





Annual Report 1967

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 1967

The Council has pleasure in presenting its 139th Annual Report to the Annual General Meeting of the Society to be held on Thursday 2nd May 1968 at 4 pm in the Society's Meeting Room at Regent's Park

The Zoological Society of London

Breeding Policy Committee

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

Members of Committee:

Professor E. C. Amoroso, F.R.C.S., F.R.S.
Professor W. S. Bullough, D.Sc.
Professor J. M. Dodd, B.Sc., Ph.D.
J. F. D. Frazer, D.M.
Professor R. J. Harrison, M.A., D.Sc., M.D., B.Ch.
Professor P. J. Huntingford, M.D., F.R.C.O.G.
Professor Sir Alan Parkes, C.B.E., Sc.D., F.R.S., *Chairman*
W. Lane-Petter, M.A., M.B., B.Chir., F.I.Biol.
Alan Robertson, O.B.E., D.Sc., F.R.S.
L. E. A. Rowson, O.B.E., M.R.C.V.S.
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.

Members of Committee:

Professor W. I. B. Beveridge, D.V.Sc.
Professor G. M. Bull, M.D., F.R.C.P.
Professor E. Cotchin, D.Sc., M.R.C.V.S.
The Lord Florey, O.M., F.R.S.
Raymond Greene, M.A., D.M., F.R.C.P.
Professor R. Hare, M.D., *Chairman*
W. Lane-Petter, M.A., M.B., B.Chir., F.I.Biol.
N. W. Pirie, M.A., F.R.S.
Professor R. H. S. Thompson, D.Sc., D.M., B.Ch., M.R.C.P., F.C.Path.
Dame Janet Vaughan, D.B.E., D.M., F.R.C.P.
G. E. W. Wolstenholme, O.B.E., F.R.C.P., F.I.Biol.
H. Beric Wright, M.B., F.R.C.S.
Secretary: L. G. Goodwin, M.B., B.S., M.R.C.P., B.Pharm, B.Sc.

Education Committee

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

Members of Committee:

Professor W. S. Bullough, D.Sc.
J. D. Carthy, Ph.D.
Miss Barbara M. Gilchrist, Ph.D.
Maxwell Knight, O.B.E., F.L.S.
Professor G. E. Newell, D.Sc., *Chairman*
John R. Newmark
Geoffrey Schomberg, F.L.S.
D. J. Stanbury, B.Sc., A.R.C.S.
C. J. M. Trehwella, B.Sc.
Mrs P. C. G. Arthur
H. Jones, Ph.D.
L. Watt
Secretary: M. K. Boorer, B.Sc.

Publications Committee

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

Members of Committee:

Professor E. J. W. Barrington, M.A., D.Sc., F.R.S., *Chairman*

W. Nigel Bonner, B.Sc.

Professor A. J. E. Cave, M.D., D.Sc., F.R.C.S.

J. P. Harding, Ph.D.

C. C. Hentschel, M.Sc.

Professor H. R. Hewer, O.B.E., M.Sc., A.R.C.S.

Professor G. E. Newell, D.Sc.

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H. N. Southern, M.A.

Professor G. C. Varley, Ph.D.

Professor G. P. Wells, Sc.D., F.R.S.

C. A. Wright, Ph.D.

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

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:

Francis C. Fraser, C.B.E., D.Sc., F.R.S.

J. P. Harding, Ph.D.

Cecil A. Hoare, D.Sc., F.R.S., *Chairman*

R. A. Neal, D.Sc., Ph.D.

E. O. Pearson, O.B.E., M.A.

N. D. Riley, C.B.E.

John Smart, D.Sc.

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

Secretary: H. Gwynne Vevers, M.B.E., D.Phil., F.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:

Professor E. J. W. Barrington, M.A., D.Sc., F.R.S.

Professor F. Bourlière, M.D., L.Sc.

William G. Conway

The Earl of Cranbrook, C.B.E., M.A., Treas.L.S., *Chairman*

Francis C. Fraser, C.B.E., D.Sc., F.R.S.

R. E. Glover, D.Sc., F.R.C.V.S.

W. Lane-Petter, M.A., M.B., B.Chir., F.I.Biol.

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

Walter Van den bergh

Secretary: J. Lucas, B.Sc.

The President, Treasurer and Secretary are *ex officio* Members of all Committees.

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THE ZOOLOGICAL SOCIETY OF LONDON

PATRON: HER MAJESTY THE QUEEN

COUNCIL 1967-1968

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.

Professor E. J. W. Barrington, M.A., D.Sc., F.R.S., *Vice-President**

E. Michael Behrens

Aubrey Buxton, M.C.*

Charles Clore

The Earl of Cranbrook, C.B.E., M.A., Treas.L.S., *Vice-President*

The Duke of Devonshire, M.C.

The Hon. William Fraser, C.M.G., O.B.E., T.D.

Raymond Greene, M.A., D.M., F.R.C.P.

Maxwell Knight, O.B.E., F.L.S.

The Hon. Ivor Montagu

W. Lane-Petter, M.A., M.B., B.Chir., F.I.Biol.

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

Air Vice-Marshal G. Silyn Roberts, C.B., C.B.E., A.F.C., M.Sc.*

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., *Vice-President*

G. E. W. Wolstenholme, O.B.E., F.R.C.P., F.I.Biol., *Vice-President**

Frank Yates, C.B.E., Sc.D., F.R.S.*

At the Annual General Meeting held on 9th May the following members of the Council retired:

The Earl of Mansfield

Sir Malcolm Sargent

Dr Francis C. Fraser

Professor P. L. Krohn

Sir Michael Perrin

*Elected at the Annual General Meeting

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In the pocket on back cover

General Review

MEMBERSHIP

At the Annual General Meeting the Resolutions proposing increases, as from January 1968, in the subscriptions of Ordinary Fellows and Associates were passed unanimously. The consequential amendments to the Regulations which were subsequently made by Council are given in Appendix 1, page 30.

At the end of the year there were 3,427 Fellows and 2,471 Associates.

The Council records with deep regret the deaths of Sir Malcolm Sargent who had been a Fellow for 37 years and had retired from Council in May; Professor R. J. Pumphrey who was a member of Council from July 1961 to 1964, and Sir Benjamin Rycroft, who was for many years Honorary Consulting Ophthalmologist to the Society.

Whilst this report was in preparation the Council heard with sorrow of the deaths of Mr Maxwell Knight and Professor J. Dixon Boyd. Both had been Fellows of the Society for many years. They had served as Vice-Presidents and members of Council and had also given invaluable service on a number of committees.

ATTENDANCES

For the third year in succession the attendances at Regent's Park exceeded two million. This figure, which is higher than the attendances at any other national exhibition, has only been reached on sixteen occasions in the Society's history. It undoubtedly reflects the attraction of our new buildings, of the general improvement of the exhibition and facilities for visitors, and of an extensive advertising campaign and wide press publicity.

At Whipsnade the attendance figure of 588,825 was, however, disappointing. Although it is impossible to isolate a single factor to account for the fall of 3% compared with the 1966 figure, there is no doubt that the weather has a marked effect on the number of visitors to the Park. May was the wettest since 1773 and it was in this month that there was a marked fall in attendances. In July and August the attendances were higher than in the previous year.

FINANCE

The rebuilding programme in Regent's Park and the improvements being made at Whipsnade continue to make heavy demands on our financial resources, the capital expenditure during the year being £233,000.

The cost of salaries, wages, provisions, maintenance, general services and research

are constantly increasing and although revenue reflected the buoyant level of attendances the accounts for the year showed a small deficit.

Council has, however, decided to make no change in the entrance charges for 1968. This decision will, of necessity, have to be kept constantly under review and an increase may be inevitable if price-levels rise steeply.

DONATIONS

The Council gratefully acknowledges a legacy of £200 from the late Mr Henry Carr, and other donations received from Fellows and private individuals.

ADMINISTRATION

The Director-General, Sir Charles Dalton, retired in August. During his ten years' service he carried through a major reform of the administrative structure of the Society at a time when its activities were expanding rapidly. He guided the staff with skill and good humour, and the smooth development of the complicated phasing of the rebuilding programme was undoubtedly due to his enthusiasm and determination to overcome difficulties.

On his retirement the duties were re-allocated between the Director of Administration, a new post, to which Miss E. M. Owen was appointed, the Director of Zoos, Mr C. G. C. Rawlins and the Director of Science, Dr L. G. Goodwin, all of whom are directly responsible to the Secretary.

COLLECTIONS POLICY

In order to maintain a high standard of nutrition of the animals in its care the Council decided to complete the implementation of its policy, declared in 1965, of stopping the feeding of animals by visitors.

For many years the feeding of certain animals, for instance Giraffes, Polar Bears, Giant Panda, has been forbidden and recently the opening of new houses has made it physically impossible for the public to feed the animals. This has gradually reduced the number of species which could be fed. By the end of 1967, visitors were allowed to feed only the monkeys and apes, some of the bears, the elephants when in the outside paddock of the new Pavilion at Regent's Park, and the herd animals at Whipsnade. It has proved impracticable to exercise proper control while allowing these exceptions to the general rule. Quite apart from the aspect of nutrition, accidents can occur, one example being the death of the elephant 'Diksie' which lost its balance when reaching out to get a titbit from a visitor. Accordingly, Council decided that as from January 1968 a complete ban on public feeding would be introduced at Regent's Park and Whipsnade.

The decision to stop public feeding and the reasons for it were widely publicised at the beginning of December and received a favourable press. There is no doubt that public opinion is receptive to the need for the constant improvement in the care of animals in captivity in order to achieve a better standard of health and better breeding results.

FOOT AND MOUTH DISEASE

On 18th November, at the critical point in the development of the epidemic of foot and mouth disease, when it seemed that there might be a sudden spread to the whole

country, it was decided to close Whipsnade with its vulnerable stocks of susceptible animals. The Park remained closed for the rest of the year. Fortunately, attendances during these winter months are normally very small so the disappointment to visitors and the financial loss were not serious. There were, however, serious setbacks in important building works which will have an effect during 1968. The staff suffered considerable inconvenience during this period but the efficient and effective manner in which the Park was isolated, and thus protected, was most commendable.

At Regent's Park certain precautionary measures were also taken but, fortunately, it was not necessary to close the Gardens.

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 Aubrey Buxton*, for his contribution to the appreciation of natural history, in particular his work in promoting an understanding of wildlife conservation.

The Scientific Medal (awarded to persons under 40 years of age for distinguished work in zoology) to *Dr Anne McLaren*, of The Institute of Animal Genetics, Edinburgh, for her work on the physiology of reproduction in mammals; *Dr J. F. A. P. Miller*, of the Walter and Eliza Hall Institute of Medical Research, Melbourne, Australia, for his important and wide-ranging studies on the physiology of the thymus gland; *Professor T. I. Shaw*, of Queen Mary College, London, for his work on comparative physiology in several fields, including the movement of sodium and potassium in red cells, the uptake of iodide in seaweeds and the buoyancy of marine animals.

The Stamford Raffles Award to the *Reverend E. A. Armstrong* of Cambridge, for the contribution his ornithological studies have made to our knowledge of bird behaviour.

The Thomas Henry Huxley Award (for original work submitted as a doctoral thesis) to *Dr G. D. Winter*, The Institute of Orthopaedics, Stanmore, for his thesis on 'A study of wound healing in the domestic pig'.

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 *J. D. Bygott*, formerly a pupil at Taunton School, Somerset, for his essay on 'Observations and experiments on *Tegenaria atrica* (a common house-spider)'. A Certificate of Commendation and a prize of books was awarded to *A. Wright*, of Mill Hill School, for his essay on 'Bumble-bee behaviour'.

The London Zoo

Visitors during the year 2,036,642.

Visitors to the Children's Zoo 500,975.

Visitors to the Aquarium 331,387.

REBUILDING PROGRAMME

The Charles Clore Pavilion for Mammals

H.M. The Queen and the President, H.R.H. The Duke of Edinburgh, visited the Gardens on 16th May. They spent some hours in the new buildings and saw many other exhibits. At the Snowdon Aviary they were joined by H.R.H. The Princess Margaret and Lord Snowdon who accompanied them for the remainder of the tour during which Her Majesty opened The Charles Clore Pavilion for Mammals. This house, which was mentioned in last year's report and also fully illustrated in the Autumn Newsletter, represents a great leap forward on the previous accommodation for the 200/250 small mammals housed in its 110 cages and 3 enclosures. Its success as an exhibition building is unqualified. But its tremendous popularity with visitors has brought certain unforeseen difficulties, in particular the problem of noise and crowd control in the magnificent nocturnal section. The paradox is that the excellence of the exhibits in the 'Moonlight World' – as the nocturnal section is called – causes much excitement, especially for children and school parties and this sometimes leads to a breakdown of discipline.

From the point of view of animal accommodation the new quarters have undoubtedly proved their worth. The primates are particularly successful, in the nocturnal section the lorises and the bushbabies are always active, while in the diurnal section the lemurs and the marmosets are displaying well. Interesting new exhibits included a pair of Aardvark and, for a few months, a Haitian Solenodon. Although it is too soon to judge the full effect on breeding results of the vastly improved conditions, the births of a Silver-grey Phalanger and two White-fronted Marmosets are noteworthy.

Other works in progress. The new combined Sealion Viewing Stand and Canine Quarters building, which was postponed from 1966, was being built at the end of the year and should be finished in the summer of 1968.

A number of minor building changes were carried out which, while ancillary to the main Development Plan, contribute to the general improvement of the exhibits and facilities.

The Giant Panda 'Chi-Chi' was moved in April from her original quarters, which

were in an area scheduled for the new Primate House, to new quarters in the Old Cattle Sheds. The new enclosure and the series of dens attached to it are of a high standard and were designed to accommodate two Giant Pandas. It is still hoped that 'Chi-Chi' will share the quarters, even if temporarily, with the Giant Panda 'An-An' from Moscow Zoo when he pays his return visit to London.

The Parrot House was refurbished with larger aviaries to take the place of the small old-fashioned cages in which the birds previously lived. With the general redecoration which has also been completed the conditions in this house can now be considered satisfactory for a few years until the new house, scheduled under the Development Plan, is built.

A small, but extremely effective, modification to an existing animal enclosure was made to accommodate a pair of Red Pandas in the former Otter Pool. This kind of renovation is typical of the minor improvements constantly being undertaken by the Works Department to improve the standard of the Gardens as a whole.

The planning of the new Primate House has proceeded actively with a view to starting work in 1968. As with all the major animal houses the building of this House will involve several preliminary moves. The rehousing of the Giant Panda is one example. The moving of the Giant Tortoises, which have been housed in the former Small Mammal House, is another. To achieve this, the Frog Lobby in the Reptile House is being converted into what promises to be a most attractive enclosure for the tortoises. The frogs and other amphibians will be moved to the Aquarium, where the rather grim exit passage is being modified for this purpose at the same time as it is being decorated and improved. Both these projects will be finished in the spring of 1968.

The public is the main beneficiary of two other important minor projects. A new viewing window over the southern Polar Bear enclosure on the Mappin Terraces adds to security as the bears grow larger, while giving visitors the opportunity of a much clearer and closer look at them. More mundane, but just as important, are the new public lavatories opened at the South Gate.

A great deal of work goes on to prepare for future phases of the Development Plan. The first designs for the development of the extreme north-west area of the Zoo, including the replacement of the North Mammal House, have been prepared and are being considered by the various consultative committees. The North Mammal House is to be replaced by accommodation for hoofed animals which are destined for Whipsnade but have, under the Ministry of Agriculture's regulations, to be held for a year in an urban zoo. On the canal bank below these holding quarters there will be paddocks for large birds such as ostriches and rheas, which are now housed in the Ostrich House, as well as enclosures for cheetahs from the old North Mammal House.

