) for arranging a further collection of the above shrews.

The Society is also indebted to British Drug Houses (Dr. J. P. Bennett) for advice and gifts of various hormone preparations and to Syntex Pharmaceuticals (Mr Moreau) and Twyford Laboratories (Dr Clark) for chemicals and other preparations used at the Institute.

The Society's thanks are due to the Board of Trade and H.M. Customs and Excise for their co-operation in arranging certain complicated imports and exports; the Royal Navy; the Ministry of Agriculture, Fisheries and Food; the Ministry of Public Building and Works; the British Museum (Natural History); the Royal Botanic Gardens, Kew; the Public Health Departments of the Corporation of the City of London; Chelsea Hospital for Women; Guy's Hospital; Queen Charlotte's Hospital; Royal Marsden Hospital and St. Mary's Hospital, Paddington.

In the sphere of shipping and transport the following companies and corporations have given valuable help: Air France; Air Canada; the American Express Co. Inc.; The Antwerp Steamship Company Ltd; Frederick Attwood Ltd; Ben Line Steamers Ltd; British Eagle Airways; British European Airways; the British India Steam Navigation Company Ltd; the British Overseas Airways Corporation; British Rail; British United Airways Ltd; Brown, Jenkinson & Company Ltd; Curtiss & Sons Ltd; Cutting and Company Ltd; Davies, Turner & Company Ltd; Donaldson Line Ltd; Elder Dempster Lines Ltd; Hernu Peron & Stockwell Ltd; Killick Martin & Company Ltd; London Transport Executive; McAndrews & Company Ltd; Wm. H. Muller & Company Ltd; J. F. Obree & Son Ltd; Pan American World Airways; Japan Airlines; P. & O. Steam Navigation Company Ltd; Port Line Ltd; Qantas Airways; Rennie Smith & Co. Ltd; Royal Dutch Airlines; Royal Mail Lines Ltd; Sabena Belgian World Airlines; South African Marine Corp. (U.K.) Ltd; Swissair; Shaw Savill Line; Frank C. Strick & Company Ltd; Union-Castle Mail Steamship Company Ltd; Weekes, Phillips & Co. Ltd; J. B. Westray & Company Ltd; Mark Whitwell & Son Ltd.

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 due to Mr Barry Hieton, The Polkerris Boy Scout Troop, and Mr T. P. Vandeleur, J.P., who have given quantities of bamboo for the Giant Panda.


SECRETARY

Committees 1966-1967

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:

A. H. T. Chisholm, C.B.E., M.A.
The Earl of Cranbrook, C.B.E., M.A., *Treas.L.S., Chairman*
S. Wilson Kitchen
The Earl of Mansfield
The Hon. Ivor Montagu
E. A. Bradford Pratt
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Lady Daphne Straight
The Marquess of Tavistock
Lælia, Duchess of Westminster
Secretary: Major-General C. J. G. Dalton, C.B., C.B.E.

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:

Professor D. V. Davies, M.A., M.B., B.S.
Rodney Finlayson, M.A., M.D.
Cecil A. Hoare, D.Sc., F.R.S.
Maxwell Knight, O.B.E., F.L.S.
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J. E. N. Sloan, B.Sc.
H. V. Thompson, B.Sc.
Secretary: R. N. Fiennes, M.A., M.R.C.V.S.

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 all research staff at the Wellcome Institute of Comparative Physiology.

Members of Committee:

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Professor W. S. Bullough, D.Sc.
Professor J. M. Dodd, B.Sc., Ph.D.
J. F. D. Frazer, D.M.
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H. V. Thompson, B.Sc.
Secretary: I. W. Rowlands, Ph.D.

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.

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Professor E. Cotchin, D.Sc., M.R.C.V.S.
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H. Jones, Ph.D.
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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.

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C. A. Wright, Ph.D.

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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.

Members of Committee:

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J. P. Harding, Ph.D.

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John Smart, D.Sc.

Sir James Stubblefield, D.Sc., F.R.S.

Secretary: H. Gwynne Vevers, M.B.E., D.Phil. Sec. L.S.

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, M.D., L.Sc.

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Peter Scott, C.B.E., D.S.C.

Walter Van den bergh

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Assistant to Director-General: Miss E. M. Owen, O.B.E.

Architect: F. A. Stengelhofen, L.R.I.B.A. (Retiring 31.12.66) J. Toovey, A.A. Dipl., A.R.I.B.A. (Taking up appointment 1.1.67)

Clerk of Works: F. J. Myers

Clerk of Works (New Zoo): M. Carding

Chief Accountant: W. N. Pickford, M.M., A.C.I.S.

Education Officer: M. K. Boorer, B.Sc.

Establishments Officer: C. H. Johns, D.P.A.

General Manager, Catering: W. N. Hill, F.H.C.I.

Catering Manager London Zoo: G. A. J. Perkins

Catering Manager Whipsnade: M. Levine

Public Relations Officer: J. A. Dale

Television and Film Officer: Miss Fae Hall, D.Phil.

The Private Secretary: Miss Grace E. Gay

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Curator of Reptiles: H. Gwynne Vevers, M.B.E., D.Phil., Sec.L.S.*

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Curator of Mammals: D. J. Morris, D.Phil.*

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Head Gardener: H. Hemmings

Herpetologist: A. R. Lanworn

Overseer of Birds: D. G. Newson

Overseers of Mammals: B. W. Smith, H. Vinall

Supplies Officer: C. G. Nicholls, M.P.O.A.

*Responsible to the Director of Science for research.

Scientific

Director of Science, and Director, Nuffield Institute of Comparative Medicine: L. G. Goodwin, M.B., B.S., M.R.C.P., B.Pharm., B.Sc.

Assistant Director of Science: H. Gwynne Vevers, M.B.E., D.Phil., Sec. L.S. (See also Publications Department and London Zoo).

Nuffield Institute of Comparative Medicine: See page 24.

Wellcome Institute of Comparative Physiology: See page 27.

Pathologist: R. N. Fiennes, M.A., M.R.C.V.S. (See also Nuffield Institute of Comparative Medicine).

Assistant Pathologist: I. Keymer, Ph.D., M.R.C.V.S.
Senior Technician, Pathology Laboratory: H. Corbett, F.I.S.T.

Veterinary Officer: J. M. Hime, M.R.C.V.S.

Hospital Superintendent: A. T. Wilson.

Librarian: R. A. Fish, F.L.A.

Publications Department: See page 21.

Head Keepers

Aquarium: H. L. Ward

Aquatic Birds and Birds of Prey: A. E. Scrivener

Bears: S. Morton

Bird House: W. G. R. Daines

Camels, Antelopes: J. Lambden

Children's Zoo: W. E. Peckett

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Giraffes and Cattle: H. G. N. Robinson

Insects: R. P. Humphrys

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Parrot House and Eastern Aviary: A. F. Shambrook

Pheasantry and Ostrich House: R. Barrow

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Small Mammals: H. W. Styles

Whipsnade Park

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Deputy Director : V. J. A. Manton, M.R.C.V.S.
Assistant Accountant : B. J. Iken
Assistant to Director : E. D. Day
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Head Gardener : C. E. Kerridge
Senior Overseer : O. C. Chamberlain
Overseer : F. L. Gladman

Head Keepers

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Bear Section : D. Longstaff
Camel Section : G. Stanbridge
Carnivores Section : F. Meakins
Children's Zoo : L. Conway
Elephant Section : C. H. Bailey
Giraffe Section : L. Warner
Pheasant and Parrakeet Aviaries : B. Simmons

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Honorary Consultant Photographer : W. G. Vanderson
Consultant Typographers : Colin Banks M.S.I.A., John Miles

Publications by Society's Staff and Research Workers

(including those published in collaboration)

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APPENDIX 4

List of animals received

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

Key

- F Family new to the Collection
 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>
REGENTS			
PARK	Mammals		
	MONOTREMATA		
	<i>Tachyglossus aculeatus</i>	2	
	MARSUPIALIA		
	<i>Lutreolina crassicaudata</i>	3	
	<i>Trichosurus vulpecula</i>	4	
	<i>Vombatus ursinus</i>	2	
G	<i>Lagostrophus fasciatus</i> Peron and Lesueur. W. Australia	2	
	<i>Protemnodon bicolor</i> x <i>P. agilis</i>	1	1 (1)
	<i>Protemnodon agilis</i>	2	2
	<i>Protemnodon elegans</i>	2	
	<i>Setonix brachyurus</i>		
	<i>Bettongia penicillata</i>		
	INSECTIVORA		
	(species unidentified)		
G	<i>Petrodromus tetradactylus</i> Peters. Africa	2	
		4	
	CHIROPTERA		
	<i>Rousettus amplexicaudatus</i>	1	
	<i>Pteropus giganteus</i>	1	
	PRIMATES		
	<i>Lemur catta</i>	4	4 (2)
	<i>Nycticebus coucang</i>	1	1
	<i>Galago crassicaudatus</i>	5	
	<i>Galago senegalensis</i>	1	
	<i>Galago alleni</i>	2	

