



**The Zoological Society
of London**

Annual Report 1972

ABOUT THE SOCIETY

The Zoological Society of London was founded in 1826, largely as the result of the energy and initiative of Sir Stamford Raffles, Sir Humphry Davy (President of the Royal Society) and other eminent naturalists. It was incorporated by Royal Charter in 1829, its stated purpose being

'the advancement of Zoology and Animal Physiology and the introduction of new and curious subjects of the Animal Kingdom'.

A new Charter was granted to the Society in 1963.

The Society's Gardens in Regent's Park – now known all over the world as the London Zoo – were opened in 1829. A hundred years later the Society acquired and, in 1932 opened, Whipsnade Park, an area of some 500 acres of farm and downland where the rural setting forms a splendid background for animals that are able to roam in large paddocks. Whipsnade Park and the London Zoo are complementary and together house one of the finest and most comprehensive collections of wild animals in the world.

The Society was formed as a scientific society and this remains its prime purpose. Throughout its existence members of its staff, as well as many eminent zoologists and visiting scientists, have studied material derived from the Collection and have made important contributions to our knowledge of taxonomy, comparative anatomy and physiology, human and veterinary medicine, pathology, ecology and animal behaviour. Two Research Institutes and a modern veterinary hospital which is linked with a Pathology Department, all of which were established between the years 1956 and 1965, have greatly extended the scope of research which can be undertaken and sponsored by the Society.

Scientific meetings are held 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 also arranged. The Society owns one of the finest zoological libraries in the world, which has been built up over the 146 years' of its existence.

The Society's publications include:

The *Journal of Zoology* (the *Proceedings of the Society*). Three volumes (12 parts) are published annually containing papers which cover all fields of zoology.

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 22 parts dealing with the different animal groups.

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

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

Report of the Council

The Council has pleasure in presenting
its 144th Annual Report to the
Annual General Meeting of the Society
to be held on Wednesday 23rd May 1973
at 4.00 pm in the Society's Meeting
Room at Regent's Park

THE ZOOLOGICAL SOCIETY OF LONDON

THE ZOOLOGICAL SOCIETY OF LONDON

PATRON: HER MAJESTY THE QUEEN

COUNCIL 1972-1973

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

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Sir Peter Scott, CBE, DSC, LLD

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Ronald G. Waterhouse, QC, JP, MA, LLB

C. A. Wright, DSc, PhD, FIBiol, *Vice-President*

THE ZOOLOGICAL SOCIETY OF LONDON

HONORARY FELLOWS

Date of election

- 1971 His Majesty Emperor Hirohito of Japan
- 1952 Professor J. Berlioz
Muséum National d'Histoire Naturelle,
Jardin des Plantes, 57 rue Cuvier, Paris 5^e, France
- 1937 HH Maharajah Raol Shri Krishnakumarsinhji Bhavsinhji of Bhavnagar,
Bhavnagar, Kathiawar, India
- 1951 Professor Dr H. Boschma
Rijksmuseum van Natuurlijke, Leiden, Holland
- 1955 Dr G. W. Corner
American Philosophical Society, 104 South Fifth Street,
Philadelphia 6, Pennsylvania, USA
- 1957 Professor Robert Courier
L'Institut de France (Académie des Sciences), 23 Quai de Conti,
Paris 6^e, France
- 1945 Monsieur Jean Delacour
Parc Zoologique de Clères, Clères, Rouen, S-M, France
- 1929 Dr W. K. Gregory
American Museum of Natural History,
Central Park West at 79th Street, New York, USA
- 1952 Professor Sven Otto Hörstadius
Zoologiska Institutionen, Uppsala, Sweden
- 1948 Professor A. R. Jorge
Museu Bocage, Faculdade de Ciências, Lisbon, Portugal
- 1939 The Rt Hon. Sir Robert Gordon Menzies
2 Haverbrack Avenue, Malvern, Melbourne, 3144, Victoria, Australia
- 1952 Dr R. C. Murphy
American Museum of Natural History,
Central Park West at 79th Street, New York, USA
- 1953 Professor Dr A. H. Schultz
Anthropologisches Institut der Universität Zurich,
Sempersteig, Zurich 1, Switzerland
- 1947 Professor G. G. Simpson
Department of Geology, University of Arizona, Tucson, Arizona 85721, USA
- 1937 Dr E. A. Stensiö
Naturhistoriska Riksmuseum, Stockholm 50, Sweden

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THE MEMBERSHIP

COUNCIL

The President, HRH The Duke of Edinburgh, presided at the Annual General Meeting which was held on 4th May. The following Members of Council retired:

Sir Dudley Forwood
Dr Francis C. Fraser
The Viscount Head
The Marquess of Lansdowne
Sir Michael Perrin

The Fellows elected to fill these vacancies were: Professor E. J. W. Barrington, Professor J. M. Dodd (Scientific Fellows), The Earl of Bessborough, Mr R. Romilly Fedden, Mr Ronald G. Waterhouse (Ordinary Fellows).