Other complicated planning is necessary in working out the chessboard moves of animals from old houses via temporary quarters to new homes which are due to be built. The next stage in this process involves the Birds of Prey and the remaining animals in the Old Cattle Sheds.

THE COLLECTION

Mammal section The main work this past year has been focussed on the exhibits for the Charles Clore Pavilion.

As a step towards the stocking of the future Primate House with breeding groups of the most important species, the Society accepted the gift of nine young Orang-utans (four males and five females) from the Government of, and two private owners in, Hong Kong. The animals had been confiscated, or their disposal controlled, under the legislation brought in by the Government to stop the illegal trade in this species. Their export from Hong Kong was authorized after proper consultation with the recognized international conservation authorities, and the gift was offered to the Society in order to ensure their preservation in an established zoological garden. Dr K. C. Searle, one of the private owners (and a well-known benefactor of the Society who presented many of the new animals for the Charles Clore Pavilion) was responsible for making all the arrangements for the transfer of this important collection to London.

A young Pacific Walrus was purchased at the end of 1966. She was housed temporarily in the bath in the Elephant Pavilion and became a great favourite with the public. She was in perfect condition when she unfortunately died as the result of an accident. The six months' experience in the care of a young Walrus has, however, been of great importance and much has been learned against the time when a Walrus will again be on exhibition.

Another important loss to the Collection was the female African Elephant 'Diksie' which, as mentioned earlier, died as the result of an accident when she was nudged by another elephant and overbalanced into the moat surrounding the paddock when being fed by a visitor. The Kenya Government have kindly promised to present a young elephant to take 'Diksie's' place.

The Society is concerned to co-operate with other zoos in breeding projects and, in accordance with this policy, we sent our male Snow Leopard to Amsterdam Zoo where there is a single female of this comparatively rare species.

Breeding successes at Regent's Park during the year included two Chimpanzees and two litters of Lions (one litter consisting of five cubs). Chinese Leopards and Pumas were also born in the Lion House and, on the Cotton Terraces, a Vicuna, a Buffalo, a Yak and several Blackbuck.

On December 1st a Polar Bear was born. It survived the first crucial month and was then cared for by its mother in the seclusion of the den set aside for the birth.

Important acquisitions were a pair of Red Pandas and a male Maned Wolf to replace the one which died during the year. Two female Cheetahs were purchased as mates for the male Cheetah already in the Collection. It is hoped to repeat in London the success of Whipnade where the first Cheetahs to be bred in this country were recently born.

Bird section During the year eighteen new forms (three genera, six species and nine sub-species) have been received. Among the birds bred in the Gardens are a Javan Fish Owl, a Cloncurry Parrakeet and a Purple Honeycreeper, all believed to be the first to be bred in this country. Two chicks were hatched and reared by the pair of Peafowl which live free in the Central Gardens. The hatching on separate occasions of two Princess Stephanie's Bird of Paradise chicks was an important achievement, but unfortunately the chicks did not survive more than a few weeks.

In the Snowdon Aviary – where the birds are now well settled – Sacred Ibis, Night Heron, Cattle Egret, Gallinule and Speckled Pigeon were bred.

A historic event in the bird section was the death of a White Pelican after 45 years in the Zoo.

Reptile House During the year several species of rattlesnake have been exhibited some of which are new to the Collection. The outstanding specimen received was a South American Cascavel Rattlesnake which is one of the most impressive members of the family.

Six hatchling New Guinea crocodiles, collected as eggs in New Guinea and hatched in Australia, and which are new to the Collection were presented.

Aquarium In addition to the normal supplies of fish and invertebrates from Madeira, the staff of the Aquarium have made two trawling and several angling expeditions.

A colony of dragonfish has been successfully established. The new filter system in certain of the tropical marine tanks has functioned efficiently and is now being extended to cover further tanks. A new refrigeration plant is being installed to improve the circulation in the trout tanks.

Insect House This has been a very successful year. A small colony of fiddler-crabs, which will soon be on exhibition, has been established in the reserve part of the Insect House which has been equipped with a re-circulating filter.

The rare Australian stick-insect, *Extatosoma tiaratum*, is breeding regularly in the Insect House these insects are feeding on bramble. A fine colony of leaf-insects, *Phyllium pulchrifolium*, received from Ceylon, are feeding on holm oak and are laying eggs regularly.

FLOWER GARDENS

The early spring and summer months were fine enough to ensure that the flower beds were even better than usual, the spring tulips and violas in the Main Walk beds being the best of the whole display. The dahlias were as splendid as ever and a new bed of these in the Middle Gardens, near the Charles Clore Pavilion, will become the central feature of the dahlia exhibition when the present beds have to be given up to make way for the new Primate House.

The Gardening Staff stocked the plant boxes and areas surrounding the Charles Clore Pavilion, working against time to establish the plants in time for the opening in May. Other special tasks included additional planting in the Snowdon Aviary and the preparing of flower boxes in the renovated Parrot House.

Apart from routine garden maintenance and special displays, the staff raised and planted some 75,000 bedding plants, 1,000 dahlias of 200 varieties, planted 15,000 assorted bulbs and laid 15,000 turves of grass.

PUBLIC FACILITIES

Signs, notices and other means of information for the public continued to be improved. Many signboards were rearranged in order to give comprehensive general information to visitors at all important points. New signs were also put at the en-

trances providing basic information about prices and times, and better quality 'You are Here' maps, 'How to Get Home' and 'Animal Feeding Times' notices were introduced.

The Information Bureau, which is open to the public during the summer, continued to deal with large numbers of public enquiries of all kinds. For the second year the Zoo Quest Competition, organized in co-operation with the Boy Scout and Girl Guide Associations, drew many thousands of enthusiastic entrants.

TV AND FILMING

As in previous years a large number of film and television producers and still photographers availed themselves of the facilities provided by the Film Unit. The film and television items ranged from the specifically educational to those of more general interest and have been shown on most of the national television networks. The Charles Clore Pavilion for Mammals attracted particular interest and was the subject of a special TV programme which, together with another programme featuring the Elephant and Rhinoceros Pavilion, was transmitted in August by the B.B.C.

The Society's Photographic Department has made further films for the Education Department and continued to add to the library of black and white photographs. But the main emphasis of its work has been on colour photography and the Society now has the nucleus of a library of colour transparencies which will be added to from year to year.

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

On 1st January 1967	3,017
Received in 1967 by presentation, exchange, deposit, purchase, and transfer from Whipsnade	883
Born and hatched in the Menagerie during 1967	272
	<hr/>
	4,172
Died, sold, sent in exchange, returned to depositors, and transferred to Whipsnade	928
	<hr/>
In the Gardens on 31st December 1967	3,244

Whipsnade Park

Visitors during the year 588,825

Visitors to the Children's Zoo 187,802

Cars brought into the Park 45,551

DEVELOPMENT

During the year the main emphasis was on the improvement of the catering facilities. In order to avoid too much disruption of normal services during the season, the reconstruction was undertaken in phases. Phase one was the complete re-organization and extension of the Cloisters Cafeteria. Seating has now been provided for 500 people and the new premises, with a temporary kitchen in operation, were opened to the public in time for the Whitsun holiday.

A new café was built in place of the old Avenue Shelter Kiosk and an open-air picnic area, including a hamburger grill and refreshment kiosk, has been provided on the site of the demolished Triangle Café. Kiosks at the Children's Zoo and Elephant site were rebuilt and the kiosk at the Tiger site was enlarged and improved.

The second phase of this development was started during the autumn to provide a new cafeteria kitchen, stores, offices, cloakroom facilities for visitors and a rest room for staff. A new staff restaurant is also planned. There has, however, been some delay as building operations had to be abandoned when the precautions against foot and mouth disease made it necessary to close the Park.

Five new rain shelters were built at strategic points to provide not only refuge from the weather, but also picnic areas.

The Old Reptiliary was demolished during the year to make way for road widening to improve access to the Children's Zoo, and new kennels for visitors' dogs were provided near the entrance gate.

Many of the recommendations made in the Report of the Committee on Information for the Public were carried through during the year. A thorough and efficient signposting system has been introduced throughout the Park as well as a greatly improved display of information and directions at the entrance.

STAFF

The Council was very pleased to learn that eight members of the Whipsnade staff visited the Amsterdam and Rotterdam Zoos in September. The tour was organized by Senior Overseer Chamberlain, the staff personally meeting their expenses and giving up their own free time to undertake the visits.

THE COLLECTION

The main breeding success of the year was the birth, in September, of three Cheetahs to 'Juanita' and 'Jack'. 'Juanita' was presented to the Society in November 1966 by Commander H. F. P. Grenfell. The cubs, one male and two females, were left in their enclosure with their mother who has reared them entirely herself. This is the first time in this country that Cheetahs have been bred successfully and it is probably only the second time that Cheetah cubs, born in captivity, have been reared by their mother. There were many other notable births, including a female hippopotamus.

A baby female Indian Elephant was purchased in May; named 'Kumara', she proved a great attraction to visitors. In September she was joined by another two baby female African Elephants, 'Katie' and 'Susie'. These were purchased from the Department of Game and Fisheries of the Zambian Government, and were brought from Zambia by air in the care of Overseer F. L. Gladman.

Two young African White Rhinoceroses purchased from the Natal Fish and Game Board in June were brought back by the Curator of Birds, and a Musk Ox bull was brought by the Director, Whipsnade Park, from the Alberta Game Farm in Canada. A male Reindeer was purchased from Helsinki Zoo to join the females already held at Whipsnade, and a male Brazilian Tapir was presented to the Society by Dr A. C. Castro of Rio de Janeiro.



The Queen, Prince Philip, and
Princess Margaret during their tour of the Gardens in May
Central Press Photos



Moor Monkey, London Zoo

Daily Mirror Photograph supplied by Syndication International

GENE BANK

The Gene Bank poultry were disposed of during the latter part of the year. The majority of the birds were presented to interested individuals and the remainder to the Universities Federation for Animal Welfare.

The present state of the cattle herds and flocks is as follows:

	<i>No. remaining from original purchase or presentation</i>	<i>Present status of herds and flocks</i>
Longhorn Cattle	3 female	23
Chartley Cattle	2 female	21
Cotswold Sheep	3 female	12
Norfolk Horned Sheep	1 male 2 female	16
Lincoln Longwool Sheep	4 female	27
Manx Loghtan Sheep	1 male	7
Woodlands White-faced Sheep	4 female	13
Portland Sheep	1 male 2 female	13
Soay Sheep (ex Hirta)	6 female	58

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

On 1st January 1967	2,229
Received in 1967 by presentation, exchange, deposit, purchase, and transfer from Regent's Park	104
Born and hatched in the Park during 1967	415
	<hr/>
	2,748
Died, sold, sent in exchange, returned to depositors, and transferred to Regent's Park	643
	<hr/>
In the Park on 31st December 1967	2,105

Scientific Activities

SCIENTIFIC MEETINGS

Eight meetings were held during the year and a number of the papers given have been published in the *Journal of Zoology*. The following were among the many interesting contributions which were not intended for publication: A film on the biology of spiders, introduced by Dr J. A. L. Cooke; an account of the reptiles and amphibians of Gunong Benom, Malaya, by Miss A. G. C. Grandison; a film on the biology of the fish louse *Argulus*, introduced by Dr J. E. Paling; Mr Philip Wayre spoke on the re-introduction of Swinhoe's pheasant to Formosa and showed a film; Dr Barbara Weir gave an account of an expedition to the Argentine to collect live hystricomorph rodents, and Dr C. A. Wright and Dr D. R. Stoddart showed a film of Aldabra Island and commented on the ecology of the island.

SYMPOSIA

The following were held:

March 8th/9th 'Studies in the structure, physiology and ecology of molluscs', organized by Dr Vera Fretter on behalf of the Society and the Malacological Society of London.

May 30th/31st 'Invertebrate receptors' organized by Professor G. E. Newell and Dr J. D. Carthy.

PUBLICATIONS

Journal of Zoology

Transactions

Symposia series

Zoological Record

Nomenclator Zoologicus

Editor : Dr H. G. Vevers

Assistant Editor : Miss M. A. Edwards

International Zoo Year Book

Editor : Until August – Lady Medway (Miss Caroline Jarvis)

From September – Mr J. Lucas

Advisory Editor : Dr H. G. Vevers

Journal of Zoology Volumes 151, 152 and 153 were published. The Council wishes to record its gratitude to all those who so willingly act as referees for the papers submitted, thus ensuring that a high standard of contributions is maintained.

Symposia The following volumes in the *Symposia* series were published: Number 19 'Aspects of Marine Zoology', edited by Mr N. B. Marshall. Number 20 'Echinoderm Biology', edited by Professor N. Millott.

Zoological Record Volume 101, recording the literature for 1964, was completed, the number of titles being approximately 10 per cent more than in the preceding volume. Eight sections of Volume 102 were published and eight sections are in the press.

The Council 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 7.

International Zoo Yearbook Of approximately 850 zoos listed in Volume 8 some 520 have provided material for the *Yearbook* by returning annual questionnaires and sending articles, notes and records. As a result the *Yearbook* is becoming an increasingly accurate account of the amount of work being carried out in zoos, and of the knowledge that is being gained about the management of wild animals in captivity.

Volume 8, which is in the press, is divided into 3 sections. Section 1 consists of 24 articles on canids and felids in captivity, including a paper by Devra Kleiman on reproduction in the Canidae, articles on the breeding of European Wild Cats *Felis s. silvestris* at Berne Zoo by Monika Meyer-Holzappel and Prague Zoo by Jiri Volf, a paper on the breeding of Fishing Cats *Felis viverrina* by Frederick A. Ulmer Jr, and observations on the breeding, management and physiology of Snow Leopards *Panthera u. uncia* at Kaunas Zoo by B. B. Marma and V. V. Yunchis. Section 2 contains 49 papers and reports on such diverse subjects as Architecture and Building, Breeding, Conservation, Education, Husbandry and Research in Zoos. Section 3, the reference section, contains detailed lists of zoos and aquaria of the world; zoo federations and associations; numbers and species of wild vertebrates bred by zoos and research institutions in 1966 and a census of the numbers and species of rare animals in captivity in 1967. A new feature of this section is an extensive survey of marking techniques used for the identification of wild animals in captivity.

LIBRARY

This has been the first full year since the Library was rebuilt and rearranged and its use by readers has increased considerably. Many telephone enquiries have been received from Fellows and the public, and the postal loan service for Fellows has been much in demand. In order to meet the increasing demand from the research institutes and from scientists working with the Society, the number and range of journals taken has been increased.

Considerable reorganization has been necessary to provide this increased library service. Work has also continued on a new periodicals catalogue, the subject index, and the development of the scheme of classification which was introduced when the Library was rearranged after rebuilding.

VETERINARY SECTION

Hospital During the year the number of cases receiving veterinary attention, excluding routine new arrival screening, was 503. The majority of acute cases were presented for traumatic or infected lesions most of which were superficial.

The number of new arrivals screened in Hospital was 189 and 10 animals passed through the Quarantine Section.

A health survey programme of all the animals is now being undertaken, by which it is hoped to detect impending illness in advance.

Pathology laboratory During the year approximately 560 autopsies were made on animals from amongst the resident acclimatized population which died in the London Zoo. In addition some 350 autopsies were made on newly arrived unacclimatized animals and 340 on animals from external sources, making a total of 1,250. Diagnostic reports were made on approximately 620 specimens from living animals comprising 470 submitted by the hospital, 120 from Whipsnade and 30 from external sources.

Accidents resulted in the death of the baby Walrus, the African Elephant and one of the Baikal Seals. Two outbreaks of infectious disease occurred, namely psittacosis in the aviary of the free-flying Budgerigars and a type of lobular pneumonia in the colony of guinea-pigs in the Children's Zoo. Owing to the risk of infection to the staff, public and the parrots in the nearby Parrot House, it was reluctantly decided to destroy the entire flock of affected Budgerigars.