		Total number acquired	Number born or hatched in the Menagerie
<i>Cebus apella</i>	Tufted Capuchin	1	1 (1)
<i>Saimiri sciureus</i>	Squirrel Monkey	1	
<i>Ateles paniscus</i>	Black Spider Monkey	1	
<i>Callithrix jacchus</i>	Common Marmoset	1	
<i>Leontocebus oedipus</i>	Cotton-headed Tamarin	6	
<i>Macaca assamensis</i>	Assamese Macaque	1	1 (1)
<i>Macaca speciosa</i>	Stump-tailed Macaque	1	
<i>Macaca sylvana</i>	Barbary Ape	2	
<i>Papio cynocephalus</i>	Yellow Baboon	2	
<i>Papio doguera</i>	Olive Baboon	2	1 (1)
<i>Colobus polykomos</i>	Black and White Colobus	1	1 (1)
<i>Hylobates lar</i>	Lar Gibbon	1	1
<i>Hylobates hoolock</i>	Hoolock Gibbon	1	
<i>Pongo pygmaeus</i>	Orang Utan	1	
<i>Pan troglodytes</i>	Chimpanzee	1	(1) 1
EDENTATA			
<i>Cyclopes didactylus</i>	Dwarf Anteater	2	
PHOLIDOTA			
<i>Manis tricuspis</i>	Tree Pangolin	1	
RODENTIA			
<i>Ratufa bicolor</i>	Malayan Giant Squirrel	1	
<i>Callosciurus erythraeus</i>	Pallas's Squirrel	5	5 (4)
<i>Callosciurus finlaysoni</i>	Finlayson's Squirrel	3	
<i>Callosciurus finlaysoni bocourti</i>	Bocourt's Squirrel	3	
<i>Callosciurus caniceps</i>	Golden-backed Squirrel	1	
<i>Xerus erythropus</i>	Red-footed Ground Squirrel	1	
<i>Petaurista alborufus</i>	Red and White Flying Squirrel	1	1
<i>Glaucomys volans</i>	American Flying Squirrel	3	3 (1)
<i>Lagurus lagurus</i>	Steppe Lemming	8	1
s <i>Gerbillus dasyurus</i> Wagner. N. Arabia	Wagner's Gerbil	4	
<i>Tatera indica</i>	Indian Gerbil	4	
<i>Meriones crassus sacramenti</i>	Thomas's Jird	9	
<i>Apodemus sylvaticus</i>	Field Mouse	6	
G <i>Golunda ellioti</i> Gray. India and Ceylon	Indian Bush Rat	2	
G <i>Millardia gleadowi</i> Murray W. Pakistan	Indian Soft-furred Field Rat	7	
s <i>Mus platythrix sadhu</i> Bennett. India	Indian Brown Spiny Mouse	4	
<i>Graphiurus murinus</i>	South African Bushy- tailed Dormouse	3	1 (1)
s <i>Jaculus blanfordi</i> Murray. Iran	Blanford's Jerboa	2	
<i>Allactaga elater</i>	Five-toed Jerboa	2	
<i>Hystrix indica</i>	Indian Porcupine	1	1 (1)
<i>Atherurus africanus</i>	African Brush-tailed Porcupine	3	1
<i>Dolichotis patagonum</i>	Mara	2	
<i>Myoprocta pratti</i>	Green Acouchy	6	6 (1)

		Total number acquired	Number born or hatched in the Menagerie
CARNIVORA			
<i>Canis latrans</i>	Coyote	3	3
<i>Canis familiaris</i>	Dingo	6	6 (6)
<i>Dusicyon griseus</i>	Argentine Grey Fox	1	
<i>Lycaon pictus</i>	Cape Hunting Dog	1	
<i>Thalarctos maritimus</i>	Polar Bear	1	1 (1)
<i>Helarctos malayanus</i>	Malayan Sun Bear	1	
<i>Eira barbara</i>	Tayra	1	
<i>Arctonyx collaris</i>	Hog Badger	3	3 (3)
<i>Taxidea taxus</i>	American Badger	2	
<i>Crossarchus obscurus</i>	Kusimanse	3	
<i>Felis concolor</i>	Puma	4	4
<i>Panthera leo</i>	Lion	8	8 (8)
<i>Panthera pardus japonensis</i>	Chinese Leopard	2	2
PINNEPIDIA			
<i>Odobenus rosmarus</i>	Walrus	1	
HYRACOIDEA			
<i>Dendrohyrax dorsalis</i>	Beecroft's Hyrax	1	
PERISSODACTYLA			
<i>Equus przewalskii</i>	Przewalski's Wild Horse	1	1
<i>Tapirus indicus</i>	Malayan Tapir	2	
<i>Diceros bicornis</i>	Black Rhinoceros	2	
ARTIODACTYLA			
<i>Sus scrofa</i>	Wild Boar	16	16
<i>Lama guanicoe</i>	Guanaco	1	1 (1)
<i>Lama pacos</i>	Alpaca	1	1
<i>Vicugna vicugna</i>	Vicuna	2	
<i>Camelus bactrianus</i>	Bactrian Camel	1	1
<i>Camelus dromedarius</i>	Arabian Camel	1	1
<i>Cervus timorensis</i>	Timor Deer	2	2 (1)
<i>Cervus elaphus</i>	Red Deer	3	3
<i>Boselaphus tragocamelus</i>	Nilgai	1	1 (1)
<i>Bison bonasus</i>	European Bison	1	1
<i>Damaliscus dorcas phillipsi</i>	Blesbok	1	1
<i>Connochaetes taurinus</i>	Brindled Gnu	2	2
<i>Antilope cervicapra</i>	Blackbuck	10	10 (2)
<i>Ammotragus lervia</i>	Barbary Wild Sheep	4	4 (3)
<i>Ovis musimon</i>	Mouflon	4	4 (4)
DOMESTIC			
	Ferret	1	
	Pigs	3	
	Calves	2	
	Goats	22	
	Sheep	6	
Birds			
RHEIFORMES			
<i>Rhea americana albescens</i>	Rhea	1	

		Total number acquired	Number born or hatched in the Menagerie
SPHENISCIFORMES			
<i>Spheniscus demersus</i>	Black-footed Penguin	1	1 (1)
PELECANIFORMES			
<i>Sula bassana</i>	Gannet	2	
<i>Phalacrocorax a. aristotelis</i>	Shag	1	
S <i>Phalacrocorax auritus floridanus</i> (Audubon) N. America and W. Indies	Double-crested Cormorant	2	
CICONIIFORMES			
<i>Ardea c. cinerea</i>	Heron	1	
SS <i>Ardea purpurea manilensis</i> Meyen S. E. Asia	Eastern Purple Heron	1	
<i>Bubulcus i. ibis</i>	African Cattle Egret	1	1
<i>Nycticorax n. nycticorax</i>	Night Heron	5	5
<i>Ciconia c. ciconia</i>	White Stork	2	
G <i>Phoenicoparrus andinus</i> (R. A. Philippi) Central Andes	Andean Flamingo	2	
ANSERIFORMES			
<i>Chauna torquata</i>	Crested Screamer	1	
<i>Cgynus atratus</i>	Black Swan	3	3
<i>Branta leucopsis</i>	Barnacle Goose	2	2
<i>Tadorna variegata</i>	New Zealand Shelduck	1	
SS <i>Anas platyrhynchos laysanensis</i> (Rothschild) Laysan Island	Laysan Duck	2	
<i>Anas falcata</i>	Falcated Duck	1	
<i>Anas penelope</i>	Wigeon	5	
<i>Anas sibilatrix</i>	Chiloe Wigeon	2	
<i>Anas querquedula</i>	Garganey Teal	2	
<i>Aix sponsa</i>	Carolina Duck	4	
<i>Aix galericulata</i>	Mandarin Duck	1	
<i>Aythya ferina</i>	Common Pochard	5	
<i>Aythya affinis</i>	Lesser Scaup	2	
FALCONIFORMES			
<i>Buteo b. buteo</i>	Buzzard	2	
<i>Buteo magnirostris</i>	Large-billed Hawk	1	
<i>Spizaetus cirrhatus limnaetus</i>	Changeable Hawk Eagle	1	
<i>Polihierax semitorquatus</i>	Pygmy Falcon	2	
GALLIFORMES			
<i>Tympanuchus cupido</i>	Pinnated Grouse	2	
<i>Francolinus erckeli</i>	Erckel's Francolin	6	6
<i>Perdix p. perdix</i>	Partridge	1	
<i>Coturnix coturnix japonica</i>	Japanese Quail	1	
<i>Excalfactoria chinensis</i>	Painted Quail	8	8 (2)
<i>Gennaesus n. nycthemerus</i>	Chinese Silver Pheasant	5	5
<i>Gallus sonnerati</i>	Sonnerat's Jungle Fowl	4	4
<i>Gallus gallus jabouillei</i>	Tonkinese Jungle Fowl	3	3
<i>Phasianus versicolor</i>	Green Pheasant	1	
<i>Phasianus c. colchicus</i>	Common Pheasant	1	