In accordance with the Byelaws, Air Vice-Marshal G. Silyn Roberts was appointed by Council during the year to fill the casual vacancy caused by the death of Dr J. D. Carthy.

The President presented the following awards for contributions to zoology:

The Stamford Raffles Award (awarded to an amateur zoologist for distinguished contributions to zoology) to *Mrs B. P. Hall*, British Museum (Natural History), in recognition of her work on the taxonomy and zoogeography of birds, particularly those of Africa. The award was a sculpture in bronze, *Wild Boar*, by Miss Elisabeth Frink.

The Scientific Medal (awarded to persons under 40 years of age for distinguished work in zoology) to *Professor D. L. Lee*, of the University of Leeds, for his work on parasitology, in particular on helminths and protozoans; and to *Dr P. L. Miller*, University of Oxford, for his work on neurophysiology, in particular the nervous control of insect respiration.

The Thomas Henry Huxley Award (for original work submitted as a doctoral thesis) to *Dr Richard D. Jurd*, of the University of Southampton (now at Tenovus Research Laboratory, Southampton General Hospital), for his thesis 'The haemoglobins of *Xenopus laevis* (Daudin) their characterization, ontogeny, and the control of their synthesis'. The award was a sculpture in bronze, *Seals*, by Mr David Wynne.

ROLL OF MEMBERS

At the end of the year there were 2,919 Fellows and 2,381 Associates.

OBITUARY

The Society shared the national mourning at the death of HRH The Duke of Windsor, who had been a Fellow since 1919 and (as King) Patron of the Society. When Prince of

Wales, he was the Guest of Honour at the Dinner, held in 1929, to celebrate the Centenary of the granting of the Society's Royal Charter.

Council also records with deep regret the deaths of Dr J. D. Carthy, a member of Council; Lady Bridget Parsons, who had served on the Gardens and Park Committee; Professor J. J. C. Buckley, a former member of the Zoological Research Committee and, since 1967, Honorary Helminthologist to the Society; Lord Sieff, a Fellow for 39 years; Sir Gavin de Beer, a Fellow for 36 years; Professor Francis Camps, a Scientific Fellow; the Hon. Alexander Geddes, and Dr Louis Leakey, a Corresponding Member since 1948.

FINANCE

Ordinary expenditure rose, during the year, to £1,347,000, an increase of £126,000 (10 per cent). The salaries and wages of all sections of the staff are broadly aligned to an appropriate public service, and nationally negotiated pay increases in these services are applied to the Society's staff. Half of the increase in our expenditure was due to higher salaries and wages. The bulk of the remainder is accounted for by the general inflationary rise in the cost of maintenance of all kinds, of provisions, and of services. In addition, a five year grant, of £16,000 a year, from the Nuffield Foundation towards the cost of the Nuffield Institute of Comparative Medicine came to an end.

Due chiefly to increased prices, higher attendances both at Regent's Park and Whipsnade, and an excellent result from the shops and catering activities, additional revenue balanced this higher level of expenditure and the year ended with a small surplus.

Capital expenditure during the year amounted to £192,000 of which £114,000 was met from the Government capital grant, announced in 1970. The main item of rebuilding at Regent's Park was the completion of the Michael Sobell Pavilions for Apes and Monkeys, most of the cost being met from Sir Michael Sobell's most generous gift of £250,000. At Whipsnade the Water Mammals Exhibit, described on page 16, was completed.

DONATIONS

The Council gratefully acknowledges a number of gifts, including an anonymous donation of £20,000. In accordance with the wishes of the donor this will form the nucleus of an endowment fund, which will be built up to establish a research fellowship.

We also gratefully acknowledge an anonymous gift of £1,080, a donation of £100 from Miss D. R. Findlay, a legacy from Mrs M. A. Trench, and a number of smaller gifts.

ZOO RESTAURANTS LTD

Zoo Restaurants Ltd has had a most successful year, catering for 136 functions, the majority of which were held in the Regent Restaurant in the evenings. There were four well-attended dinners for Members and their guests. The new Tavern Room which, during the day, is used by visitors as a lounge bar, is now available to Zoo Restaurants Ltd after the closing of the Gardens, and provides useful additional accommodation for smaller parties.