At Whipsnade Mr Martin Senior (Consulting Veterinary Surgeon) and Mr V. J. A. Manton carried out 463 autopsies, 185 on birds, 277 on mammals and 1 on reptiles.

Research

Dr H. G. Vevers has carried out research on the axial organ of echinoids; Caroline Loizos has completed her observations on social behaviour and play in captive chimpanzees. Elizabeth Evans (Queen Elizabeth College) is collaborating in a comparative study of animal diets and Yvonne M. Clayton (St John's Hospital for Diseases of the Skin) has made a survey of mycotic organisms in birds and 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, F.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.Sc., D.M.R.D., F.F.R.; T. Cartwright, B.Sc.; Miss M. M. Gale, B.Sc., Dip.Ed.; Miss C. M. Hawkey, Ph.D.; Professor J. J. Jaffe; A. Voller, Ph.D.; D. B. Yates, B.Pharm., M.Sc.; Mrs R. J. Zalin, B.Sc.

The total staff of the Institute now numbers 47. There are 9 visiting graduates who are supported by grants provided by the British Heart Foundation, the Medical Research Council, the Ministry of Overseas Development, the Wellcome Trust, the Picker Foundation of America, Messrs A. Wander & Company Ltd, and the World Health Organization.

During the year the Institute was designated by the World Health Organization as a collaborating centre for comparative pathology of nondomesticated vertebrates.

Mr N. Wakasugi completed his two years' work with Professor W. Landauer and returned to Nagoya University, Japan. Professor Landauer has now moved to the new Genetics building at University College, London.

During the year Mr P. F. L. Boreham spent five months at the East African Trypanosomiasis Research Organization, Tororo, Uganda, to study human and bovine causes of trypanosomiasis. He has submitted a thesis for Ph.D. degree (London) and has now joined the Parasitology Department of Imperial College, London.

Mr D. B. Yates joined the Institute to work on the pharmacology of chronic infections, with support from the Ministry of Overseas Development.

Mr T. Cartwright, from the Biochemistry Department of Birmingham University, has joined Dr Hawkey's group to study the constituents of vampire bat saliva.

Dr A. Voller is at present working on immunity in simian malarias at the National

Center for Primate Biology, Davis, California, on the invitation of the Director, Dr Leon Schmidt.

Professor J. J. Jaffe joined the Biochemistry Department for his sabbatical year from the Department of Pharmacology, University of Vermont, Burlington, U.S.A., to study the biochemistry of trypanosomes. Technical and financial assistance for his work has been provided by the Ministry of Overseas Development, the Wellcome Foundation Ltd, and a generous supply of equipment has been lent by Twyford Laboratories Ltd.

Mr P. Baron visited East Africa early in 1967 with the support of the Wellcome Trust but was unable to complete his assignment and has resigned. Mr Alan Young has been appointed to this vacancy and it is hoped that he will leave for the Serengeti early in 1968 to study blood parasites.

Dr H. Sissons of the Royal National Orthopaedic Hospital has given great assistance with a project on diseases of bone in primates which is being carried out in the Pathology Department.

Dr Richard Gabriel, senior anaesthetist at St Bartholomew's Hospital and the North Middlesex Hospital, joined Mr R. N. Fiennes and Dr G. du Boulay in work on the caudal vena cava.

Mr Lindsay Symon, of the Institute of Neurology, Queen's Square, has continued to study, with Dr G. du Boulay, the cerebral and cervical arteries of baboons.

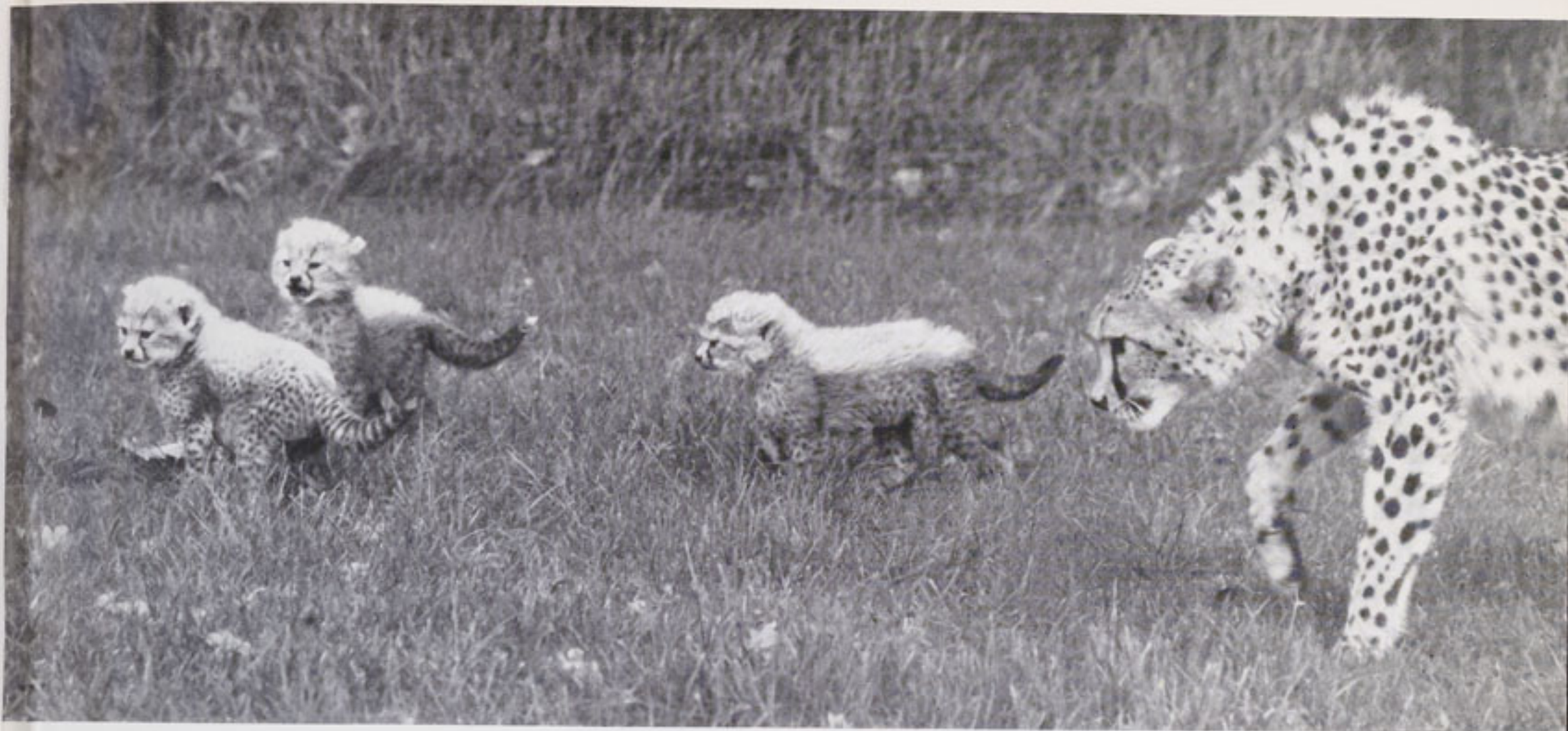
Mr John Currie and Mr John Lumley, both Senior Registrar neurosurgeons at St Bartholomew's Hospital, have given help and advice with ventriculography on monkeys.

Research projects In the Pathology Department, Mr R. N. Fiennes has studied viral and filarial disease in New World monkeys and has made histological studies of primate bones and of the mammalian vena cava. Dr C. M. Hawkey has investigated the sickling of erythrocytes in the Slender Mongoose (*Herpestes sanguineus*), and substances in the saliva of the Vampire Bat (*Desmodus rotundus*) that influence blood coagulation and fibrinolysis. Mr P. F. L. Boreham and Dr L. G. Goodwin have studied the release of kinin and vascular damage caused by trypanosome infections. Professor W. Landauer and Mr N. Wakasugi have made teratological studies on chicken embryos.

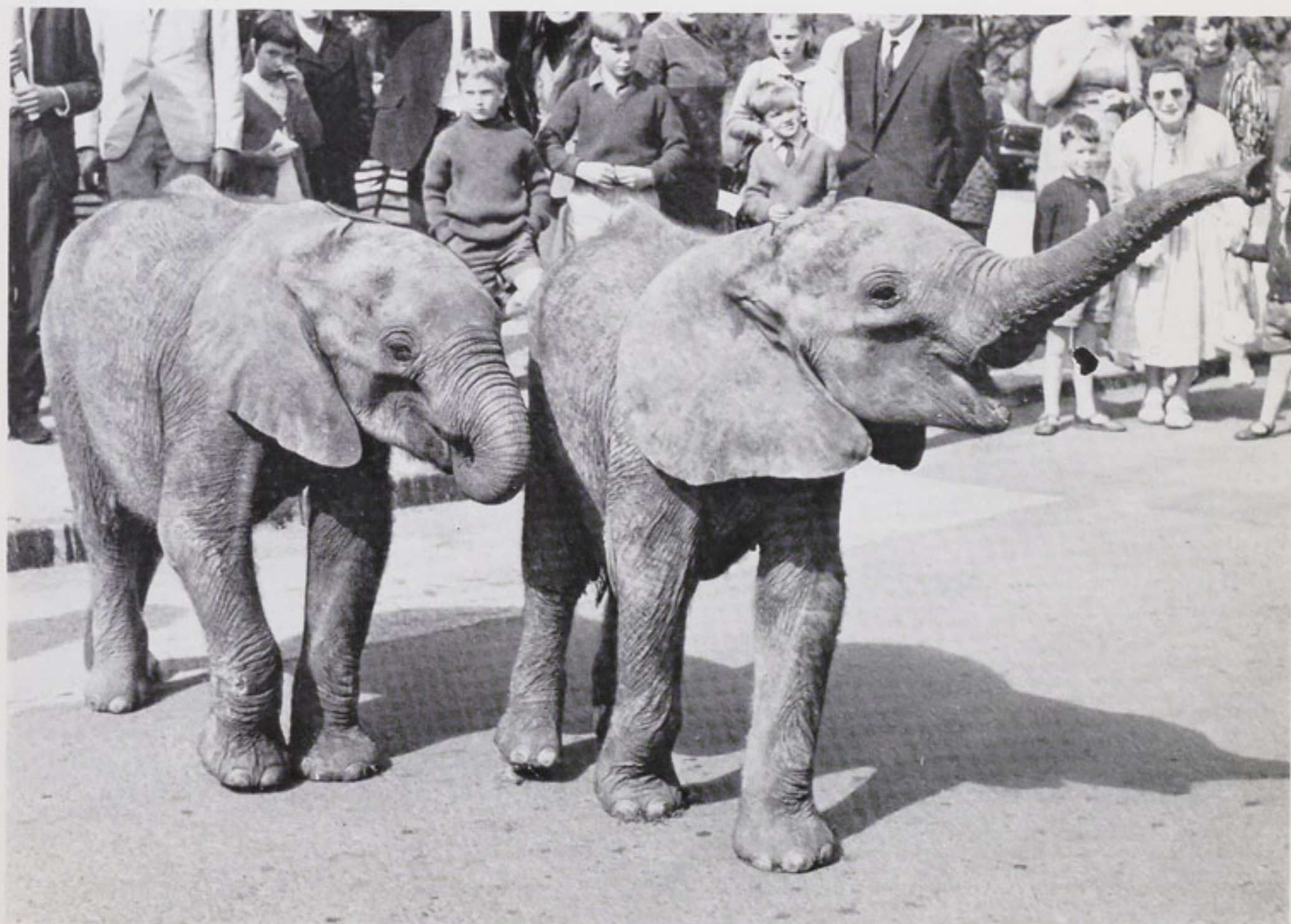
In the Infectious Diseases Department, Dr G. R. Smith has worked on bacteriaemia and immunity in *Mycoplasma* infections, Mr D. E. Bidwell on non-specific inhibitors of arbovirus haemagglutination, and Dr P. A. J. Ball on serological reactions in human hookworm infections.

In the Biochemistry Department, Dr M. A. Crawford and Dr M. M. Gale have carried out projects that include dietary studies in captive primates, amino acid deficiency and the occurrence of cardiovascular disease, carbohydrates and lipid metabolism in man and studies of the diets consumed by East African tribal groups. Mrs R. J. Zalin is investigating the nitrogen metabolism of rumenal micro-organisms and Professor J. J. Jaffe the dihydrofolic acid reductases and the incorporation of labelled amino acids in pathogenic trypanosomes.

Radiological surveys of captive animals have been continued by Dr G. H. du Boulay and Mr J. M. Hime. Cerebrospinal fluid pulsation and the anatomy of the cerebral



Cheetahs, born mid-September, Whipsnade Park
W. G. Vanderson Fox Photos

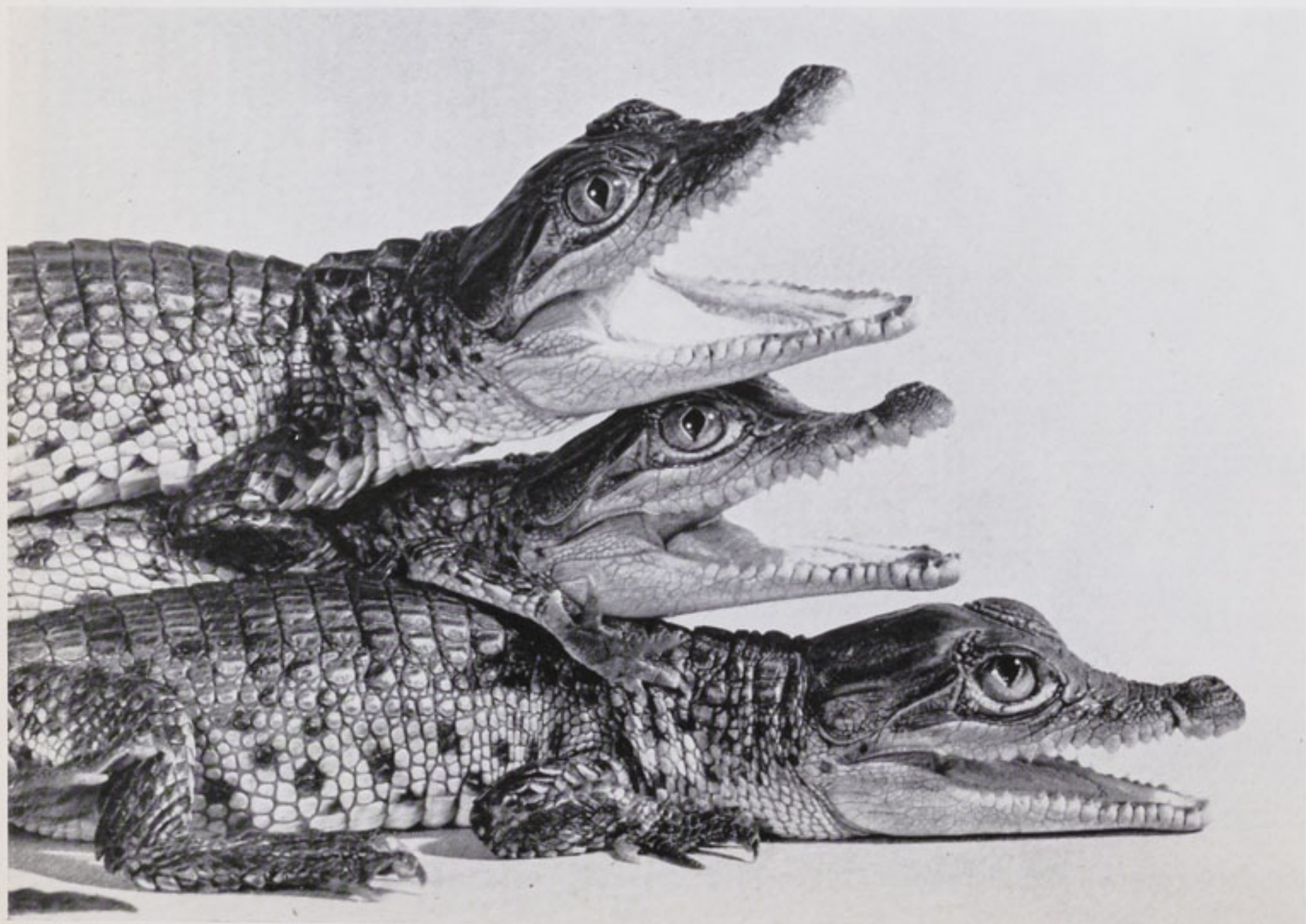


Baby elephants, Whipsnade Park
Central Press Photos

Young Chimpanzee
(born August) with father
and mother, London Zoo
*The Zoological Society
of London*



New Guinea Crocodiles,
2 weeks old, 10 inches long
*The Zoological Society
of London*





Hippopotamus and baby, Whipsnade Park
Daily Mirror Photograph supplied by Syndication International



The Charles Clore Pavilion for Mammals
The Zoological Society of London

blood vessels of animals and man have been investigated by Dr G. H. du Boulay and Miss P. Verity. Studies of the blood flow in the caudal vena cava have been continued by Mr R. N. Fiennes and Dr G. H. du Boulay.