		Total number acquired	Number born or hatched in the Menagerie
<i>Phasianus colchicus torquatus</i>	Chinese Ring-necked Pheasant	2	
<i>Chrysolophus pictus</i>	Golden Pheasant	4	4
<i>Chrysolophus amherstiae</i>	Lady Amherst's Pheasant	2	2
<i>Pavo cristatus</i>	Peafowl	3	
GRUIFORMES			
s <i>Turnix ocellata</i> (Scopoli) Luzon, Philippine Islands	Spotted Bustard Quail	4	
<i>Grus antigone</i>	Sarus Crane	2	2
<i>Anthropoides virgo</i>	Demoiselle Crane	6	
<i>Porphyrio poliocephalus</i>	Grey-headed Gallinule	2	2
<i>Chlamydotis u. undulata</i>	Houbara Bustard	2	
CHARADRIIFORMES			
<i>Haematopus o. ostralegus</i>	Oystercatcher	2	
<i>Numenius a. arquata</i>	Curlew	1	
<i>Philomachus pugnax</i>	Ruff	10	
<i>Recurvirostra avosetta</i>	Avocet	2	
<i>Larus a. argentatus</i>	Herring Gull	3	3
<i>Larus marinus</i>	Great Black-backed Gull	2	2
<i>Larosterna inca</i>	Inca Tern	2	
<i>Uria aalge</i>	Guillemot	2	
COLUMBIFORMES			
<i>Pterocles o. orientalis</i>	Black-bellied Sandgrouse	2	
SS <i>Treron pompadora axillaris</i> (Bonaparte) Philippine Islands	Philippine Green Pigeon	2	
<i>Phapitreron l. leucotis</i>	White-eared Dove	1	
s <i>Ducula c. carola</i> (Bonaparte) Luzon and Mindoro, Philippine Islands	Grey-breasted Fruit Pigeon	4	
<i>Columba picazuro</i>	Picazuro Pigeon	6	
<i>Nesopelia galapagoensis</i>	Galapagos Dove	1	
<i>Streptopelia d. decaocto</i>	Collared Dove	3	
<i>Geopelia humeralis</i>	Barred-shouldered Dove	3	
<i>Geopelia cuneata</i>	Diamond Dove	2	2
<i>Chalcophaps indica</i>	Indian Green-winged Dove	4	
<i>Phaps chalcoptera</i>	Bronze-winged Pigeon	1	
<i>Ocyphaps lophotes</i>	Crested Pigeon	7	7
<i>Caloenas nicobarica</i>	Nicobar Pigeon	1	
PSITTACIFORMES			
<i>Trichoglossus euteles</i>	Perfect Lorikeet	2	
<i>Trichoglossus ornatus</i>	Ornate Lorikeet	1	
<i>Trichoglossus haematod moluccanus</i> x <i>T. h. capistratus</i>	Swainson's x Edwards's Lorikeet	1	1 (1)
<i>Aratinga jandaya</i>	Yellow-headed Conure	2	
<i>Myiopsitta monachus</i>	Quaker Parrakeet	1	
<i>Forpus passerinus</i>	Blue-winged Parrotlet	2	
<i>Amazona farinosa</i>	Mealy Parrot	1	
<i>Amazona barbadensis</i>	Yellow-shouldered Parrot	1	
<i>Amazona amazonica</i>	Orange-winged Parrot	1	

		Total number acquired	Number born or hatched in the Menagerie
<i>Poicephala rüppelli</i>	Rüppell's Parrot	1	
<i>Polytelis alexandrae</i>	Queen Alexandra's Parrakeet	2	2
<i>Agapornis pullaria</i>	Red-faced Lovebird	3	
<i>Agapornis roseicollis</i>	Rosy-faced Lovebird	3	
<i>Agapornis personata</i>	Masked Lovebird	7	
<i>Agapornis fischeri</i>	Fischer's Lovebird	13	9
<i>Loriculus galgulus</i>	Blue-crowned Hanging Parrakeet	1	
CUCULIFORMES			
<i>Tauraco m. macrorhynchus</i>	Great-billed Turaco	1	
<i>Musophaga violacea rossae</i>	Ross's Turaco	2	
SS <i>Crinifer africanus zonurus</i> (Rüppell) E. Africa	Eastern Grey Plantain-eater	1	
<i>Cuculus c. canorus</i>	Cuckoo	1	
G <i>Chrysococcyx k. klaas</i> (Stephens) Africa	Klaas's Cuckoo	2	
STRIGIFORMES			
<i>Bubo b. bubo</i>	Great Eagle Owl	2	2
<i>Bubo bubo interpositus</i>	Aharoni's Eagle Owl	2	
<i>Bubo capensis mackinderi</i>	Kenya Eagle Owl	4	
<i>Bubo a. africanus</i>	Spotted Eagle Owl	3	3
<i>Bubo poensis</i>	Fraser's Eagle Owl	1	
<i>Nyctea scandiaca</i>	Snowy Owl	1	
<i>Ninox scutulata</i>	Brown Hawk Owl	1	
<i>Athene noctua vidalii</i>	Little Owl	1	
<i>Ciccaba woodfordi nuchalis</i>	West African Wood Owl	3	
APODIFORMES			
<i>Melanotrochilus fuscus</i>	Pied Jacobin Humming Bird	1	
<i>Chrysolampis mosquitus</i>	Ruby and Topaz Humming Bird	4	
<i>Chlorestes notatus</i>	Blue-breasted Sapphire Humming Bird	4	
<i>Chlorostilbon aureoventris pucherani</i>	Pucheran's Emerald Humming Bird	5	
<i>Thalurania furcata</i>	Wood Nymph Humming Bird	1	
<i>Amazilia tzacatl jucunda</i>	Heine's or Rufous-tailed Humming Bird	1	
S <i>Amazilia franciae viridiceps</i> (Gould) Colombia and Ecuador	Andean Emerald Humming Bird	1	
G <i>Heliodoxa jacula jamesoni</i> (Bourcier) W. Ecuador	Green-crowned Brilliant Humming Bird	2	
COLIIFORMES			
<i>Colius striatus</i>	Speckled Mousebird	2	
CORACIIFORMES			
<i>Merops apiaster</i>	Bee-eater	1	

		Total number acquired	Number born or hatched in the Menagerie
PICIFORMES			
	<i>Melanerpes p. pucherani</i>		Flame-crowned Woodpecker 2
	<i>Melanerpes s. superciliaris</i>		Red-bellied Woodpecker 1
	<i>Dendrocopos major anglicus</i>		Greater Spotted Woodpecker 1
PASSERIFORMES			
F	<i>Chamaeza campanisona</i> (Lichtenstein) S. America		Short-tailed Ant-thrush 1
	<i>Tyrannus tyrannus</i>		Eastern King Bird 1
	<i>Delichon u. urbica</i>		House Martin 1
SS	<i>Anthus novaeseelandiae rufulus</i> Vieillot. S. E. Asia		Indian Pipit 1
s	<i>Bleda syndactyla woosnami</i> Ogilvie-Grant. E. Africa		Bristle-bill 1
	<i>Chloropsis aurifrons</i>		Golden-fronted Fruitsucker 2
	<i>Chloropsis hardwickei</i>		Hardwicke's Fruitsucker 1
s	<i>Laniarius barbarus erythrogaster</i> (Cretzschmar) Africa		Black-headed Gonolek 2
	<i>Geokichla c. citrina</i>		Orange-headed Ground Thrush 1
s	<i>Turdus plumbeus rubripes</i> Temminck. Cuba		Red-legged Thrush 1
	<i>Turdus boulboul</i>		Grey-winged Blackbird 2
	<i>Myophonus caeruleus</i>		Blue Whistling Thrush 1
	<i>Garrulax poecilorhyncha berthemyi</i>		Rufous Laughing Thrush 2
	<i>Garrulax leucolophus</i>		White-crested Laughing Thrush 5
	<i>Garrulax pectoralis picticollis</i>		Collared Laughing Thrush 6
	<i>Garrulax perspicillatus</i>		Masked Laughing Thrush 6
	<i>Garrulax albogularis</i>		White-throated Laughing Thrush 1
	<i>Leiothrix lutea</i>		Pekin Robin 1
	<i>Acrocephalus</i> sp.		Warbler 1
s	<i>Dicaeum p. papuense</i> (Gmelin) Philippine Islands		Philippine Flowerpecker 1
s	<i>Dicaeum ignipectus</i> (Hodgson) S.E. Asia		Fire-breasted Flowerpecker 1
	<i>Dicaeum cruentatum</i>		Scarlet-backed Flowerpecker 1
	<i>Tanagra violacea</i>		Violet Tanager 1
	<i>Tanagra laniirostris crassirostris</i>		Thick-billed Tanager 1
	<i>Thraupis cana</i>		Blue Tanager 1
	<i>Tangara cyanocephala</i>		Festive Tanager 1
	<i>Dacnis cayana</i>		Cayenne Dacnis 1
	<i>Cyanerpes cyaneus</i>		Blue Honey Creeper 1
	<i>Richmondia cardinalis</i>		Virginian Cardinal 1
	<i>Agelaius humeralis</i>		Tawny-shouldered Blackbird 2
	<i>Amblyramphus holosericeus</i>		Scarlet-headed Marsh Bird 1
	<i>Icterus icterus</i>		Common Hangnest 1