The electron microscope has been used for investigating the site of the immune reaction in *Necator americanus* larvae, the structure of the capillary endothelium in chronic trypanosomiasis and changes in the ultrastructure of spermatozoa caused by freezing. Assistance has also been provided to outside workers from West Ham Technical College and St Mary's Hospital Medical School.

THE WELLCOME INSTITUTE OF COMPARATIVE PHYSIOLOGY Staff

Senior Research Fellow : I. W. Rowlands, Ph.D. *Research Fellows* : W. H. Tam, Ph.D., Miss B. J. Weir, Ph.D. *Research Assistants* : Miss D. Kleiman, B.Sc.; R. R. Coutts, B.Sc.; P. A. Racey, B.A. *Research Student* : H. R. H. Tripp, B.A. *Senior Technician* : G. Nevill.

Two Research Fellowships terminated, and three junior appointments were made during the year. Mr P. Grubb, who was Dr P. A. Jewell's research assistant during his field study of the Soay sheep on St Kilda, returned as a visiting worker during the year to complete his Ph.D. thesis. He later left to join the Royal Society Expedition to Aldabra to study the biology of the Giant Tortoises.

Miss B. J. Weir completed her period of study for the degree of Ph.D. (Cantab.) and made an expedition to South America to collect hystricomorph rodents. Breeding colonies of four species from Argentina and one from Chile have since been established at the Institute.

Mr H. R. H. Tripp commenced a course of study for the Ph.D. degree in London University (Royal Veterinary College) with Professor E. C. Amoroso as his Director of Studies. He also visited South Africa to collect elephant shrews and to study histological material at the University of the Witwatersrand.

Dr W. H. Tam from the University of Hong Kong took up a Research Fellowship on 1st October to study the secretion of sex hormones during the oestrous cycle and pregnancy in various mammals.

Research Projects Investigations undertaken by Dr I. W. Rowlands included work on the reproductive cycle of the Skomer Vole (*Clethrionomys glareolus*), the decidual response in the guinea-pig and its relation to luteal activity, and the accessory reproductive organs of some testicond mammals. Dr R. M. F. S. Sadleir studied problems of infertility in captive animals and Dr G. H. Manley reproduction in loroid primates. Dr B. J. Weir has continued her observations on reproduction in the chinchilla and started her studies on hystricomorphs collected in Argentina. The reproduction of elephant shrews (*Macroscelididae*) was studied by Mr H. R. H. Tripp and of stoats by Mr R. R. Coutts. The breeding of bats as laboratory animals and the control of reproduction in some British bats are being investigated by Miss D. G. Kleiman and Mr P. A. Racey. The ultrastructure of frozen spermatozoa was studied by Mr P. Healey. The reference collection of reproductive and endocrine organs from a wide variety of species continues to increase and is in the care of Mr R. R. Coutts.

Educational Activities

EDUCATION PROGRAMME FOR SCHOOLS

The number of pupils attending lecture-demonstrations increased by about 18% over the figure for 1966. The figures were:

Regent's Park – Spring Term (Secondary Schools)	12,949
Summer Term (Primary Schools)	19,013
Autumn Term (Secondary Schools)	15,259
Whipsnade Park – Summer Term (Secondary Schools)	2,823
	<hr/>
	50,044

The arrangements at Whipsnade have been much improved by the provision of a small lecture hall where preparatory talks can be given to pupils making conducted tours of the Park.

OTHER COURSES

Two courses for university students were held during the Easter vacation and both attracted the maximum number of students which could be accommodated. During the year special demonstrations were arranged for students from colleges of education and technical colleges.

YOUNG ZOOLOGISTS' CLUB

Membership of the Club has increased and a number of new school groups have been welcomed.

In May a special newsletter, *Zoo News Extra*, was introduced to supplement the *Zoo Magazine* which is circulated to all Club members. The first issue marked the opening of The Charles Clore Pavilion for Mammals, and many members have expressed their approval of this additional contact with the Club and the Zoo.

Three issues of *Zoo Magazine* have been published during the year containing contributions from Messrs G. H. and J. R. Newmark on their collecting trip to Morocco with a party which included four XYZ Club members, an article by the Assistant Curator of Hope Zoo, Jamaica, and contributions from members.

Club activities were well supported. Mr D. J. Stanbury spoke to members about a visit to Skokholm Island, Mr Paul Racey spoke about bats, and Mr Maxwell Knight talked to members and answered their questions about a variety of animals from the Menagerie which were brought to the Christmas meeting. At Easter a large party of members visited Dudley Zoo. Other activities have included a Zoo Questionnaire, guided tours of London Zoo and Whipsnade Park, and talks on the care of small mammal pets.

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

CHRISTMAS LECTURES

Three meetings were held in the week following Christmas for the children and young friends of Members of the Society.

Mr Philip Wayre presented some of his own films, including 'A Wind on the Heath'. Mr Jeffrey Boswall gave an illustrated talk on 'The Language of Birds', and at the third meeting the film 'No Room for Wild Animals' was shown. All three meetings had enthusiastic audiences.

Staff

At the end of the year the permanent staff of the Society totalled 613. Of these, 200 were employed in the management and menagerie of the London Zoo, 112 in the catering department, 111 at the headquarters of the Society and 63 in the Research Institutes. 127 were employed at Whipsnade Park. A list of senior members of the staff is given in Appendix 3.

RETIREMENTS AND RESIGNATIONS

Major-General Sir Charles Dalton, Director-General, retired on the 31st August. Miss G. Gay, Private Secretary, retired after 50 years' service but accepted an invitation to undertake, on a part-time basis, special work in connection with the historical records of the Society. Mr. C. G. Nicholls, Supplies Officer, retired after 43 years' service.

Other retirements included Mr W. E. Peckett, Head Keeper of the Children's Zoo; Mr C. C. Wheatley of the Gardening Department; Mr C. Leech, Equipment Supervisor, Catering Department; Mr H. C. Morton of the Works Department. At Whipsnade Park, Mr H. Laws, Transport Foreman, retired.

Dr D. Morris, Curator of Mammals, resigned to take up an appointment with the Institute of Contemporary Arts. Lady Medway (Miss Caroline Jarvis) resigned from the editorship of the *International Zoo Yearbook* following her marriage.

APPOINTMENTS

Dr M. R. Brambell was appointed Curator of Mammals.

Dr I. F. Keymer was appointed Pathologist in order that Mr R. N. Fiennes could devote his time to his work as Head of Pathology Department, Nuffield Institute of Comparative Medicine.

Mr. C. H. Johns was appointed Supplies Officer.

Mr J. Fairhurst was appointed Establishments Officer but resigned within a few months to take up a senior appointment in the Ministry of Transport. Colonel C. G. S. Bennett was appointed in his place.

Mr J. Boswood was promoted from the post of Superintendent (Cafeterias) in Regent's Park to Catering Manager, Whipsnade Park.

Mr J. Lucas was appointed Editor of the *International Zoo Yearbook*.

TRAINING SCHEMES

A formal training scheme for the catering staffs at Regent's Park and Whipsnade Park was inaugurated in May. The training programme, which ensures that suitable training of the right standard is given to catering staff at all levels, is under the direction of the General Manager, Catering, and is being organized in accordance with the requirements of the Hotel and Catering Industry's Training Board.

Members of the menagerie staff at Regent's Park attended a course of instruction, organized by the Education Officer, leading to the Society's Diploma in the care and management of animals.

BRONZE MEDALS

Mr J. Ward was awarded the Bronze Medal for long and meritorious service as Keeper, Overseer and Gardens Executive at Regent's Park. Mr A. R. Lanworn, Herpetologist at Regent's Park, was awarded the Bronze Medal for outstanding service in the Reptile House.

OBITUARY

With deep regret the Council records the deaths in service of Mr E. C. Brown, Chief Cashier, Mr. A. Willis, Garden Labourer, Mr R. Parfitt, Chef Tournant, and Keepers A. S. Heath and G. C. Beaver who were killed in an air crash.

Acknowledgments

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

The Council is also grateful to press representatives and photographers for their co-operation and interest in the Collection and in the activities of the Society.

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

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

The Council is grateful to the many people and firms who have given valuable assistance to the Veterinary Officer and to the Pathologist and is particularly grateful to Dr Joan Taylor, Public Health Laboratory Service, Salmonella Reference Laboratory for *Salmonella* identifications; Dr K. J. Birn, Department of Bacteriology, Central Veterinary Laboratory, Ministry of Agriculture, Fisheries and Food, Weybridge for typing *Mycobacterium* isolates; Mr P. K. C. Austwick also of the Central Veterinary Laboratory for identification of fungi; Dr B. R. Laurence, London School of Hygiene & Tropical Medicine; Dr G. O. Evans and Dr T. Clay, British Museum (Natural History) for identification of arthropod parasites; Professor J. J. Buckley and Professor G. Nelson, London School of Hygiene & Tropical Medicine for identification of helminths and Professor P. C. C. Garnham, C.M.G., F.R.S., also of that institute, for assistance in identifying blood protozoa; Dr R. Finlayson, Royal College of Surgeons for assistance with histopathology, especially of cardio-vascular diseases; Dr E. C. Appleby, Royal Veterinary College and Dr A. Levene, Royal Marsden Hospital for assistance with histopathology.

Grateful acknowledgment is made to the many organizations that have given assistance to the Nuffield Institute of Comparative Medicine, in particular, the Uganda Game Department for help in the collection of materials from wild animals; the Pathology Departments of New End, St George's, Great Ormond Street and London Hospitals for provision of blood samples and other materials; Kabi Pharmaceuticals, May & Baker Ltd, Sandoz Ltd and the Wellcome Foundation Ltd for gifts of laboratory materials, and to Twyford Laboratories for the loan of equipment.

The Wellcome Institute of Comparative Physiology is particularly indebted to

Professor Sir Alan Parkes, who, on his retirement from the Mary Marshall Chair of the Physiology of Reproduction in Cambridge, presented a valuable collection of reprints and papers.

The Council also acknowledges its gratitude to the World Health Organization for the extension of a contract to increase the range of animals for the study, in the laboratory, of features of reproductive processes not displayed by the common laboratory mammals; to the Wellcome Trust, Medical Research Council and others who wish to remain anonymous for making possible the expedition to Argentina, and the numerous organizations within Argentina who helped to make the expedition so successful; Dr R. Iglesias, Institute of Experimental Medicine, Santiago, Chile, for a supply of Degu; Dr James Gear for giving facilities to Mr Tripp at the South African Institute for Medical Research; to Dr D. H. S. Davis of that Institute for organizing and sending a collection of elephant shrews, and to Professor B. I. Balinsky of the University of the Witwatersrand for hospitality and laboratory facilities.

The Council is grateful for assistance at Whipsnade Park from Mr J. E. N. Sloan of the Cooper Technical Bureau for his invaluable help in identifying helminth parasites and for the examination of weekly faecal samples; Messrs Parke, Davis for the gift of phencyclidine hydrochloride (Sernylan) and to Messrs Reckitt & Sons for the gift of Etorphine (M99) and Cyprenorphine (M285). The Council also wishes to thank The Ministry of Agriculture, Fisheries & Food at Weybridge, Tolworth and Bedford; The British Red Cross Society for undertaking the First Aid arrangements at Whipsnade; Canadian National Railways and Bristol City Shipping Line for their co-operation in the carriage of animals; the Board of Trade and H.M. Customs and Excise for their co-operation in arranging certain complicated imports and exports; the Chelsea Hospital for Women, Royal Marsden Hospital, University of Surrey and University College of London (Zoology Department) for the supply of rodents.

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

Special reference must be made to the valuable help given by Rennie Hogg Ltd in arranging transport of the collection of animals from the Umfolosi Game Reserve to Whipsnade Park; Frederick Attwood Ltd for their assistance in the 'Diksie' incident, and the American Express Co. Inc., for their assistance in arranging foreign travel itineraries.

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


SECRETARY

Regulations

The following new Regulations, in substitution of Regulations 2, 7, and 13, and the amendment of Regulation 5 were made by the Council pursuant to the power granted in Article 8 of the Charter.

Regulation 2 Scientific Fellows

'The Council will consider the following to be *prima facie* evidence that a candidate has made, or is making, a contribution to the advancement of zoology:

- (i) the possession of an Honours or higher degree of a recognized university, or an equivalent qualification in
 - (a) natural science, of which a major portion has been taken in zoological science*, or
 - (b) veterinary science
 OR
- (ii) the possession of a degree of a recognized university, or equivalent qualification, taken at least partly in zoology or a specialized field relating to zoology, combined with a professional post in zoological work (including a teaching post in zoology to at least the Advanced Level of the General Certificate of Education)
 OR
- (iii) an original contribution to zoological knowledge*, of a standard judged adequate by the Council, published either in book form or in a recognized scientific journal.

* Work in the following fields will be considered: Vertebrate and invertebrate zoology and palaeontology, anatomy in its comparative aspects, taxonomy and systematics, entomology, parasitology, protozoology, marine and freshwater biology, animal ecology and population dynamics, animal reproduction and behaviour. Genetics, developmental physiology and morphogenesis, experimental cytology and evolutionary mechanisms. Comparative physiology, nutrition, biochemistry, pharmacology and endocrinology. Comparative aspects of virology, microbiology, immunology, pathology and radiobiology.'

Regulation 7

'£4 out of the annual subscription of £10 shall be remitted in the case of Ordinary Fellows resident within the British Isles but outside a radius of 50 miles from Charing Cross.'

Regulation 13

'The following life composition fees shall be payable by any Fellow who wishes to compound his future subscription:

Age Group	21-30	31-40	41-50	51-60	61-70	71 and over
Ordinary Fellow	£210	£190	£160	£140	£100	£50
Scientific Fellow	£125	£110	£95	£80	£60	£30

provided that any Fellow who has reached the age of sixty-five and has at least thirty years' continuous membership may compound his future subscription by making a single payment of £25.'

Regulation 5

The following addition was made to the list of Honorary Fellows *ex officio*

'President, Royal College of Obstetricians and Gynaecologists.'

Committees 1967-1968

Gardens and Park Committee

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

Members of Committee :

The Earl of Cranbrook, C.B.E., M.A., Treas.L.S., *Chairman*
Sir Dudley Forwood, Bt.
A. M. Hassell
S. Wilson Kitchen
The Hon. Ivor Montagu
H. W. Pratten
Air Vice-Marshal G. Silyn Roberts, C.B., C.B.E., A.F.C., M.Sc.
Geoffrey Schomberg, F.L.S.
Peter Scott, C.B.E., D.S.C.
Lady Daphne Straight
The Marquess of Tavistock
Loelia, Duchess of Westminster
Secretary : C. G. C. Rawlins, O.B.E., D.F.C.

Animal Welfare and Husbandry Committee

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

Members of Committee :

M. Crawford, M.R.C.V.S.
Professor D. V. Davies, M.A., M.B., B.S.
Cecil A. Hoare, D.Sc., F.R.S.
Maxwell Knight, O.B.E., F.L.S.
J. W. Landells, M.A., M.R.C.P.
N. W. Pirie, M.A., F.R.S.
John Reid, M.R.C.V.S., D.V.S.M.
Sir John Ritchie, C.B., F.R.C.V.S., *Chairman*
Major W. N. Scott, M.R.C.V.S.
J. E. N. Sloan, B.Sc.
H. V. Thompson, B.Sc.
W. L. Whitehouse, R.D., M.B., F.R.C.S., M.R.C.O.G.
Secretary : R. N. Fiennes, M.A., M.R.C.V.S.

Staff

Headquarters

Director of Administration : Miss E. M. Owen, O.B.E.
Director of Zoos : C. G. C. Rawlins, O.B.E., D.F.C.
Architect : J. W. Toovey, A.A. Dipl.(Hons), A.R.I.B.A.
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 : Col. C. G. S. Bennett (ret.),
 M.B.I.M.
General Manager, Catering : W. N. Hill, F.H.C.I.
Catering Manager London Zoo : G. A. J. Perkins
Catering Manager Whipsnade : J. Boswood
Public Relations Officer : J. A. Dale
Television and Film Officer : Miss Fae Hall, D.Phil.

London Zoo

Curator of Aquarium and Invertebrates, Acting
Curator of Reptiles : H. Gwynne Vevers, M.B.E.,
 D.Phil., F.L.S.
Curator of Birds : J. J. Yealland, F.L.S.
Curator of Mammals : M. R. Brambell, Ph.D.,
 M.R.C.V.S.
Assistant to Curator of Aquarium : G. J. Ashby
Gardens Executive : J. Ward
Head Gardener : H. Hemmings
Herpetologist : A. R. Lanworn
Overseer of Birds : D. G. Newson
Overseers of Mammals : H. Vinall, B. W. Smith
Supplies Officer : C. H. Johns, D.P.A.

Scientific

Director of Science : 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., F.L.S.
 (See also Publications Department and London
 Zoo.)
Nuffield Institute of Comparative Medicine : See
 page 21.
Wellcome Institute of Comparative Physiology : See
 page 23.
Pathologist : I. F. 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 18.

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 : H. C. Dean
Elephant Pavilion : W. G. Crompton
Giraffes and Cattle : H. G. N. Robinson
Insects : R. P. Humphrys
Lion House : T. W. Sangster
Monkeys : L. G. Smith (Senior Head Keeper)
North Mammal House : J. C. T. Alldis (Senior
 Head Keeper)
Parrot House and Eastern Aviary : A. F. Shambrook
Pheasantry and Ostrich House : R. Barrow
Reptiles : D. J. Ball
Sealions, Seals : G. E. Hughes
Small Mammals : H. W. Styles

Whipsnade Park

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

Head Keepers

Bird Section : R. Hazzard
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

CONSULTING STAFF

Consulting Architect : Sir Hugh Casson, M.A., R.D.I., F.R.I.B.A., F.S.I.A.
Consulting Landscape Architect : Peter F. Shephard, B.Arch., F.R.I.B.A., A.M.T.P.I., F.I.L.A.
Honorary Herpetologist : A. d'A. Bellairs, D.Sc., M.R.C.S.
Honorary Helminthologist : Professor J. J. C. Buckley, D.Sc.
Honorary Veterinary Consultant : Sir John Ritchie, C.B., F.R.C.V.S.
Consulting Veterinary Surgeon (Whipsnade) : Martin Senior, M.R.C.V.S.
Honorary Consultant : Geoffrey M. Ververs, F.R.C.S.
Adviser on Labour Relations : E. Bishop, O.B.E.
Medical Referee : J. P. Horder, M.A., M.B., B.Ch., M.R.C.P.
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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- *Published results of work carried out during tenure of Ford Fellowship and grant from N.E.R.C., sponsored by The Zoological Society of London.

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.

		Total number acquired	Number born or hatched in the Menagerie
REGENTS PARK	Mammals		
	MARSUPIALIA		
	<i>Trichosurus vulpecula</i>	Silver-grey Phalanger 2	2
	INSECTIVORA		
	F <i>Solenodon paradoxus</i> Brandt Haiti	Haitian Solenodon 1	
	<i>Echinosorex gymnurus</i>	Moon Rat 1	
	<i>Sorex araneus</i>	Common Shrew 2	
	S <i>Crocidura pilosa</i> Dobson Africa	Black Musk Shrew 1	
	CHIROPTERA		
	<i>Rousettus amplexicaudatus</i>	Rousette Bat 2	
	PRIMATES		
	<i>Tupaia glis</i>	Common Tree Shrew 2	
	<i>Lemur catta</i>	Ring-tailed Lemur 2	2
	<i>Microcebus murinus</i>	Lesser Mouse Lemur 1	1
	<i>Loris tardigradus</i>	Slender Loris 2	1
	<i>Arctocebus calabarensis</i>	Angwantibo 4	
	<i>Galago crassicaudatus</i>	Thick-tailed Bushbaby 1	1
	<i>Galago senegalensis</i>	Senegal Bushbaby 10	
	<i>Galago demidovi</i>	Demidoff's Bushbaby 10	
	<i>Aotus trivirgatus</i>	Douroucouli 2	
	<i>Saimiri sciureus</i>	Squirrel Monkey 4	
	<i>Ateles paniscus</i>	Black Spider Monkey 1	
	S <i>Callithrix geoffroyi</i> (Humboldt) S. America	White-fronted Marmoset 7	2 (2)
	<i>Callithrix argentata</i>	Silvery Marmoset 10	
	<i>Leontideus rosalia</i>	Golden Lion Marmoset 4	
	<i>Leontocebus oedipus</i>	Cotton-headed Tamarin 6	

		Total number acquired	Number born or hatched in the Menagerie
<i>Leontocebus nigricollis</i>	Black-mantled Tamarin	9	
<i>Macaca maurus</i>	Moor Macaque	1	1
<i>Papio doguera</i>	Anubis Baboon	1	1 (1)
<i>Erythrocebus patas</i>	Patas Monkey	1	
<i>Colobus polykomos occidentalis</i> x <i>C. p. kikuyuensis</i>	Black and White Colobus	1	1 (1)
<i>Pongo pygmaeus</i>	Orang-utan	9	
<i>Pan troglodytes</i>	Chimpanzee	3	2
EDENTATA			
<i>Tamandua tetradactyla</i>	Tamandua	1	
<i>Choloepus hoffmani capitalis</i>	White-headed Sloth	4	
s <i>Chaetophractus nationi</i> (Thomas)	Furry Armadillo	3	
S. America			
<i>Chaetophractus villosus</i>	Hairy Armadillo	2	
PHOLIDOTA			
<i>Manis tricuspis</i>	Tree Pangolin	3	
<i>Manis javanica</i>	Malayan Pangolin	1	
RODENTIA			
<i>Funambulus palmarum</i>	Indian Palm Squirrel	5	
<i>Ratufa bicolor</i>	Malayan Giant Squirrel	4	
<i>Callosciurus bocourti</i>	Bocourt's Squirrel	4	
<i>Xerus erythropus</i>	Red-footed Ground Squirrel	2	
<i>Marmota marmota</i>	Alpine Marmot	2	
<i>Tamias sibiricus</i>	Siberian Chipmunk	14	
<i>Petaurista alborufus</i>	Red and White Flying Squirrel	3	1 (1)
<i>Glaucomys volans</i>	Southern Flying Squirrel	21	
s <i>Glaucomys sabrinus</i> (Shaw)	Northern Flying Squirrel	6	
N. America			
<i>Castor fiber canadensis</i>	Canadian Beaver	3	
<i>Peromyscus</i> sp.	Deer Mouse	4	1
<i>Clethrionomys glareolus</i>	Bank Vole	1	
<i>Tatera indica</i>	Indian Gerbil	8	8
s <i>Meriones hurrianae hurrianae</i> Jerdon	Indian Desert Gerbil	1	
S. Asia			
<i>Rhabdomys pumilio</i>	Four-striped Rat	12	4
<i>Millardia gleadowi</i>	Indian Soft-furred Field Rat	3	3
<i>Rattus huang</i>	Huang's Rat	4	
<i>Rattus rattus sladeni</i>	Sladen's Rat	7	5
s <i>Mus minutoides</i> Smith	Pygmy Mouse	4	
S. Africa			
s <i>Lophuromys flavopunctatus</i> Thomas	East African Harsh- furred Mouse	3	
E. Africa			
<i>Acomys cahirinus</i>	Arabian Spiny Mouse	2	2
<i>Saccostomus campestris</i>	Cape Pouched Rat	2	
<i>Hystrix indica</i> x <i>H. cristata</i>	Indian Porcupine x Crested Porcupine	5	5 (2)
<i>Atherurus africanus</i>	African Brush-tailed Porcupine	1	1 (1)

		Total number acquired	Number born or hatched in the Menagerie
<i>Erethizon dorsatum</i>	North American Porcupine	2	
<i>Myoprocta pratti</i>	Green Acouchy	1	1
<i>Lagostomus maximus</i>	Viscacha	2	
<i>Chinchilla lanigera</i>	Chinchilla	10	
S <i>Ctenomys talarum</i> Thomas S. America	Tucotuco	3	
G <i>Proechimys cayennensis</i> Desmarest S. America	South American Spiny Rat	1	
CARNIVORA			
<i>Canis latrans</i>	Coyote	7	7
<i>Cerdocyon thous</i>	Crab-eating Fox	6	4 (4)
<i>Chrysocyon brachyurus</i>	Maned Wolf	1	
<i>Thalarctos maritimus</i>	Polar Bear	1	1
<i>Ailurus fulgens</i>	Lesser Panda	2	
<i>Mustela erminea</i>	Stoat	1	
<i>Arctonyx collaris</i>	Hog Badger	4	4 (3)
<i>Melogale moschata</i>	Chinese Ferret Badger	4	
<i>Mephitis mephitis</i>	Striped Skunk	3	
<i>Viverra civetta</i>	African Civet	1	
<i>Arctogalidia trivirgata stigmatica</i>	Bornean Small-toothed Palm Civet	1	1
<i>Felis serval</i>	Serval	1	
<i>Felis concolor</i>	Puma	5	5
<i>Panthera leo</i>	Lion	7	7
<i>Panthera pardus japonensis</i>	Chinese Leopard	2	2
<i>Acinonyx jubatus</i>	Cheetah	2	
PINNIPEDIA			
<i>Pusa sibirica</i>	Baikal Seal	3	
TUBULIDENTATA			
<i>Orycteropus afer</i>	Aardvark	1	
HYRACOIDEA			
<i>Procavia capensis</i>	Rock Hyrax	3	
<i>Dendrohyrax dorsalis</i>	Beecroft's Hyrax	1	
ARTIODACTYLA			
<i>Sus scrofa</i>	Wild Boar	20	20
<i>Phacochoerus aethiopicus</i>	Wart Hog	2	
<i>Vicugna vicugna</i>	Vicuna	1	1
<i>Cervus timorensis</i>	Timor Deer	3	3 (2)
<i>Cervus elaphus</i>	Red Deer	3	3 (1)
<i>Rangifer tarandus</i>	Reindeer	1	
<i>Tragelaphus strepsiceros</i>	Greater Kudu	3	
<i>Damaliscus dorcas phillipsi</i>	Blesbok	3	3
<i>Antilope cervicapra</i>	Blackbuck	15	15 (5)
<i>Ovibos moschatus</i>	Musk Ox	1	
<i>Ammotragus lervia</i>	Barbary Sheep	8	8 (2)
<i>Ovis musimon</i>	Mouflon	10	10
<i>Ovis canadensis</i>	Bighorn Sheep	1	1

		Total number acquired	Number born or hatched in the Menagerie
DOMESTIC			
	Golden Hamsters	4	
	Ferrets	2	
	Dingos	12	
	Shetland Pony	1	
	Pigs	3	
	Highland Calf	1	
	Goats	9	
	Sheep	5	
Birds			
STRUTHIONIFORMES			
	<i>Struthio camelus massaicus</i>	1	
SPHENISCIFORMES			
	<i>Spheniscus demersus</i>	7	1 (1)
PELECANIFORMES			
	<i>Morus bassanus</i>	2	
	<i>Phalacrocorax magellanicus</i>	1	
	<i>Phalacrocorax albiventer</i>	1	
CICONIIFORMES			
	<i>Ardea cinerea</i>	1	
	<i>Bubulcus ibis</i>	3	3
	<i>Nycticorax nycticorax</i>	2	2
SS	<i>Nycticorax caledonicus manillensis</i> Vigors Philippine Islands and North Borneo	1	
S	<i>Ixobrychus exilis</i> Gmelin America	1	
	<i>Scopus umbretta</i>	2	
	<i>Threskiornis aethiopica</i>	5	4
	<i>Carphibis spinicollis</i>	2	
	<i>Guara rubra</i>	3	
	<i>Phoeniconaias minor</i>	4	
ANSERIFORMES			
	<i>Cygnus atratus</i>	1	
	<i>Branta leucopsis</i>	1	1
	<i>Anas platyrhynchos laysanensis</i>	3	3 (2)
	<i>Anas rubripes</i>	4	4
	<i>Anas flavirostris</i>	1	
	<i>Anas penelope</i>	2	
	<i>Anas acuta acuta</i>	2	
S	<i>Anas punctata</i> Burchell Africa and Madagascar	2	
	<i>Anas clypeata</i>	2	
	<i>Aix sponsa</i>	2	
	<i>Oxyura jamaicensis</i>	2	
FALCONIFORMES			
	<i>Haliastur indus</i>	1	
	<i>Accipiter gentilis</i>	1	
	<i>Buteo lagopus</i>	1	

		Total number acquired	Number born or hatched in the Menagerie	
SS	<i>Spilornis cheela ricketti</i> W. L. Sclater S. E. Asia	Chinese Serpent Eagle	2	
	<i>Polyborus cheriway cheriway</i>	Cheriway Carrion Hawk	2	
	<i>Falco chicquera chicquera</i>	Red-headed Merlin	1	
GALLIFORMES				
	<i>Crax fasciolata sclateri</i>	Sclater's Curassow	1	
	<i>Lophortyx californica</i>	Californian Quail	2	
	<i>Colinus virginianus</i>	Bob-white	2	
	<i>Alectoris rufa</i>	Red-legged Partridge	2	1
SS	<i>Alectoris graeca cypristes</i> Hartert S. W. Asia	Cyprus Rock Partridge	2	
	<i>Fringilla monticola</i>	Black Francolin	1	
	<i>Fringilla monticola</i>	Erckel's Francolin	2	
	<i>Coturnix delegorguei delegorguei</i>	Harlequin Quail	2	
	<i>Gallus sonnerati</i>	Sonnerat's Jungle Fowl	1	1
	<i>Gallus gallus jabouillei</i>	Tonkinese Jungle Fowl	1	1
	<i>Lophura leucomelana melanota</i>	Black-backed Kalij Pheasant	2	
	<i>Lophura nycthemera nycthemera</i>	Chinese Silver Pheasant	7	7
	<i>Crossoptilon auritum</i>	Pallas's Eared Pheasant	1	
	<i>Syrmaticus ellioti</i>	Elliot's Pheasant	1	
	<i>Syrmaticus reevesi</i>	Reeves's Pheasant	1	
	<i>Phasianus colchicus colchicus</i>	Common Pheasant	4	3
	<i>Phasianus versicolor versicolor</i>	Green Pheasant	2	
	<i>Chrysolophus pictus</i>	Golden Pheasant	11	11
	<i>Chrysolophus amherstiae</i>	Lady Amherst's Pheasant	1	
	<i>Polyplectron emphanum</i>	Palawan Peacock Pheasant	2	
	<i>Pavo cristatus</i>	Common Peafowl	2	2
	<i>Pavo muticus</i>	Green Peafowl	1	
GRUIFORMES				
	<i>Rallus aquaticus aquaticus</i>	Water Rail	2	
SS	<i>Rallus torquatus</i> Linne Philippine Islands	Philippine Rail	1	
	<i>Aramides axillaris</i>	Venezuelan Wood Rail	1	
	<i>Aramides axillaris</i> x <i>A. cajanea</i>	Venezuelan x Cayenne Wood Rail	2	
	<i>Tribonyx mortieri</i>	Tasmanian Waterhen	2	
	<i>Porphyrio poliocephalus poliocephalus</i>	Grey-headed Gallinule	5	5
G	<i>Lissotis melanogaster melanogaster</i> (Rüppell) Tropical Africa	Black-bellied Bustard	1	
CHARADRIIFORMES				
	<i>Haematopus ostralegus ostralegus</i>	Oystercatcher	4	
	<i>Numenius arquata arquata</i>	Curlew	2	
	<i>Arenaria interpres interpres</i>	Turnstone	1	
	<i>Philomachus pugnax</i>	Ruff	1	
	<i>Recurvirostra avosetta</i>	Avocet	1	
	<i>Larus argentatus argentatus</i>	Herring Gull	3	3
	<i>Larus marinus</i>	Great Black-backed Gull	2	2
	<i>Larus novae-hollandiae novae-hollandiae</i>	Silver Gull	1	1
	<i>Alca torda</i>	Razorbill	1	
	<i>Fratercula arctica</i>	Puffin	4	