		Total number acquired	Number born or hatched in the Menagerie
<i>Guiraca caerulea</i>	Blue Grosbeak	2	
<i>Carduelis spinus</i>	Siskin	1	
<i>Carpodacus erythrinus</i>	Rose Finch	2	
<i>Uraeginthus bengalus</i>	Cordon-bleu	2	
<i>Estrilda troglodytes</i>	Common Waxbill	2	
<i>Amandava amandava</i>	Avadavat	5	
<i>Taeniopygia castanotis</i>	Zebra Finch	2	
<i>Lagonosticta s. senegala</i>	Firefinch	2	
<i>Euodice cantans</i>	African Silverbill	2	
<i>Amadina fasciata</i>	Ribbon Finch	2	
SS <i>Lonchura punctulata cabanisi</i> (Sharpe)	Spotted Munia	2	
Philippine Islands			
SS <i>Lonchura malacca jagori</i> (Martens)	Chestnut Munia	2	
Philippine Islands			
<i>Padda oryzivora</i>	Java Sparrow	1	
<i>Dinemellia d. dinemelli</i>	White-headed Buffalo Weaver	1	
<i>Passer eminibey</i>	Chestnut Sparrow	2	
<i>Euplectes orix franciscana</i>	Orange Weaver	3	
<i>Euplectes</i> sp.	Weaver	1	
<i>Ploceus melanocephalus</i>	Black-headed Weaver	1	
<i>Quelea erythrops</i>	Red-headed Weaver	1	
S <i>Lamprotornis s. splendidus</i> (Vieillot)	Splendid Starling	1	
Africa			
<i>Lamprocolius purpureus</i>	Purple Glossy Starling	3	
S <i>Spreo fischeri</i> (Reichenow)	Fischer's Starling	2	
E. Africa			
<i>Sturnus pagodarum</i>	Pagoda Starling	3	
<i>Sturnus contra</i>	Pied Myna	4	
<i>Acridotheres fuscus</i>	Brown Myna	8	
<i>Acridotheres tristis</i>	Common Myna	6	
<i>Gracula religiosa intermedia</i>	Nepal Hill Mynah	1	
<i>Cyanocorax yncas</i>	Green Jay	1	
<i>Cyanopica cyanus cooki</i>	Azure-winged Magpie	1	
<i>Dendrocitta rufa</i>	Wandering Tree Pie	1	
<i>Cissa c. chinensis</i>	Hunting Cissa	1	
<i>Garrulus glandarius interstinctus</i>	Sikkim Jay	2	
<i>Corvus corone cornix</i>	Hooded Crow	1	
<i>Corvus albicollis</i>	White-necked Raven	4	

Reptiles

TESTUDINES

<i>Pseudemys scripta elegans</i>	Red-eared Terrapin	10
<i>Pseudemys floridana floridana</i>	Florida Terrapin	1
<i>Pseudemys concinna hieroglyphica</i>	Hieroglyphic Turtle	1
<i>Clemmys caspica leprosa</i>	Spanish Terrapin	1
<i>Emys orbicularis</i>	European Pond Tortoise	1
<i>Terrapene carolina</i>	Carolina Box Tortoise	1
<i>Geoemyda grandis</i>	Burmese Terrapin	1
<i>Cuora amboinensis</i>	Amboina Box Tortoise	2
<i>Testudo graeca</i>	Greek Tortoise	15
<i>Testudo hermanni</i>	Hermann's Tortoise	2
<i>Testudo marginata</i>	Margined Tortoise	1

		Total number acquired	Number born or hatched in the Menagerie
ss	<i>Eretmochelys imbricata bissa</i> Rüppell. Trop. and sub-trop. seas		
	<i>Pelusios niger</i>		
	<i>Pelomedusa subrufa</i>		
CROCODILIA			
	<i>Tomistoma schlegelii</i>		
	<i>Caiman crocodilus</i>		
SAURIA			
	<i>Teratoscincus scincus</i>		
	<i>Gonatodes vittatus</i>		
	<i>Eublepharis macularius</i>		
	<i>Thecadactylus rapicaudus</i>		
	<i>Hemidactylus turcicus</i>		
	<i>Gekko gekko</i>		
	<i>Coleonyx v. variegatus</i>		
	<i>Polychrus marmoratus</i>		
	<i>Uranoscodon superciliosa</i>		
	<i>Iguana iguana</i>		
	<i>Sauromalus obesus</i>		
ss	<i>Crotaphytus collaris</i> <i>baileyi</i> Stejneger. N. America		
	<i>Sceloporus undulatus</i>		
	<i>Phrynosoma coronatum blainvillei</i>		
	<i>Phrynosoma cornutum</i>		
	<i>Agama agama</i>		
	<i>Agama atricollis</i>		
	<i>Agama stellio</i>		
	<i>Physignathus concinnus</i>		
	<i>Uromastix hardwickii</i>		
	<i>Chamaeleo chamaeleon</i>		
	<i>Chamaeleo zeylanicus</i>		
	<i>Chamaeleo senegalensis</i>		
	<i>Chamaeleo gracilis</i>		
	<i>Chamaeleo dilepis</i>		
	<i>Chamaeleo bitaeniatus hoehnelii</i>		
	<i>Chamaeleo jacksoni</i>		
	<i>Mabuya perrotetii</i>		
	<i>Mochlus sundevalli</i>		
	<i>Lacerta viridis</i>		
	<i>Lacerta trilineata</i>		
	<i>Tupinambis nigropunctatus</i>		
	<i>Kentropyx striatus</i>		
s	<i>Kentropyx calcaratus</i> Spix. Guyana		
s	<i>Cnemidophorus grahami</i> Baird and Girard. S. America		
	<i>Cnemidophorus lemniscatus</i>		
	<i>Amphisbaena fuliginosa</i>		
	Pacific Hawksbill Turtle	2	
	Black Terrapin	1	
	Helmeted Terrapin	1	
	Schlegel's False Gharial	2	
	Spectacled Cayman	3	
	Turkestan Gecko	2	
	Striped Gecko	2	
	Leopard Ground Gecko	2	
	Top-tailed Gecko	1	
	Turkish Gecko	5	
	Great House Gecko	4	
	Variegated Ground Gecko	1	
	Marbled Syclops Lizard	2	
	Yrhpa Iguana	1	
	Iguana	1	
	Chuck-walla Lizard	1	
	Western Collared Lizard	1	
	Pine Lizard	1	
	Blainville's Horned Lizard	1	
	Texas Horned Lizard	7	
	Margouillat Agama	2	
	Black-necked Agama	2	
	Starred Agama	1	
	Cochin China Water Lizard	3	
	General Hardwick's Dabb Lizard	5	
	Common Chameleon	2	
	Indian Chameleon	4	
	Senegal Chameleon	1	
	Graceful Chameleon	4	
	Flap-necked Chameleon	5	
	High-casqued Chameleon	2	
	Kikuyu Three-horned Chameleon		
	Orange-flanked Skink	1	
	Sundevall's Skink	3	
	Green Lizard	1	
	Major Green Lizard	1	
	Black-pointed Tegu	1	
	Striated Grass Lizard	1	
	Spix's Grass Lizard	1	
	Checkered Whip-tailed Lizard	1	
	Daudin's Whip-tailed Lizard	2	
	Sooty Amphisbaena	1	