		Total number acquired	Number born or hatched in the Menagerie
COLUMBIFORMES			
<i>Columba guinea</i>	Speckled Pigeon	4	4
<i>Streptopelia roseogrisea</i>	Barbary Dove	1	
<i>Streptopelia chinensis tigrina</i>	Malayan Necklace Dove	1	
<i>Geopelia cuneata</i>	Diamond Dove	8	
<i>Chalcophaps indica</i>	Green-winged Dove	4	
<i>Ocyphaps lophotes</i>	Crested Pigeon	6	6
<i>Gallicolumba luzonica</i>	Blood-breasted Pigeon	2	
PSITTACIFORMES			
<i>Trichoglossus haematod moluccanus</i>	Swainson's Lorikeet	2	
<i>Nymphicus hollandicus</i>	Cockatiel	7	6
<i>Anodorhynchus hyacinthinus</i>	Hyacinthine Macaw	2	
<i>Aratinga acuticaudata acuticaudata</i>	Sharp-tailed Conure	1	
<i>Aratinga canicularis canicularis</i>	Petz's Conure	2	
<i>Nandayus nenday</i>	Black-headed Conure	1	
<i>Myiopsitta monachus monachus</i>	Quaker Parrakeet	10	
<i>Brotogeris versicolurus versicolurus</i>	White-winged Parrakeet	2	
<i>Amazona agilis</i>	Active Parrot	1	
<i>Amazona autumnalis autumnalis</i>	Yellow-cheeked Parrot	1	
<i>Amazona aestiva</i>	Blue-fronted Parrot	1	
<i>Amazona ochrocephala</i>	Yellow-fronted Parrot	3	
<i>Poicephalus gularis aubryanus</i>	Aubry's Parrot	1	
<i>Poicephalus senegalus senegalus</i>	Senegal Parrot	1	
<i>Psittacula krameri manillensis</i>	Indian Ring-necked Parrakeet	2	
<i>Polytelis alexandrae</i>	Queen Alexandra's Parrakeet	2	2
<i>Agapornis roseicollis</i>	Rosy-faced Lovebird	1	
<i>Agapornis fischeri</i>	Fischer's Lovebird	3	2
<i>Platycercus zonarius macgillivrayi</i>	Cloncurry Parrakeet	1	1
CUCULIFORMES			
<i>Tauraco leucotis leucotis</i>	White-cheeked Turaco	3	
STRIGIFORMES			
<i>Tyto alba alba</i>	Barn Owl	1	1
<i>Otus scops senegalensis</i>	African Scops Owl	1	
<i>Bubo bubo bubo</i>	Great Eagle Owl	3	3
<i>Bubo capensis mackinderi</i>	Kenya Eagle Owl	3	3
<i>Bubo africanus africanus</i>	Spotted Eagle Owl	3	3
<i>Ketupa zeylonensis</i>	Brown Fish Owl	1	
<i>Ketupa ketupu</i>	Javan Fish Owl	1	1
APODIFORMES			
<i>Chrysolampis mosquitus</i>	Ruby-crested Humming Bird	3	
<i>Chlorostilbon aureo-ventris pucherani</i>	Pucheran's Emerald Humming Bird	3	
<i>Trochilus polytmus polytmus</i>	Long-tailed Humming Bird	1	
<i>Helimaster squamosus</i>	Stripe-breasted Star- throat	2	

		Total number acquired	Number born or hatched in the Menagerie
CORACIIFORMES			
SS	<i>Halcyon smyrnensis fusca</i> (Boddaert) S.E. Asia	White-breasted Kingfisher	2
SS	<i>Halcyon smyrnensis gularis</i> (Kuhl) Philippine Islands	White-throated Kingfisher	1
	<i>Phoeniculus purpureus</i>	Green Wood Hoopoe	1
PICIFORMES			
S	<i>Aulacorhynchus prasinus caeruleogularis</i> (Gould) Central America	Emerald Toucanet	1
	<i>Pteroglossus flavirostris</i>	Yellow-billed Aracari	1
	<i>Ramphastos sulfuratus</i>	Sulphur-breasted Toucan	1
	<i>Jynx torquilla torquilla</i>	Wryneck	1
PASSERIFORMES			
S	<i>Lanius senator senator</i> Linne Europe and Africa	Woodchat Shrike	3
	<i>Cossypha heuglini</i>	Heuglin's Robin-Chat	1
	<i>Turdus dissimilis hortulorum</i>	Grey-backed Thrush	1
	<i>Leiothrix lutea</i>	Pekin Robin	1
G	<i>Hippolais pallida opaca</i> Cabanis S.W. Europe, N. and W. Africa	Olivaceous Warbler	1
S	<i>Sylvia melanocephalus melanocephalus</i> (Gmelin) Canary Is., S. Europe, N. Africa and S.W. Asia	Sardinian Warbler	3
SS	<i>Sylvia curruca blythi</i> Ticehurst and Whistler Asia	Blyth's Lesser White- throat	2
SS	<i>Parus caeruleus ultramarinus</i> Bonaparte N. Africa	Ultramarine Tit	3
	<i>Richmondia cardinalis</i>	Virginian Cardinal	1
	<i>Paroaria cucullata</i>	Red-crested Cardinal	1
	<i>Paroaria dominicana</i>	Red-headed Cardinal	1
	<i>Melophus lathami</i>	Crested Bunting	2
	<i>Iridophanes pulcherrima aureinucha</i>	Western Yellow-collared Iridophanes	2
	<i>Cyanerpes caeruleus longirostris</i>	Purple Honeycreeper	5
	<i>Fringilla montifringilla</i>	Brambling	2
	<i>Carduelis carduelis britannica</i>	Goldfinch	3
	<i>Serinus mozambicus</i>	Green Singing Finch	2
G	<i>Neorhynchus peruvianus devronis</i> (J. Verreaux) W. Ecuador	Verreaux's Brown Grosbeak	2
	<i>Amadina fasciata</i>	Ribbon Finch	1
	<i>Lonchura punctulata</i>	Nutmeg Finch	3
	<i>Lonchura malacca</i>	Three-coloured Mannikin	2
	<i>Euodice cantans cantans</i>	African Silverbill	1
	<i>Padda oryzivora</i>	Java Sparrow	2
SS	<i>Estrilda erythronotos delamerei</i> Sharpe E. Africa	Kenya Black-cheeked Waxbill	2
	<i>Estrilda melpoda</i>	Orange-cheeked Waxbill	1
	<i>Estrilda subflava</i>	Golden-breasted Waxbill	2
	<i>Amandava amandava</i>	Avadavat	8
	<i>Vidua macroura</i>	Pin-tailed Whydah	2
	<i>Steganura paradisaea</i>	Paradise Whydah	1
	<i>Ploceus galbula</i>	Rüppell's Weaver	1

		Total number acquired	Number born or hatched in the Menagerie
ss	<i>Euplectes albonotatus eques</i> (Hartlaub)		
	E. Africa		
	<i>Euplectes orix franciscana</i>		
	<i>Onychognathus salvadorii</i>		
	<i>Lamprotornis purpureus</i>		
	<i>Lamprotornis splendidus splendidus</i>		
	<i>Cinnyricinclus leucogaster verreauxi</i>		
	<i>Spreo superbus</i>		
	<i>Cosmopsarus regius</i>		
	<i>Sturnus sinensis</i>		
	<i>Sturnus malabaricus blythi</i>		
	<i>Sturnus contra jalla</i>		
	<i>Sturnus melanopterus</i>		
	<i>Acridotheres cristatellus cristatellus</i>		
	<i>Sarcops calvus calvus</i>		
	<i>Buphagus erythrorhynchus</i>		
	<i>Oriolus chinensis chinensis</i>		
	<i>Urocissa erythrorhyncha occipitalis</i>		
	<i>Dendrocitta vagabunda</i>		
	<i>Pica pica</i>		
	<i>Corvus corone cornix</i>		
	<i>Corvus albus</i>		
	East African White-winged Whydah	6	
	Orange Weaver	1	
	Bristle-crowned Starling	3	
	Purple Glossy Starling	2	
	Splendid Starling	1	
	Amethyst Starling	4	
	Superb Glossy Starling	6	
	Royal Starling	1	
	Chinese Starling	2	
	Blyth's Starling	1	
	Javan Pied Myna	2	
	Black-winged Grackle	4	
	Chinese Crested Myna	6	
	Grey-backed Coledo	2	
	Red-billed Oxpecker	2	
	Philippine Oriole	1	
	Occipital Blue Pie	1	
	Wandering Tree Pie	1	
	Magpie	1	
	Hooded Crow	1	
	Pied Crow	1	
	Reptiles		
	TESTUDINES		
	<i>Chelydra serpentina</i>		
ss	<i>Kinosternon subrubrum hippocreps</i> Gray, S.		
	North America		
	<i>Chrysemys picta picta</i>		
	<i>Clemmys caspica caspica</i>		
	<i>Clemmys caspica leprosa</i>		
	<i>Emys orbicularis</i>		
	<i>Testudo graeca</i>		
	<i>Testudo hermanni</i>		
	<i>Testudo carbonaria</i>		
	<i>Chelodina longicollis</i>		
	<i>Trionyx cartilagineus</i>		
	CROCODILIA		
	<i>Crocodylus niloticus</i>		
s	<i>Crocodylus n. novaeguineae</i> Schmidt		
	New Guinea		
	<i>Caiman crocodilus</i>		
	Spectacled Cayman	3	
	Snapper	1	
	Mississippi Mud Terrapin	1	
	Eastern Painted Terrapin	1	
	Caspian Terrapin	1	
	Spanish Terrapin	6	
	European Pond Tortoise	1	
	Spur-thighed Mediterranean Tortoise	1	
	Hermann's Tortoise	1	
	Jaboty Tortoise	2	
	Long-necked Terrapin	1	
	Phayre's Soft-shelled Turtle	3	
	Nile Crocodile	1	
	New Guinea Crocodile	6	
	Turnip-tailed Gecko	1	
	Bridled House Gecko	2	
	Moorish Gecko	1	
	Bibron's Gecko	6	
	Jewelled Gecko	1	
	Banded Viper Gecko	3	
	Yrphra or Brown Iguana	2	
	Iguana	5	
	SAURIA		
	<i>Thecadactylus rapicaudus</i>		
	<i>Hemidactylus frenatus</i>		
	<i>Tarentola mauritanica</i>		
	<i>Pachydactylus bibroni</i>		
	<i>Phelsuma cepedianum</i>		
G	<i>Teratolepis fasciata</i> (Blyth)		
	Pakistan		
	<i>Ophryyoessa superciliosa</i>		
	<i>Iguana iguana</i>		

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<i>Dipsosaurus dorsalis</i>	Desert Iguana	1	
<i>Anolis</i> sp.	Anole	2	
<i>Phrynosoma solare</i>	Regal Horned Lizard	5	
G <i>Ceratophora stodarti</i> Gray	Stodart's Lizard	1	
Ceylon			
G <i>Otocryptus wiegmanni</i> Wagler	Wiegmann's Lizard	1	
Ceylon			
<i>Agama agama</i>	Margouillat Agama	10	
<i>Agama bibroni</i>	Bibron's Agama	4	
<i>Amphibolurus barbatus</i>	Bearded Lizard	1	
<i>Uromastyx hardwickii</i>	General Hardwicke's Dabb Lizard	6	
<i>Uromastyx acanthinurus</i>	Bell's Dabb Lizard	1	
<i>Chamaeleo chamaeleon</i>	Common Chameleon	1	
<i>Chamaeleo dilepis</i>	Flap-necked Chameleon	1	
<i>Chamaeleo monachus</i>	Monk Chameleon	2	
<i>Chamaeleo jacksoni</i>	Kikuyu Three-horned Chameleon	1	
<i>Scincus scincus</i>	Common Skink	2	
S <i>Mabuya macularia</i> (Blyth)	Bronze Grass Skink	8	
C. and N.E. India, Burma			
<i>Mabuya perrotetii</i>	Orange-flanked Skink	1	
<i>Mabuya striata</i>	Two-striped Skink	1	
<i>Eumeces algeriensis</i>	Algerian Skink	8	
<i>Chalcides ocellatus</i>	Eyed Skink	2	
<i>Lacerta viridis</i>	Green Lizard	4	
<i>Lacerta lepida</i>	Eyed Lizard	1	
<i>Lacerta muralis</i>	Wall Lizard	2	
<i>Ameiva surinamensis</i>	Surinam Lizard	2	
S <i>Ameiva bifrontata</i> Cope		1	
Colombia			
G <i>Pachycalamus brevis</i> Gunther	Socotra Amphisbaena	2	
Socotra			
<i>Varanus niloticus</i>	Nile Monitor	1	
<i>Heloderma suspectum</i>	Gila Monster	1	
<i>Heloderma horridum</i>	Mexican Beaded Lizard	1	
<i>Ophisaurus apodus</i>	Glass Snake	1	
<i>Anguis fragilis</i>	Slow-worm	6	
S <i>Cordylus warreni breyeri</i> (van Dam)	Warren's Armoured Lizard	4	
Southern Africa			
SS <i>Platysaurus guttatus minor</i> Fitzsimons,	Lesser Flat Lizard	4	
Rhodesia			
SERPENTES			
<i>Python sebae</i>	African Python	4	
<i>Python regius</i>	Royal Python	1	
<i>Corallus enhydris</i>	Garden Tree Boa	2	
<i>Eunectes marinus</i>	Anaconda	1	
<i>Eryx johni</i>	John's Sand Boa	2	
<i>Natrix natrix</i>	Grass Snake	1	
<i>Natrix tessellata</i>	Diced Water Snake	1	
<i>Natrix maura</i>	Viperine Snake	2	
<i>Macropisthodon flaviceps</i>	Orange-necked Keelback	2	
<i>Pseudaspis cana</i>	Mole Snake	3	
<i>Ptyas mucosus</i>	Greater Indian Rat Snake	2	

		Total number acquired	Number born or hatched in the Menagerie
	<i>Dryadophis boddaerti</i>	Boddaert's Snake	1
	<i>Elaphe longissima</i>	Aesculapian Snake	1
	<i>Coluber gemonensis</i>	Balkan Whip-snake	7
SS	<i>Coluber ravergieri nummifer</i> Reuss	Ravergier's Racer	1
	W. Asia		
	<i>Coluber hippocrepis</i>	Horseshoe Whip-snake	1
S	<i>Leptophis occidentalis</i> (Gunther)		
	Colombia		
	<i>Spalerosophis diadema</i>	Diadem Snake	1
	<i>Dendrelaphis pictus</i>	Painted Bronze-back	1
	<i>Philothamnus hoplogaster</i>	South-eastern Green Snake	2
	<i>Philothamnus irregularis</i>	Spotted Leaf Snake	3
	<i>Coronella austriaca</i>	Smooth Snake	1
	<i>Grayia smythii</i>	Smyth's Snake	1
	<i>Homalopsis buccata</i>	Broad-headed Water Snake	1
	<i>Ditypophis vivax</i>	Socotran Snake	3
	<i>Boiga nigriceps</i> (Gunther)	Black-headed Cat Snake	1
	Malaya		
	<i>Malpolon monspessulana</i>	Montpellier Snake	1
	<i>Rhamphiophis oxyrhynchus rostratus</i>	Rufous-beaked Snake	3
	<i>Psammodynastes pulverulentus</i>	Mock Viper	1
	<i>Ahaetulla prasinus</i>	Emerald Whip-snake	3
	<i>Ahaetulla mycterizans</i>	Malayan Green Whip- snake	1
	<i>Oxybelis aeneus</i>	America Vine Snake	1
G	<i>Dryophiops rubescens</i> (Gray)	Keel-bellied Whip-snake	4
	S.E. Asia		
S	<i>Coniophanes fissidens</i> Gunther		2
	Colombia		
	<i>Demansia psammophis</i>	Grey Whip-snake	1
	<i>Pseudechis prophyriacus</i>	Red-bellied Black Snake	1
S	<i>Denisonia signata</i> (Jan)	Black-bellied Marsh Snake	1
	Australia		
	<i>Naja naja</i>	Indian Cobra	5
	<i>Vipera berus</i>	Adder	10
	<i>Vipera ammodytes</i>	Long-nosed Viper	1
	<i>Vipera russelli</i>	Russell's Viper	4
	<i>Bitis arietans</i>	Puff Adder	12
	<i>Agkistrodon piscivorus</i>	Cottonmouth	2
SS	<i>Agkistrodon piscivorus leucostoma</i> (Troost)	Western Cottonmouth	2
	Mid-west United States		
SS	<i>Agkistrodon c. contortrix</i> (Linne)	Southern Copperhead	4
	S.E. North America		
SS	<i>Crotalus (Sistrurus) miliaris barbouri</i> Gloyd	Dusky Pigmy Rattlesnake	3
	S.E. North America		
	<i>Crotalus atrox</i>	Western Diamond-back Rattlesnake	6
SS	<i>Crotalus s. scutulatus</i> (Kennicott)	Mojave Rattlesnake	1
	S.E. California, N. Mexico		
	<i>Crotalus durissus terrificus</i>	Cascabel Rattlesnake	1
	<i>Crotalus viridis helleri</i>	Southern Pacific Rattlesnake	2
	<i>Crotalus horridus atricaudatus</i>	Canebrake Rattlesnake	1

		Total number acquired	Number born or hatched in the Menagerie
<i>Crotalus cerastes</i>	Sidewinder	4	
Amphibians			
<i>Triturus cristatus</i>	Crested Newt	8	
<i>Triturus cristatus carnifex</i>	Alpine Crested Newt	6	
<i>Taricha torosa</i>	Californian Newt	6	
<i>Notophthalmus viridescens</i>	Red-spotted Newt	12	
<i>Discoglossus pictus</i>	Painted Frog	1	
<i>Alytes obstetricans</i>	Midwife Toad	3	
<i>Bufo boreas</i>	Western Toad	5	
<i>Bufo mauritanicus</i>	Moroccan Toad	7	
<i>Bufo regularis</i>	Common African Toad	7	
<i>Bufo carens</i>	Slender Toad	2	
s <i>Bufo garmani</i> Meek S. Africa	Garman's Toad	6	
<i>Bufo bufo</i>	Common Toad	1	
<i>Bufo marinus</i>	Giant Toad	1	
<i>Hyla regilla</i>	Pacific Tree-frog	9	
<i>Rana corrugata</i>	Ceylon Corrugated Frog	1	
<i>Rana adspersa</i>	African Bull Frog	4	
<i>Rana catesbeiana</i>	American Bull Frog	8	
<i>Rana (Hylarana) temporalis</i>		2	
s <i>Rana (Hylarana) gracilis</i> Gravenhorst Ceylon		1	
<i>Nannophrys ceylonensis ceylonensis</i>		1	
<i>Rhacophorus microtympanum</i>		3	
ss <i>Rhacophorus cruciger eques</i> (Gunther) Ceylon		2	
G <i>Philautus variabilis</i> (Gunther) Ceylon		2	
<i>Kaloula pulchra</i>	Malayan Bull Frog	4	

WHIPNADE
PARK

Mammals

MARSUPIALIA

Protemnodon rufogrisea frutica

Bennett's Wallaby 65 65 (3)

PRIMATES

Galago crassicaudatus lasiotus

Peter's Thick-tailed
Bushbaby 1

Lagothrix cana

Smoky Woolly Monkey 2

Macaca mulatta

Rhesus Macaque 4 4 (2)

RODENTIA

Cynomys ludovicianus

Prairie Marmot 18 18 (2)

Dolichotis patagonum

Mara 1 1 (1)

CARNIVORA

Canis lupus occidentalis

Canadian Timber Wolf 9 9 (1)

Ursus arctos

Brown Bear 7 7

Lutra perspicillata

Indian Otter 2

Herpestes auropunctatus

Small Indian Mongoose 3

Acinonyx jubatus

Cheetah 3 3

		Total number acquired	Number born or hatched in the Menagerie
PROBOSCIDEA			
<i>Loxodonta africana</i>	African Elephant	2	
<i>Elephas maximus</i>	Indian Elephant	1	
PERISSODACTYLA			
<i>Equus przewalskii</i>	Przewalski's Wild Horse	1	1 (1)
<i>Equus hemionus onager</i>	Onager	3	3 (2)
<i>Tapirus terrestris</i>	South American Tapir	1	
<i>Diceros simus</i>	White Rhinoceros	2	
ARTIODACTYLA			
<i>Tayassu tajacu</i>	Collared Peccary	1	1 (1)
<i>Hippopotamus amphibius</i>	Hippopotamus	1	1
<i>Lama glama</i>	Llama	11	11 (1)
<i>Lama guanicoe</i>	Guanaco	6	6 (2)
<i>Dama dama</i>	Fallow Deer	20	20 (2)
<i>Axis axis</i>	Spotted Deer	10	10 (1)
<i>Axis porcinus</i>	Hog Deer	4	4 (1)
<i>Cervus duvauceli</i>	Swamp Deer	1	1 (1)
<i>Cervus nippon taiouanus</i>	Formosan Deer	14	14 (4)
<i>Cervus elaphus</i>	Red Deer	26	26 (6)
<i>Cervus canadensis</i>	Wapiti	4	4 (2)
<i>Elaphurus davidianus</i>	Père David's Deer	3	3
<i>Odocoileus virginianus</i>	White-tailed Deer	2	2 (2)
<i>Alces alces</i>	Moose	2	2 (2)
<i>Hydropotes inermis</i>	Chinese Water Deer	25	25
<i>Taurotragus oryx</i>	Eland	1	1 (1)
<i>Boselaphus tragocamelus</i>	Nilgai	3	3
<i>Syncerus caffer</i>	Cape Buffalo	2	2
<i>Bison bonasus</i>	European Bison	1	1
<i>Bison bison</i>	North American Bison	2	2
<i>Connochaetes taurinus albojubatus</i>	White-bearded Gnu	3	3 (1)
<i>Aepyceros melampus</i>	Impala	1	1 (1)
<i>Gazella thomsoni</i>	Thomson's Gazelle	9	9 (3)
<i>Ovis musimon</i>	Mouflon	6	6 (1)
DOMESTIC			
	Pygmy Donkey	1	
	Ponies	8	
	Ankole Oxen	4	
	Goats	23	
	Four-horned Sheep	67	
Birds			
STRUTHIONIFORMES			
<i>Struthio camelus massaicus</i>	Ostrich	1	
SPHENISCIFORMES			
<i>Spheniscus humboldti</i>	Humboldt's Penguin	37	
PELECANIFORMES			
<i>Pelecanus onocrotalus</i>	White Pelican	7	

		Total number acquired	Number born or hatched in the Menagerie
ANSERIFORMES			
<i>Cygnus atratus</i>	Black Swan	4	4
<i>Cygnus melanocoryphus</i>	Black-necked Swan	1	1
<i>Branta sandvicensis</i>	Hawaiian Goose	1	1 (1)
<i>Branta leucopsis</i>	Barnacle Goose	1	1
<i>Branta ruficollis</i>	Red-breasted Goose	5	5
<i>Cereopsis novae-hollandiae</i>	Cereopsis Goose	2	2
<i>Tadorna cana</i>	South African Shelduck	6	6
<i>Tadorna tadorna</i>	Common Shelduck	1	1
<i>Lophonetta specularioides specularioides</i>	Crested Duck	2	
<i>Anas superciliosa superciliosa</i>	New Zealand Grey Duck	5	
<i>Aythya australis australis</i>	Australian White-eye	6	
<i>Aythya fuligula</i>	Tufted Duck	2	
<i>Aix sponsa</i>	Carolina Duck	2	2
<i>Bucephala islandica</i>	Barrow's Golden-eye	4	
FALCONIFORMES			
<i>Sagittarius serpentarius</i>	Secretary Bird	2	
GALLIFORMES			
<i>Francolinus erckeli</i>	Erckel's Francolin	1	1 (1)
<i>Lophura nycthemera nycthemera</i>	Chinese Silver Pheasant	3	3 (1)
<i>Lophura swinhoi</i>	Swinhoe's Pheasant	4	4 (2)
<i>Crossoptilon auritum</i>	Pallas's Eared Pheasant	4	4 (2)
<i>Syrnaticus reevesi</i>	Reeves's Pheasant	5	5
<i>Chrysolophus pictus</i>	Golden Pheasant	9	9 (1)
GRUIFORMES			
<i>Grus monacha</i>	Hooded Crane	4	
PSITTACIFORMES			
<i>Ara chloroptera</i>	Green-winged Macaw	6	
<i>Amazona amazonica amazonica</i>	Orange-winged Parrot	1	
Reptiles			
SERPENTES			
<i>Constrictor constrictor</i>	Boa Constrictor	1	

Fishes New to the Collection

- Piaractus nigripinnis* (Cope) Amazon.
Exodon paradoxus Müller and Troschel. N.E. South America.
Pangasius micronemus Bleeker. Malaysia, Thailand.
Chaetodon falcula Bloch. Indo-Pacific.
Gomphosus varius Lacépède. Indo-Pacific.

List of donors of animals to the Society

REGENT'S PARK

- Administration of Papua-New Guinea, 6 New Guinea Crocodiles
 Anonymous, 1 Red-crested Cardinal, 2 Purple Glossy Starlings, 1 Blyth's Starling
 Ansell, W. F., 4 Pygmy Mice, 1 Black Musk Shrew
 Antwerp Zoo, 1 Haitian Solenodon
 Attenborough, C. W., 2 Green Singing Finches, 3 Nutmeg Finches, 2 Three-coloured Mannikins, 1 African Silverbill, 2 Java Sparrows, 6 Avadavats
 Aurora Rattlesnake Club, 6 Western Diamond-back Rattlesnakes
 Bagge, W. T., 1 Giant Land Snail
 Baillie, The Hon. Lady Olive, 2 Californian Quail, 2 Swainson's Lorikeets, 2 Indian Ring-necked Parrakeets, 2 White-cheeked Turacos, 1 Emerald Toucanet, 1 Yellow-billed Aracari
 Baker, Mrs, 1 Barbary Dove, 8 Diamond Doves
 Barton, S., 2 orb spiders
 Baumann, H., 1 Orange-flanked Skink
 Beatson, Miss S., 2 camel crickets
 Bennett, A., 1 mantid
 Beramsing, Miss W., 1 Yellow-fronted Parrot
 Beraut, Dr E., 1 Ruff
 Bickers, Miss, 1 Orange Weaver
 Blissett, T. G., 1 Rufous-beaked Snake
 Breewood, Mrs, 1 albino *Clarias*, 2 Black Mollies, 1 Red-tailed Labeo, 4 Blue Gouramis, 12 Red Swordtails, 12 Green Swordtails, 4 Red Platys, 100 Guppies, 1 Goldfish
 Brock, B., 1 millipede, 1 scorpion, 1 mantid ootheca
 Buck, Mrs J., 1 Eastern Painted Terrapin
 Buckley, Major D. B. B., 1 Adder
 Budd, D. J., 2 Green Lizards
 Burdett, Miss C., 1 Mole Snake
 Butler, R. L. J., 1 millipede
 Buxton, Major A., 1 Sacred Ibis, 1 Rough-legged Buzzard
 Buxton, Mrs A., 2 Pygmy Falconets
 Cameron, Miss F., 1 Caspian Terrapin
 Carey-Hughes, Dr J., 3 Orang-utans
 Cheetham, Mrs A. W., 2 Iguanas
 Clark, R., 9 Adders, 6 Slow-worms
 Clarke, Police Constable, 1 Diced Water Snake
 Cleaver, Miss S., stick-insects
 Close, D. H., 1 Fischer's Lovebird
 Collins, Mrs E., 1 Iguana
 Copeman, G. H., 1 Crayfish
 Crabtree, S., 12 silkmoth pupae
 Crawford, Lindsay and Adam, 2 Wart Hogs
 Cross, Miss D., 1 Green Lizard
 Davis, G., 1 Top-tailed Gecko, 2 *Anolis* sp.
 Davy, Mrs A., 1 albino *Clarias*
 Denton de Gray, T. R., 5 Grey Mullet, 2 Shore Crabs
 Dept. of Agriculture, Fisheries & Food, Hongkong, 4 Orang-utans
 Dixon Smith, Miss, 1 Goldfinch
 du Feu, Mrs P. L., 1 Patas Monkey
 Dunbar, D., 1 Silver-washed Fritillary
 Elkan, Dr E., 1 African Lungfish
 Ellis, M., 2 Kenya Black-cheeked Waxbills
 Eustance, P. A., 1 *Ameiva bifrontata*
 Exley, J., 1 Spectacled Cayman
 Fairfax, R., 2 Common Shrews
 Fellerman, C., 200 Guppies
 Fifer, Dr, 5 Indian Palm Squirrels
 Fioravant, M., 3 crickets
 Furness, Mr, 9 mantids, *Paratenodra sinensis* (ootheca)
 Gathorne Hardy, The Hon. Hugh, 2 bird-eating spiders, 3 spiders, *Nephila* sp., 1 water bug, 4 millipedes, 5 singing beetles, 1 cockroach, 1 beetle, 1 immature mantid
 Gilbert, Miss J., 1 Grant's Skink
 Gouldie, F., 1 bird-eating spider
 Gourlay, L. A., 1 crab spider, *Heteropoda venatoria*
 Gowen-Stepes, Mr, 4 stick-insects, *Acanthoxyla prasina*
 Graham, Miss A. D., 2 Petz's Conures
 Graystone, A., 2 Blyth's Lesser Whitethroats
 Green, Mrs P., 1 Sharp-tailed Conure
 Guidotti, Signore, 1 Hermann's Tortoise
 Hampson, Dr, 6 Northern Flying Squirrels, 6 Southern Flying Squirrels
 Hamzavi, Miss J., 1 John's Sand Boa
 Hanet, Mrs F., 1 albino *Clarias*
 Harris, C., 1 Red-headed Merlin
 Harrison, G., 1 Curlew
 Hart, D. R. J., 1 tropical house spider
 Henbrow, Mr, stick-insect eggs (*Extatosoma tiaratum*)
 Hill, L. W., 1 King Shag, 1 Rock Shag
 Hockenhull, J., 1 Goshawk