		Total number acquired	Number born or hatched in the Menagerie
<i>Varanus griseus</i>	Grey Monitor	2	
<i>Varanus e. exanthematicus</i>	Bosc's Monitor	1	
<i>Varanus exanthematicus albigularis</i>	White-throated Monitor	1	
<i>Varanus flavescens</i>	Yellow Monitor	1	
<i>Varanus bengalensis</i>	Bengal Monitor	2	
<i>Anguis fragilis</i>	Slowworm	2	
s <i>Cordylus vittifer</i> (Reichenow)	Transvaal Girdled		
S. Africa	Lizard	2	
<i>Platysaurus guttatus</i>	Transvaal Red-Tailed		
	Rock Lizard	2	
SERPENTES			
<i>Typhlops punctatus</i>	Spotted Blind-snake	2	
<i>Python sebae</i>	African Python	3	
<i>Python molurus</i>	Indian Python	1	
<i>Python regius</i>	Royal Python	4	
<i>Corallus hortulanus</i>	Garden Tree Boa	1	
<i>Eryx conicus</i>	Russell's Sand Boa	30	
<i>Eryx jaculus</i>	Javelin Sand Boa	3	
<i>Eryx johni</i>	John's Sand Boa	2	
<i>Acrochordus javanicus</i>	Elephant Trunk Snake	2	
<i>Natrix natrix</i>	Grass Snake	36	
<i>Natrix tessellata</i>	Diced Water Snake	1	
ss <i>Natrix erythrogaster transversa</i> Hallowell.	Blotched Water Snake	1	
Kansas to N. Mexico and Texas			
s <i>Amphiesma vibraki</i> Boie.		1	
Manchuria, Japan, Formosa			
<i>Thamnophis sirtalis sirtalis</i>	Eastern Garter Snake	3	
<i>Storeria occipitomaculata</i>	Northern Red-bellied		
	Snake	1	
<i>Boaedon fuliginosus</i>	African House Snake	2	
<i>Ptyas mucosus</i>	Dhaman	3	
<i>Spilotes pullatus</i>	Cainana Rat Snakes	2	
ss <i>Drymarchon corais flaviventris</i> (Steindachner)	Yellow-bellied Corais	1	
N.E. South America			
<i>Elaphe quatuorlineata</i>	Four-lined Snake	3	
<i>Elaphe obsoleta obsoleta</i>	Black Rat Snake	1	
<i>Elaphe obsoleta quadrivittata</i>	Yellow Rat Snake		7
<i>Coluber gemonensis</i>	Balkan Whip Snake	6	
<i>Coluber najadum</i>	Dahl's Whip-snake	1	
<i>Pituophis melanoleucus sayi</i>	Bull Snake	1	
<i>Thrasops occidentalis</i>	West African Black Tree		
	Snake	1	
<i>Liophis melanotus</i>	Black-backed Snake	1	
ss <i>Rhinocheilus lecontei clarus</i>	Desert Long-nosed Snake	1	
Klauber. S. Nevada and S.W. Arizona,			
S. California, northward to Utah			
<i>Lampropeltis getulus floridana</i>	Florida King Snake	1	
<i>Chionactis o. occipitalis</i>	Mojave Shovel-nosed		
	Snake	1	
<i>Boiga pulverulenta</i>	Powdered Snake	1	
<i>Boiga dendrophila</i>	Black-and-gold Tree Snake	4	
<i>Boiga blandingi</i>	Blanding's Snake	1	
<i>Boiga forsteni</i>	Forsten's Tree Snake	2	

		Total number acquired	Number born or hatched in the Menagerie
<i>Crotaphopeltis hotamboeia</i>	Herald Snake	2	
<i>Leptodeira annulata</i>	Cat-eyed Snake	1	
<i>Psammodynastes pulverulentus</i>	Powdered False Viper	4	
<i>Psammophis sibilans</i>	African Sand Snake	2	
<i>Psammophis leithii</i>	Leith's Snake	1	
<i>Thelotornis kirtlandii</i>	Kirtland's Tree Snake	1	
<i>Oxybelis fulgidus</i>	Brown Tree Snake	1	
<i>Bungarus candidus</i>	Common Indian Krait	2	
<i>Naja haja</i>	Egyptian Cobra	1	
<i>Naja melanoleuca</i>	Black-and-white Cobra	1	
<i>Naja naja</i>	Indian Cobra	8	
<i>Dendroaspis j. jamesoni</i>	Jameson's Mamba	1	
<i>Vipera berus</i>	Adder	4	
<i>Vipera ammodytes</i>	Long-nosed Viper	5	
<i>Vipera russelli</i>	Russell's Viper	14	
<i>Bitis arietans</i>	Puff Adder	5	
<i>Bitis gabonica</i>	Gaboon Viper	3	
s <i>Eristocophis mcmahoni</i> Alcock and Finn. Pakistan	McMahon's Sand Viper	3	
<i>Trimeresurus wagleri</i>	Wagler's Pit Viper	6	
<i>Trimeresurus monticola</i>	Brown Spotted Pit Viper	1	
<i>Trimeresurus albolabris</i>	White-lipped Pit Viper	1	
<i>Crotalus adamanteus</i>	Eastern Diamond-back Rattlesnake	1	
Amphibians			
<i>Salamandra salamandra</i>	European Spotted Salamander	2	
<i>Ambystoma maculatum</i>	Spotted Salamander	15	
<i>Xenopus muelleri</i>	Muller's Clawed Frog	4	
<i>Bufo bufo</i>	Common Toad	1	
<i>Bufo terrestris americanus</i>	American Toad	6	
ss <i>Bufo p. peltoccephalus</i> Tschudi. Cuba	Cuban Toad	2	
<i>Bufo g. granulatus</i>	Granulated Toad	3	
ss <i>Hyla arborea japonica</i> Schlegel. Japan	Japanese Tree Frog	14	
<i>Hyla rubra</i>	Daudin's Hyla	4	
ss <i>Rana corrugata</i> Peters. Ceylon	Ceylon Corrugated Frog	3	
<i>Rana rugosa</i>	Japanese Wart Frog	1	
<i>Rana temporaria</i>	Common Frog	12	
<i>Rana catesbeiana</i>	American Bull Frog	10	
ss <i>Rana limnocharis greenii</i> Boulenger. Ceylon	Ceylon Paddy Frog	1	
s <i>Hylarana temporalis</i> Günther. Ceylon		2	
ss <i>Nannophrys c. ceylonensis</i> Günther. Ceylon		2	
s <i>Rhacophorus microtympanum</i> Günther. Ceylon		1	
s <i>Rhacophorus fergusonianus</i> Boulenger. Ceylon		2	
ss <i>Rhacophorus leucomystax cruciger</i> Blyth. Ceylon		4	
ss <i>Kaloula pulchra taprobanica</i> Parker. Ceylon		2	

WHIPSNADE Mammals
PARK

MARSUPIALIA

Protemnodon rufogrisea frutica

Macropus canguru melanops

PRIMATES

Macaca mulatta

RODENTIA

Cynomys ludovicianus

Castor fiber canadensis

Dolichotis patagonum

Dasyprocta punctata

CARNIVORA

Canis lupus occidentalis

Ursus arctos

Felis bengalensis

Acinonyx jubatus

PERISSODACTYLA

Equus przewalskii

Equus onager

Equus zebra hartmannae

Tapirus terrestris

ARTIODACTYLA

Tayassu tajacu

Hippopotamus amphibius

Lama glama

Lama guanicoe

Camelus bactrianus

Camelus dromedarius

Dama dama

Axis axis

Axis porcinus

Cervus duvauceli

Cervus nippon

Cervus elaphus

Cervus canadensis

Elaphurus davidianus

Alces alces

Hydropotes inermis

Antilocapra americana

Taurotragus oryx

Boselaphus tragocamelus

Bos banteng

Syncerus caffer

Bison bonasus

Bison bison

Connochaetes taurinus albojubatus

Aepyceros melampus

Gazella thomsoni

Ovibos moschatus

Ovis musimon

	Total number acquired	Number born or hatched in the Menagerie
Bennett's Wallaby	64	64 (3)
Black-faced Kangaroo	2	2
Rhesus Macaque	1	1 (1)
Prairie Marmot	14	14 (1)
Canadian Beaver	2	2
Mara	8	
Central American Agouti	18	
Canadian Timber Wolf	7	7
Brown Bear	8	8
Leopard Cat	2	
Cheetah	1	
Przewalski's Wild Horse	2	2
Onager	1	1 (1)
Hartmann's Mountain Zebra	2	
South American Tapir	1	
Collared Peccary	1	1
Hippopotamus	1	1 (1)
Llama	7	7
Guanaco	9	9
Bactrian Camel	2	2 (1)
Arabian Camel	4	3
Fallow Deer	23	16 (1)
Spotted Deer	8	8 (3)
Hog Deer	2	2
Swamp Deer	2	2
Formosan Deer	17	17 (5)
Red Deer	21	21 (1)
Wapiti	3	3 (3)
Père David's Deer	12	4
Moose	3	3 (3)
Chinese Water Deer	23	23 (1)
Pronghorn	2	2 (2)
Eland	1	1
Nilgai	5	5
Banteng	1	1 (1)
African Buffalo	1	1
European Bison	6	
American Bison	3	3
White-bearded Gnu	3	3 (1)
Impala	1	1
Thomson's Gazelle	9	9 (5)
Musk Ox	1	
Mouflon	8	8 (2)

	Total number acquired	Number born or hatched in the Menagerie	
DOMESTIC			
Shetland Pony	4		
Cream Pony	4		
Cross-bred New Forest Pony	2		
Pygmy Donkey	1		
White Donkey	1		
Vietnam Pot bellied Pig	3		
Ankole Oxen	6		
Yak	2		
Four-horned Sheep	46		
Birds			
SPHENISCIFORMES			
<i>Spheniscus humboldti</i>	Humboldt's Penguin	9	
CICONIIFORMES			
<i>Phoenicopterus chilensis</i>	Chilean Flamingo	16	
ANSERIFORMES			
<i>Cygnus atratus</i>	Black Swan	6	6 (1)
<i>Cygnus melanocoryphus</i>	Black-necked Swan	3	3
<i>Anser caerulescens atlanticus</i>	Greater Snow Goose	19	19 (5)
<i>Branta leucopsis</i>	Barnacle Goose	1	1
<i>Branta ruficollis</i>	Red-breasted Goose	6	6
<i>Alopochen aegyptiacus</i>	Egyptian Goose	1	1
<i>Aix sponsa</i>	Carolina Duck	2	2
GALLIFORMES			
<i>Francolinus erckeli</i>	Erckel's Francolin	3	
<i>Acryllium vulturinum</i>	Vulturine Guinea Fowl	3	
<i>Meleagris gallopavo silvestris</i>	North American Turkey	12	12
GRUIFORMES			
<i>Psophia l. leucoptera</i>	White-winged Trumpeter	8	
<i>Porphyrio poliocephalus</i>	Grey-headed Gallinule	2	
CHARADRIIFORMES			
<i>Larus a. argentatus</i>	Herring Gull	2	
<i>Larus marinus</i>	Great Black-backed Gull	1	
PSITTACIFORMES			
<i>Aratinga jandaya</i>	Yellow-headed Conure	2	
<i>Polytelis alexandrae</i>	Queen Alexandra's Parrakeet	1	1
<i>Amazona amazonica</i>	Orange-winged Parrot	1	
Reptiles			
COLUBRIDAE			
<i>Natrix natrix</i>	Grass Snake	1	
<i>Elaphe obsoleta</i>	Chicken Snake	1	

Fishes New to the Collection

- Chromis caeruleus* (Cuvier) Blue Puller. Indian Ocean.
Chaetodontoplus mesoleucus (Bloch) Marine Angelfish. Indian Ocean.
Centrarchus macropterus (Lacépède) Peacock-eyed Bass. Eastern United States.
Micropterus dolomieu (Lacépède) Smallmouth Bass. Eastern North America.
Pristolepis fasciata (Bleeker). South-east Asia.
Rhinecanthus aculeatus (L.) Picasso Triggerfish. Indo-Pacific.

List of donors of animals to the Society

REGENT'S PARK

- Abbott, Mrs A., 1 Greek Tortoise
 Abbott, P., 1 Pekin Robin
 Army Air Corps. No. 3 Flight, 1 Malayan Sun Bear
 Allen, Miss J., 1 Little Owl
 Arnold, E. N., 1 Sand Viper
 Ashken, Mrs D., 1 Golden-fronted Fruitsucker, 1 Hardwicke's Fruitsucker
 Averkieff, Mrs V., 1 Java Sparrow
 Babbage, F. W., 1 Peacock Butterfly
 Baldwin, F., 1 Red-footed Ground Squirrel
 Barnley, Mrs J. G., 2 Black-headed Gonoleks
 Barton, D. F., 1 Bird-eating Spider
 Bayley, Mrs C. W., 3 Kusimanses, 1 Fraser's Eagle Owl, 3 West African Wood Owls
 Bedford College, 15 Axolotls
 Bell, Leighton C., 1 Solifugid
 Berton, A. and A., 2 Grass Snakes
 Bhedun, A., 10 Goldfish
 Birdland Zoo Park, 2 African Sand Snakes
 Bishop, J. G., 1 House Martin
 Blackmore, C. J., 1 Blue-crowned Hanging Parrakeet
 Blanchflower, M. R., 1 Centipede
 Blank, H., 1 Yellow-headed Conure
 Boston, P., 1 Eastern Grey Plantain-eater
 Bott, G. E., 1 Crucian Carp
 Bowden, B. M., 3 Graceful Chameleons, 1 Senegal Chameleon
 Brighton Aquarium, 6 Gurnards, 1 Rockling, 2 Monkfish, 1 Lumpsucker, 2 Bass, 6 Dahlia Anemones
 British Aquarists Study Society, 2 Red Cichlids
 British Overseas Airways Corp., Colombia, 1 Moray Eel
 Brock, B., 2 *Nephilia* Spiders, 2 Praying Mantis
 Brown, W. H., 1 Perfect Lorikeet
 Buchanan-Jones, M., 3 Gaboon Vipers, 1 Blanding's Snake, 1 Powdered Snake, 1 African Sand Snake, 1 Black-and-white Cobra, 1 Kirtland's Tree Snake, 2 Herald Snakes, 2 Royal Pythons, 1 African House Snake, 1 Jameson's Mamba
 Butler, R. L. J., 1 Electric Catfish
 Calgary Aquarium, 25 Albino Rainbow Trout
 Calgary Zoo, 2 American Badgers
 Calrow, B. W., 2 Red-eared Terrapins
 Carlisle, Dr D. B., 2 cultures of Field Crickets, 1 culture of Grain Weevil
 Chandler, Mrs F., Silk Moth ova
 Chapman, B., 150 Ten-spined Sticklebacks, 42 Bullheads, 40 Three-spined Sticklebacks, 230 Minnows, 10 Hoack
 Charlick, Mrs V., 1 Quaker Parrakeet
 Clark, R. J., 1 Dahl's Whip-Snake, 1 Black Widow Spider, 2 Wolf Spiders, 1 Common Spider
 Claypole, A., 1 Praying Mantis
 Clayton, K. A., 1 Bird-eating Spider
 Cooke, G. C. F., 4 Black-and-gold Tree Snakes, 6 Wagler's Pit Vipers
 Cooper, Miss J., 1 Splendid Starling
 Coryndon Memorial Museum, 1 Egyptian Cobra, 1 Puff Adder, 1 West African Black Tree Snake
 Costeron, D. J., 1 Crab Spider
 Cox, G., 1 Stag Beetle
 Davenport, D. J., 1 Tropical House Spider
 Debrunner, Mrs R., 1 Crab Spider
 Denby, R. J., 3 Crucian Carp
 de Rosso, Miss D., 2 Rose Finches
 des Moulins, A., 1000 Stick Insect eggs
 Dick, R. L., 6 *Peripatopsis*
 Drury, R. W., 2 Philippine Green Pigeons, 1 White-eared Dove
 Dudley Zoo, 4 Puff Adders
 Durno, Mrs I., 1 Stag Beetle
 Elder, D. D., 5 Orb Spiders, 2 Wolf Spiders, 2 Spiders, 2 South African Bushy-tailed Dormice
 Eley Game Advisory Service and West of England Conservation Society, 2 Pinnated Grouse
 Elford, Wg. Cdr. B., 1 Great-billed Turaco
 Ellis, S. D., 1 Albino Catfish
 Eustace, Mrs S. S., 10 Greek Tortoises
 Evans, Mr and Mrs., 2 Octopus
 Evans, D. G., 2 Black Sharks
 Ewer, Prof. D. W., 32 Scorpions
 Exley, Mrs J., 1 Spectacled Cayman
 Fairall, A. W., 1 Margined Tortoise
 Farmer, H., 1 Toad
 Fisson, Dr, 1 Silk Moth, 1 Japanese Moth
 Ford, F. H., 1 Poplar Hawk Moth