- Hodgson, M. and B., 1 Algerian Skink, 1 Moroccan Toad, 2 Bibron's Lizards, 1 black scorpion, *Buthus* sp., 2 spiders, *Steatoda* sp., 10 sand beetles, *Pimelia rugosa*
- Hollins, P., 1 Common Chameleon, 1 Algerian Skink, 2 Moroccan Toads, 1 Painted Frog, 1 Viperine Snake, 1 black scorpion, *Buthus* sp., 10 beetles, *Pimelia rugosa*, 2 desert beetles, *Blaps gages*
- Holmes, R., stick-insects
- Hope, D., 1 Grass Snake
- Horsham, R. J. E., 8 Four-striped Rats
- Hurn, Mr, 1 Ribbon Finch
- Iles, G., 1 Snapper
- Jaques, Miss M., 1 Rosy-faced Lovebird
- Johnson, H., 1 Spider Monkey
- Johnson, Mrs L., 1 Fruit Bat
- Jolly, Dr C. J., 3 East African Harsh-furred Mice
- Jones, Miss J., 1 John's Sand Boa
- Jones, T. S., C.M.Z.S., 1 Aubry's Parrot, 1 Beecroft's Hyrax, 1 Nile Crocodile
- Jukes, E., 2 Deer Mice
- Jupe, Mrs, larva of elephant hawk moth
- Kerr, P., 1 Black-headed Conure
- King, A., 1 Red-headed Cardinal
- Kirk, Dr R., 1 Pin-tailed Whydah, 1 Paradise Whydah, 1 Occipital Blue Pie, 1 Magpie
- Kirkham, G., 1 Royal Starling
- Knight, Maxwell, 3 wolf spiders
- La Garenne Zoo, 2 Ferrets
- Laloe, Mrs J., 1 Philippine Night Heron, 1 Philippine Rail, 1 White-throated Kingfisher, 1 Philippine Oriole, 2 Grey-backed Coletos
- Lamprell, W. F., 2 Spectacled Cayman
- Lang Davis, Mrs V., 2 Avadavats, 1 Orange-cheeked Waxbill
- Lawless, D. J., 2 Tree Pangolins
- Leach, W., 1 White-cheeked Turaco
- Locker Lampson, Miss E., 1 Black Francolin
- Loizos, Mrs C., 1 Rüppell's Weaver
- Lowman, Mrs M., 1 Chinchilla
- Madgett, J., 1 great green grasshopper, *Tettigonia viridissima*
- Manley, Dr G., 3 Angwantibos
- Martins, R. S., 1 Elephant Hawk Moth
- Mash, R. F., 2 Marbled Cichlids
- McCleaver, R., 1 Cockatiel
- McCullagh, Sir Crawford, 2 Wigeon, 2 Pintail, 2 Carolina Duck
- Meek, K., 1 albino *Clarias*
- Miller, J., 1 Cascabel Rattlesnake, 1 Jewelled Gecko
- Miller, Mr, 1 Virginian Cardinal
- Milton, B., 1 Chinchilla
- Ministry of Agriculture, Fisheries and Food, 2 Margouillat Agamas
- Moore, A. J., 2 Rousette Bats
- Mountbatten of Burma, The Earl, 2 Lobsters (pale blue form)
- Murray, W. H., 1 Greek Tortoise
- Neighbour, M. J., 1 Flap-necked Chameleon, 2 Oldham's Snakes, 1 praying mantis
- Newmark, G. H. and J. R., 1 Black-bellied Bustard, 1 Wryneck, 3 Woodchat Shrikes, 1 Olivaceous Warbler, 3 Sardinian Warblers, 3 Ultramarine Tits, 4 Algerian Skinks, 1 Bibron's Lizard, 3 Moroccan Toads, 2 Eyed Skinks, 1 Horseshoe Whip-snake, 1 Montpellier Snake, 1 Viperine Snake, 57 sand beetles, *Pimelia rugosa*, 6 sand beetles, *Pimelia valida*, 4 black scorpions, *Buthus* sp., 1 *Lactrodectus tredecimguttatus*, 3 carabid beetles, *Scarites* sp., 3 lycosid spiders, 6 desert beetles, *Blaps gages*, 3 beetles, *Scaurus sticticus*, 4 yellow scorpions, *Buthus occitanus*, 1 jumping spider, *Salticus* sp., 1 spider (Rassidae), 6 spiders, *Steatoda* sp., 2 acridiid grasshoppers
- North Kent Wildlife Preservation Society, 1 Razorbill
- Norton-Griffiths, M., 4 Oystercatchers
- Nuffield Institute of Comparative Medicine, 3 Rock Hyraxes, 2 Bridled House Geckos, 8 Skinks, *Mabuya macularia*
- Nutter, C., 1 Tamandua
- O'Bourke, D., 3 Midwife Toads, 1 Common Toad
- Orrell, J., 1 female jockey spider, *Latrodectus hasselti*, stick-insect eggs, *Clemacantha regale*
- Palmer, D. W., 1 Lobster
- Parker, C., 1 Royal Python, 1 African Python
- Parsley, R., 4 Golden Hamsters
- Pierce Butler, Miss, 6 Spanish Terrapins
- Pinhey, Dr E., stick-insect eggs
- Pitman, E. J. F., 10 Crayfish
- Pittaway, Mrs E. C., 1 Malayan Necklace Dove
- Pollard, Rev. W., 1 Chimpanzee
- Potter, R. F., 1 Common Toad
- Powell, C. J., 2 albino *Clarias*
- Rainsly, J., 1 Garden Tree Boa
- Randau, G., 2 Stripe-breasted Star-throats
- Ray, Mrs, 1 Venezuelan Wood Rail
- Raymond, Mrs J., 1 White-winged Parrakeet
- Read, D., 1 American Catfish
- Reed, The Lady, 1 Brown Fish Owl
- Reeve, Dr, 9 praying mantids
- Rennie-Smith and Co. Ltd, 6 mantid ootheca, 5 mantids, 1 *Nephila* and 2 cocoons, 1 short-horned grasshopper
- Reydon Modern School, 1 Eyed Lizard
- Rio Zoo, 2 Crab-eating Foxes, 1 Sclater's Curassow
- Roberts, C. J., 1 Least Bittern
- Roberts, J. J., 1 Long-nosed Viper
- Roper, T. W., stick-insect eggs
- Royal Society for the Prevention of Cruelty to Animals, 1 Iguana
- Sanderson, Miss, 1 Red-footed Ground Squirrel
- Searle, Dr K. C., C.M.Z.S., 1 Chinese Serpent Eagle, 2 Palawan Peacock Pheasants, 1 Green Peafowl, 2 White-breasted Kingfishers, 1 Grey-backed Thrush, 2 Chinese Starlings, 2 Javan Pied Mynas, 4 Black-winged Grackles, 6 Chinese Crested Mynas, 2 Red and White Flying Squir-

- rels, 12 Siberian Chipmunks, 2 Huang's Rats,
2 Orang-utans, 4 Bocourt's Squirrels, 4 Chinese
Ferret Badgers, 2 Masked Palm Civets, 4
Malayan Giant Squirrels
- Sherrington, Dr A., 1 Giant Toad
- Simpson, Miss J., 1 Squirrel Monkey
- Simpson, Mrs, 1 Pallas's Glass Snake
- Sir John Cass College, 1 Clifford's Snake, 1 Raver-
gier's Racer, 1 Dark-green Snake
- Slater, S., 1 Bank Vole
- Somers, S., 1 Moorish Gecko, 1 Algerian Skink,
1 Moroccan Toad, 1 Bibron's Lizard, 1 yellow
scorpion, *Buthus occitanus*, 2 spiders, *Steatoda*
sp., 10 sand beetles, *Pimelia rugosa*
- Son, R., 1 bird-eating spider
- Sore, R., 1 bird-eating spider
- Spurling, Miss C., stick-insects
- Squire, E., 2 North American Ruddy Duck
- Standing, M., 1 Brahminy Kite
- Stonard, Mrs K., 1 Pekin Robin
- Sturton, D., 2 *Heteropoda venatoria*
- Taylor, Mr, 1 Pin-tailed Whydah
- Thorpe, Professor W. H., 1 Heuglin's Robin-chat
- Tiverdale, K. L., 1 Garden Tree Boa
- Tuichard, K., 2 Monk Chameleons, 2 Socotra
Amphisbaena, 3 Socotran Snakes
- Underwood, P. G. R., 1 Iguana
- Venus, Mrs J., 2 Green Turtles
- Vincent, Miss A., 1 European Pond Tortoise
- Wallace, Mr, 1 American Catfish
- Walter, W., 1 long-horned grasshopper
- Wand, Miss R., 1 stag beetle
- Warham, G. R., 1 African Scops Owl
- Weir, Miss B., 2 Hairy Armadillos, 3 Viscacha,
3 Tucotuco
- Wellcome Institute of Comparative Physiology,
15 Southern Flying Squirrels
- Western, D., 1 Bell's Dabb Lizard
- Whatling, E. T., 2 Wall Lizards
- Wheatley, T. J., 2 Tinsel Barbs
- Williams, B., 4 stag beetles
- Williams, H. T., 1 Squirrel Monkey
- Williams, J., 1 long-horned grasshopper
- Williams, R., 1 Siberian Chipmunk
- Wimms, Mrs, 1 Senegal Parrot
- Woodley, J. D., 1 Mississippi Mud Terrapin
- Wrangham, R. W., 2 Cape Pouched Rats
- Young, H. R., 1 Goldfish
- Yzer, M., 6 Mirror Carp, 5 Tench
- Zoological Society of Bristol, Clifton and West of
England, 6 Puff Adders
- Zurmuhle, A. W., 1 Giant Gourami
- Zwirm, J. and B., 1 Algerian Skink, 1 yellow scor-
pion, *Buthus occitanus*, 1 spider, *Steatoda* sp.,
10 sand beetles, *Pimelia rugosa*, 2 desert beetles,
Blaps gages

WHIPSNADDE PARK

- Batchelor, C., Rabbits
- Birch, Miss S., stick-insects
- Bond, Mrs A., Guinea-pigs
- Castro, Dr A. C., 1 Brazilian Tapir
- Dickie, Mrs F. E. D., 1 Senegal Bushbaby
- Parker, C. R., Guinea-pigs
- Reeve, T. A., 1 Orange-winged Parrot
- Wheatley, R., Guinea-pigs

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British Museum (Natural History)	450	0	0
British Ornithologists' Club	5	5	0
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Duke University, Department of Zoology	20	12	0
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- Bulletin of the United States National Museum, Vols. 1-3, 1875-76.
 North American fauna nos. 1-5, 1889-91.
 Journal of the Polynesian Society, Vols. 1-6, 1892-97.
 The voyage of H.M.S. Challenger. Zoology. Report on the birds collected during the voyage. By P. L. Sclater.
 The zoology of the voyage of H.M.S. Erebus and Terror . . . 1839 to 1843. Birds by G. R. Gray and R. B. Sharpe, 1846-75.
 A history of the birds of New Zealand. By Sir W. L. Buller. 2 vols. 1888 [and] Supplement. 2 vols. 1905.
 Bulletin of the British Museum (Natural History) Entomology, Vol. 18, no. 9; Vol. 19; Vol. 20; Vol. 21, nos. 1 and 2; supplements 7-10; Geology, Vol. 14, nos. 2-7; Vol. 15, nos. 1-3; supplement 3; Zoology, Vol. 15, nos. 1 and 2; supplement 2.
 Catalogue of fossil hominids, Part 1: Africa. Edited by K. P. Oakley and B. G. Campbell. 1967.
 A contribution to the classification of snakes. By G. Underwood. 1967.
 A draft synopsis of the orders, families and genera of recent fishes and fish-like vertebrates. By J. R. Norman. 1966.
 Faune ichthyologique du London Clay. 2 vols. By E. Casier. 1966.
 Guide for the identification of stranded turtles on British coasts. By L. D. Brongersma. 1967.
 An illustrated catalogue of the Rothschild collection of fleas (Siphonaptera) in the British Museum (Natural History). Vol. 4. By G. H. E. Hopkins and M. Rothschild. 1966.
 An illustrated catalogue of the Rothschild collection of Nycteribiidae (Diptera) in the British Museum (Natural History). By O. Theodor. 1967.
 Type-specimens of birds in the British Museum (Natural History), Vol. 1: Non-passerines. By R. L. M. Warren. 1966.
 An introduction to zoology. Vol. 2. By P. H. Gosse. 1844.
 Bioluminescence in progress. Edited by F. H. Johnson and Yata Haneda. 1966.
 Structure and habit in vertebrate evolution. By G. S. Carter. 1967.
 Memoir of the Reverend Octavius Pickard-Cambridge, M.A., F.R.S., F.Z.S.. By A. W. Pickard-Cambridge. 1918.
 The hills of the boasting woman. By S. Earl. 1962.
 Zoonoses of primates: the epidemiology and ecology of simian diseases in relation to man. By R. Fiennes. 1967.
 Coral fishes. By T. Ravensdale. 1967.

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Dynamic aspects of biochemistry. By E. Baldwin, 3rd ed., 1960.

Patterns of discovery: an inquiry into the conceptual foundations of science. By N. R. Hanson. 1958.

Annual review of physiology. Vols. 27-29. 1965-67.

Biophysics of physiological and pharmacological actions. Edited by A. M. Shanes. 1961.

Pesticides: their use and toxicity in relation to wildlife. By R. L. Rudd and R. E. Genelly. 1956.

Vorlesungen über Entwicklungsphysiologie. By A. Kühn. 1955.

The composition of foods. By R. A. McCance and E. M. Widdowson. 1960.

Elet a viz tükre alatt. By L. György. 1961.

Der Blaurock. (Mammalia depicta No. 2.) By E. Mohr. 1967.

Men and Apes. By D. Morris and R. Morris. 1966.

Life history and management of the mountain goat in Idaho. By S. M. Brandborg. 1955.

A history of the earth and animated nature. Vol. 2. By O. Goldsmith.

A history of British birds. Vol. 3. By F. O. Morris. 1896.

Report on administrative and business aspects of Taronga Zoological Park, Sydney. By N. Thomson and J. T. Quinn. 1966.

Das Leben der Vögel. By F. von Lucanus. 1925.

Descriptive catalogue of the pathological series in the Hunterian Museum of the Royal College of Surgeons of England. Part 1. 1966.

Animal and zoo magazine. 1936-1941.

Field friends and forest foes. By P. Browne.

Sleeping sickness in Uganda 1900-1920. By B. W. Langlands. 1967.

Muskoxen in Canada: a biological and taxonomic review. By J. S. Tener. 1965.

The treasury of natural history. By S. Maunder. 1852

Ngorongoro's animal life. By the Ngorongoro Conservation Unit. 1966.

Ngorongoro's bird life. By the Ngorongoro Conservation Unit. 1966.

Oologia belgica. By R. Verheyen. 1967.

The care of elephants in Burma. By A. J. Ferrier. 1945.

The African elephant. By R. Bere. 1966.

Meetings during 1968

Scientific Meetings at 5 p.m.

Tuesday, 13th February

Tuesday, 12th March

Tuesday, 9th April

Tuesday, 14th May

Tuesday, 11th June

Tuesday, 8th October

Tuesday, 12th November

Tuesday, 10th December

Symposia

Thursday and Friday, 9th-10th May, 'Disease in free-living wild animals'.

Tuesday and Wednesday, 10th-11th September, 'Biology of the Porifera'.