- Ford, Miss J., 3 Flap-necked Chameleons
 Fraser, S/Sgt. D., 2 Grey Monitors
 Fraser, A., Mrs, 1 Gecko, 2 Wolf Spiders, 1
 Scorpion, 1 Praying Mantis, 1 Hornet, 1 Silver-
 striped Hawk Moth
 Fry, D., 27 Cellar Beetles
 Gardiner, B., Cabbage White caterpillars and
 butterflies
 Gates, Father R., 1 Nepal Hill Mynah
 George, W. W., 1 Garden Tree Boa
 Gibbon, M. P., 2 Ribbon Finches, 2 Orange
 Weavers
 Gibbon, N., 2 tins of insects
 Gibbons, M., 1 Diced Water Snake, 1 Common
 Toad
 Gibraltar, Governor of, 2 Barbary Apes
 Godalming C. I. D., 1 Bird-eating Spider
 Godfrey-Isaacs, Miss E., 1 Praying Mantis
 Gooden, R. C., 4 Privet Hawk pupae
 Goozee, Mrs F., 1 Tayra
 Gorham, S. W., 3 Eastern Garter Snakes, 1
 Northern Red-bellied snake, 6 American
 Toads, 15 Spotted Salamanders
 Gough, Mrs V., 1 cocoon of Crab Spider
 Granville, J., 1 Bird-eating Spider
 Grisdale, Mrs A., 1 Yellow-headed Conure
 Gwycher, Mrs B., Stick insects
 Haines, D., 1 Black-headed Weaver, 1 Red-
 headed Weaver
 Halstead, J. E., 2 Northern Adders
 Harris, M. C., 1 White-headed Buffalo Weaver, 2
 Chestnut Sparrows, 2 Fischer's Starlings
 Harris, Miss P., 1 Beecroft's Hyrax
 Hasler, Mr, 1 Helmeted Terrapin
 Hatton, Margaret and Barbara, 2 Pacific Hawksbill
 Turtles
 Hawker, Mrs M., 1 Indian Flying Fox
 Hawthorne, Mr and Mrs J. R., 1 Hieroglyphic
 Turtle
 Hayes, P., 8 Long-horned Grasshoppers, 2 Wolf
 Spiders, 3 Orb Spiders, 3 Praying Mantis,
 2 Bloody-nosed Beetles, 1 Crab Spider
 Haynes, R. F., 1 Stag Beetle
 Head, Mrs M., 2 Green Glossy Starlings
 Heath, Mrs K., 2 Spanner Barbs, 2 Clown Barbs,
 1 Firemouth Cichlid, 2 Schwanenfeldi Barbs,
 1 Schreitmuller's Moon Fish
 Hedges, D., 20 Crayfish
 Hedges, R., 1 Roach
 Hemmings, D., 1 Bosc's Monitor
 Henbrow, C. R., Stick Insect eggs
 Hickey, M. J., 1 Cross Spider
 Hill, Mr, Stick Insects
 Holroyd, J., 1 Siskin
 Hopper, A., 10 Grass Snakes
 Hopwood, Mrs A. E., 2 Greek Tortoises
 Ioannou, Dr, 5 Thick-tailed Bushbabies
 Jackson, H. E. F., 1 Spectacled Cayman
 Jackson, J., 1 Common Tench
 Jackson, O., 2 African Pythons
 Jodd, Miss E., Stick Insects
 Johnson, F. E. B., 1 Green Pheasant
 Johnson, R. J., 6 Anemone-fish, 4 *Chelmon*, 2
 Marine Angelfish, 6 Dragon Fish, 2 *Chaetodon*
 Jones, G. S., 2 Rainbow Trout
 Joshi, P. N., 1 Graceful Chameleon, 1 Orange-
 flanked Skink, 1 Black Terrapin, 2 Royal
 Pythons
 Judd, A. A., 4 Muller's Clawed Frogs
 Kahn, Miss M., Culture of Stick Insects
 Kingswarren Girl's School, 1 Virginian Cardinal
 Kirman, Mr, 1 Northern Adder
 Kitchen, Lady, 2 Red-eared Terrapins
 Kitson, Mrs N., 1 Senegal Bushbaby
 Knops, G., 1 Starred Agama
 Kopec, Mrs M. D., 1 Praying Mantis, 1 Electric
 Catfish
 Lanworn, R. A., 2 Grasshoppers
 Laurent, J. P., 14 Stick Insects
 Lawson, H. E., 1 European Pond Tortoise
 Lay, Cpl. J. T., 1 Mole Cricket
 Lear, G., 1 Large-billed Hawk
 Lee, Reid & Co. Ltd., 6 Spanner Barbs
 Lervent, Mrs, 1 Green Lizard
 Livett, Gdr. C. D., 1 Four-lined Snake
 Low, M.A., 1 Stag Beetle
 McCarthy, D., 7 Steppe Lemmings
 McMunn, Mrs. O. 2 Guillemots
 Maitland, Miss M., 2 Common Waxbills, 3
 Avadavats
 Mann, Mrs M. I., 2 Common Chameleons
 Maria Grey Training College, 1 Heron
 Markham, J., 1 Wolf Spider, 2 locusts
 Marques, A. V., 2 Ross's Turacos
 Marshall, R. T., 1 Bengal Monitor
 Martin, Miss C., 1 Black Spider Monkey
 Mason, Mrs N. A., 2 Red-eared Terrapins
 Meade, B. P., 1 Partridge
 Miller, Mrs, 1 Greek Tortoise
 Mills, J., 1 *Amphiuma*
 Moore, A. F., 1 Fruit Bat
 Moore, S. J., 1 Yellow Monitor
 Morris, Mrs. 2 Zebra Finches, 2 African Silver-
 bills
 Morrison, A. W., 1 Bird-eating Spider
 Muss, E. J. F. P., 21 Crayfish
 Neighbour, M. J., 4 Scorpions, 4 Desert Beetles
 Newlands, W. K., 1 Hooded Crow
 Newmark, G. H. and J. R., 1 Indian Pipit, 2
 Spotted Munias, 2 Chestnut Munias, 1 Brown
 Tree Snake, 1 American Ringed Snake, 1
 Black-backed Snake, 1 Corais, 1 Top-tailed
 Gecko, 2 Striped Geckos, 1 Yrhpua Iguana,
 2 Marbled Syrclops Lizards, 1 Black-pointed
 Tegu, 2 Daudin's Whip-tailed Lizards, 1
 Striated Lizard, 5 Sparassid Spiders, 13
 Nephila Spiders, 4 Praying Mantis, 1 Scorpion,
 5 Psychid larvae, 5 Tiger Beetles, 5 Hemip-
 terans, 1 Phasmid, 7 Polydesmid millipedes, 1
Gasteracantha Spider, 2 *Nephila* cocoons, 8

- Lepidopterous larvae, 4 *Psalmopoeus cambridgei*,
 12 Bird-eating Spiders, 1 Harvestman, 3
 Spiders, 6 Beetles, 5 Long-horned Grass-
 hoppers, 1 Elaterid Beetle, 19 Orb Web
 Spiders, 6 Short-horned Grasshoppers, 2
 Rhino Beetles, 2 doz. larvae of the Frangipangi
 Hawk Moth, 5 Cerambycid larvae, 1 *A.*
argentata cocoon
 Nine Elms Police Station, 1 Grass Snake
 Oates, J., 1 Carolina Box Tortoise, 2 Hermann's
 Tortoises
 O'Brian, L., 1 Golden-fronted Fruitsucker, 1
 Common Hangnest, 1 Hunting Cissa
 Orrell, J., 87 Stick Insect eggs
 Parish, The Hon. Mrs M., 3 Swan Mussels
 Paul, Sir John, 1 African Python
 Pedrick, Miss P. R., 2 Amboina Box Tortoises, 1
 Burmese Terrapin
 Phelps, T. E., 1 Adder, 1 Grass Snake, 2 Slow-
 worms
 Phillips, Mr and Mrs J. G., 1 Brown Hawk Owl
 Phillipson, P. H., Caterpillars and pupae of the
 Tortoiseshell Moth
 Pinhey, Dr E., 7 Scorpions, 2 Carabid Beetles, 1
 Millipede, 106 Stick Insect ova
 Piper, Mrs J., 2 Rosy-faced Lovebirds, 2 Fischer's
 Lovebirds
 Pitman, E. J. F., 2 European Spotted Salamanders
 Plunkett, J. F. E., 1 Russell's Sand Boa
 Powers, Major, 1 Weaver
 Pritchard, P., 1 Eastern Diamond-back Rattle-
 snake, 1 Pine Lizard, 1 Florida King Snake
 Purkiss, W. A., 1 Margouillat Agama
 Pyne, F. W. H., Axolotl eggs
 Quincey, the late Capt. R. de Q., Executors of,
 2 Klaas's Cuckoos, 1 Pied Jacobin Humming
 Bird, 1 Wood Nymph Humming Bird, 1 Short-
 tailed Ant-thrush, 1 Warbler
 Race, S., Stick Insects
 Randau, G., 1 Ruby and Topaz Humming Bird,
 2 Stripe-breasted Star-throats
 Reckless, J., 2 Allen's Bushbabies
 Reid, J. J., 10 Grey Mullet, 3 Blennies
 Richardson, C., 1 Florida Terrapin
 Riddell, Mrs J., 3 Cordon-bleus, 2 Firefinches, 1
 Orange Weaver
 Ride, Dr W. D. L., 2 Silver-grey Phalangiers, 2
 Banded Hare Wallabies, 1 Short-tailed Pade-
 melon, 3 Brush-tailed Rat Kangaroos
 Ridpath, E., 1 Margouillat Agama
 Riseley, Mr and Mrs R. A., A collection of marine
 tropical fish and invertebrates
 Romer, J. D., 1 Japanese Wart Frog, 14 Japanese
 Tree Frogs, 1 *Amphiesma vibraki*, 1 White-
 lipped Pit Viper, 1 Brown Spotted Pit Viper,
 2 Powdered False Vipers
 Rose, Off. Cadet P. I., 9 Scorpions
 Royal Society for the Prevention of Cruelty to
 Animals, 10 American Bull Frogs
 Rubens, Mrs D., 6 Field Mice
 Russell, D., 1 Baboon Spider, 7 Millipedes, 2
 Tulunungus (grasshoppers)
 St John's Wood Police Station, 1 Grass Snake
 Salmon, F. G., 1 Grass Snake
 Scott, Miss, 1 Spanish Terrapin
 Scott Forbes, Miss E., 3 Red-eared Terrapins
 Scrutton, R., 2 Black-necked Agamas
 Searle, Dr K. C., 8 Squirrels, 1 Eastern Purple
 Heron, 1 Falcated Teal, 2 Garganey Teal, 2
 Rufous Laughing Thrushes, 6 Collared
 Laughing Thrushes, 6 Masked Laughing
 Thrushes, 1 Fire-breasted Flowerpecker, 1
 Scarlet-backed Flowerpecker
 Sherrard, Miss M., 9 Thomas's Jirds
 Shingler, R., 2 Dwarf Anteaters
 Silbarrad, Major R. M., 1 Greek Tortoise
 Sims, K. J., Mantis egg mass
 Singapore, Government of, 1 Orang Utan
 Smith, C. H., 1 Eastern King Bird
 Spence, T., 6 Picazuro Pigeons, 3 Barred-
 shouldered Doves, 1 Bronze-winged Pigeon,
 1 Nicobar Pigeon, 1 Perfect Lorikeet
 Spurling, Miss C., Stick Insects and eggs
 Strelley, S., 1 Albino Clarias, 1 Black Shark
 Swainson, L. R., 1 Spectacled Cayman
 Sweeney, Mrs R. C. H., 2 Orb Spiders and co-
 coons, 43 Millipedes
 Thomas, K., 2 Bird-eating Spiders, 1 Crab
 Spider
 Thompson, Mrs D., 2 Red-faced Lovebirds
 Thonger, Misses C. and V., 1 American Catfish
 Trew, Mrs J. E., 1 Catfish
 Tribe, A. R., 2 African Hedgehogs
 Turnbull, Miss V., 1 Turtle Dove
 Uwins, Mr, 1 African House Snake, 1 White-
 throated Monitor
 Van Dijk, Dr D. E., 6 *Peripatopsis*
 Venters, N., 1 Texas Horned Lizard, 12 Common
 Frogs
 Walduck, D. E., 1 Greater Spotted Woodpecker
 Ward, Miss H., 1 Red-eared Terrapin
 Ward, J., 1 Giant Gourami
 Warner, A., J. and C., Stick Insect eggs
 Watkins, H., 1 Orange-headed Ground Thrush
 Webb, R. W., 1 Wood Wasp
 Webb, Mr, 1 Bengal Monitor
 Weeden, Mr, 1 Iguana
 Whitaker-Carr, Mrs V., 1 Cuckoo
 Whiteman, Miss W., 1 Long-horned Grasshopper

WHIPSNADDE PARK

- Baillie, The Hon. Lady, 2 Yellow-headed Conures
 Grenfell, Commander H. F. P. 1 Cheetah
 Hooper, B. C., 1 Chicken Snake
 Hertfordshire County Constabulary, St Albans,
 1 Grass Snake
 Lewington, B., 1 Orange-winged Parrot
 Rangoon Zoological Gardens, 2 Leopard Cats

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- BRITISH MUSEUM (NATURAL HISTORY),
TRUSTEES OF
Bulletin of the British Museum (Natural History) Entomology, Vol. 16, no. 4; Vol. 17, nos. 2-9; Vol. 18, nos. 1-8, Supplements nos. 4-6. Geology, Vol. 11, nos. 2-9; Vol. 12, nos. 1-6; Vol. 13, nos. 1-5; Vol. 14, no. 1. Supplements nos. 1-2. Zoology, Vol. 14, nos. 1-8. Supplement no. 1.
A synopsis of the Siphonophora. By A. E. Totton and H. E. Bargmann. 1965.
- CENTRE NATIONAL DE LA RECHERCHE
SCIENTIFIQUE, PARIS
CHATTO & WINDUS LTD
Anatomie de *Latimeria chalumnae*. Tome II. By J. Millot and J. Anthony. 1966.
The world of reptiles. By A. Bellairs and R. Carrington. 1966.
Monographia Tryphonidum Sueciae. By A. E. Holmgren. 1856.
Advances in parasitology. Vols. 1 & 2. 1963-1964.
- CRANBROOK, THE EARL OF
C.B.E., M.A., Treas. L.S.
ELKAN, E., M.D., L.R.C.P.,
L.R.C.S., L.R.F.P.S.
HARE, P. J., M.D.
HARRISON, J. L., D.Sc.
The skin. By P. J. Hare, 1966.
An introduction to Mammals of Singapore and Malaya. By J. Harrison. 1966.
- HEINEMANN, WILLIAM LTD
The book of Australian wild life. By H. Frauca. 1965.
Eaglemania. By J. Antony. 1965.
Understanding animals. By G. Gronefeld. 1965.
- HINDLE, E., Ph.D., Sc.D., F.R.S.
Apuntes a la Historia de la Colombicultura Murriana. Federacion Provincial de Colombicultura. 1964.
- KIRIKOV, S. V., INSTITUTE OF
GEOGRAPHY, MOSCOW
KNIGHT, MAXWELL, O.B.E., F.L.S.
Promyslovye zhivotnye, prirodnaya sreda i chelovek. By S. V. Kirikov. 1966.
Field work for young naturalists. By Maxwell Knight. 1966.
- MCDONAGH, MRS
MINISTRY OF DEFENCE
Protein - the basis of all life. By J. E. R. McDonagh. 1966.
The evoked vocal response of the bullfrog; a study of communication by sound. By Robert R. Capranica. 1965.
- MOSKOVSKIĬ ZOOLOGICHESKIĬ PARK
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- NATIONAL INSTITUTE OF
OCEANOGRAPHY
INTERNATIONAL OCEANOGRAPHIC TABLES. 1966.
- PACLT, DR J
Revista de medicina veterinaria y parasitologia. Vol. 16, nos. 1-4. 1957.
- PASSMORE EDWARDS MUSEUM
RUBINS, F.
Reproduction in British deer. By R. E. Chaplin. 1966.
The ABC and XYZ of bee culture. By I. A. Root and E. R. Root. 1908.
Illustrated catalogue of bee-keepers' supplies. 1908.
- WARD, ROWLAND LTD
The game animals of India, Burma, Malaya and Tibet. By R. Lydekker. 1907.
The geese of Europe and Asia. By S. Alpheraky. 1905.
Rowland Ward's Records of big game. XIth edition, (Africa). First addendum list. 1964.

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YABLOKOV, A. V.

Rowland Ward's Records of big game. XIth edition,
(Africa). Second addendum list. 1966.

Guide to the gardens of The Zoological Society of London.
Edited by P. L. Slater. 1886.

The gardens and menagerie of the Zoological Society
delineated. Vol. 2: Birds. 1831.

Izmenchivost' mlekopitayushchikh. By A. V. Yablokov.
1966.

Meetings during 1967

Scientific Meetings at 5 p.m.

Tuesday, 14th February

Tuesday, 14th March

Tuesday, 11th April

Tuesday, 9th May

Tuesday, 13th June

Tuesday, 10th October

Tuesday, 14th November

Tuesday, 12th December

Symposia

Wednesday and Thursday, 8th-9th March, 'The structure, physiology, and ecology of molluscs'.

A symposium on 'Invertebrate receptors' will be held on 30th-31st May; the date and subject of the autumn symposium have yet to be arranged.