THE LONDON ZOO

Visitors during the year 1,976,960
Visitors to the Children's Zoo 360,500
Visitors to the Aquarium 517,000

Three important occasions stand out in an eventful year. On 4th May, HRH The Duke of Edinburgh formally opened the Michael Sobell Pavilions for Apes and Monkeys, a modern complex of attractive and efficient buildings. It was an impressive and happy ceremony, and among the guests were Sir Michael and Lady Sobell, the Secretary of State for the Environment, the Minister of Transport Industries, the Leader of the Greater London Council, the Lord Mayor of Westminster and the Mayor of Camden. The Michael Sobell Pavilions were the main attraction at Regent's Park for the rest of the year.

On 22nd July, there was a less happy but nevertheless momentous day when the Giant Panda 'Chi-Chi' died after nearly 14 years in the Zoo. She had, so far as is known, lived longer than any other Giant Panda in captivity, and during this time some 25,000,000 people would have seen her. She takes her place with other London Zoo historical animals such as 'Jumbo', the famous elephant of Victorian days, and 'Jubilee', the Chimpanzee which was born in 1935.

In a year of many important and interesting visitors to the Zoo, perhaps the most noteworthy were the representatives of the Academia Sinica, Peking, on 8th October. Their visit was part of a tour of Great Britain as guests of the Royal Society and it opened the way towards a welcome strengthening of relations between this Society and Chinese zoos and zoological organizations.

GENERAL DEVELOPMENT

During the autumn and winter of 1971/72 the last stage of building of the new complex for Apes and Monkeys was set in train. It included the construction of the outside enclosures and the public concourse, the animals remaining in the indoor dens which

had been completed earlier. With a target date for the opening of the building the inevitable race against time developed, and the spring was a scene of great hustle and activity. While the contractors put the finishing touches to an enclosure, the gardeners were planting grass and shrubs and, as they retreated, the animals moved in under the anxious eyes of all those whose efforts were now being put to the ultimate test. On 18th April the first group, the Brown Capuchins, representing monkeys from the New World, were let out into their enclosure; groups of Old World monkeys – Macaques, Mangabeys, Baboons, Mandrills, Guenons and Colobus – were later put in their new enclosures. There are also the Great Apes: the Gorillas 'Guy' and 'Lomie', Orang-utans and Chimpanzees.

The design of the buildings for these groups of animals was the result of a team effort among the Society's staff, its technical consultants and advisory committees. The Society's Architect, Mr J. W. Toovey, conceived the basic design based on specifications prepared by the Curator of Mammals, Dr M. R. Brambell. Both were helped and advised by a number of experts in many fields and by staff at all levels, including the keepers who, in the last resort, must make the project work. The experience of the leading zoos in Europe and America was drawn upon, and primate buildings in many major zoos were visited during the planning and design stages.

The results in the first season of operation have justified all expectations. In particular, the space frame concept which forms the 'roof' of the outside enclosures has allowed the apes and monkeys to show their natural paces as never before in a major zoological garden. The sight of a gorilla or an orang-utan swinging through this man-made forest canopy is new and exciting.

The pleasing layout of the Pavilions, the generous provision for grass and shrubs to cover as much as possible of the structures and, perhaps most important, the excellent animal management facilities in the dens which are not open to the public, are other rewards of this outstanding exhibit.

The complicated work of repairing, waterproofing and resurfacing the Mappin Terraces, which virtually form the roof of the Aquarium, had been largely completed in 1971. Although accepted as a technical challenge, the renovation turned out to be more difficult than was expected. It was therefore necessary for the contractors to return to the job to renew some of the work and, in the case of the goat hills, to revert to an asphalt covering for the floors. The need to allow time for earlier work to settle and to be properly tested led to inevitable delays.

In line with these improvements the security iron barrier of the bear enclosures which are at the Aquarium end of the Mappin Terraces was removed, and a new glass viewing screen installed, as was done some years ago at the western section of the Terraces. This completes the modernization of this important feature, which was originally built in 1913.

The usual number of minor projects of improvement and renovation was carried out during the year under the direction of the Architect, either through our own Works Department or outside contractors. Some of these projects were associated with the complete redevelopment of the central area of the Gardens, where the Michael Sobell Pavilions are situated. These included renovation of the entrances to the Aquarium and the Reptile House, and the moving of the former Raven's Cage to a new site in the

Fellows' Garden. A new block of lavatories is now being built near the Main Gate. This will complete the development of this area.

Much needed improvements were made in the bird section. In the main Bird House, one large cage was built up into a simulated river bank for two species of Bee-eater. It is hoped to repeat this most successful small development elsewhere in the House. The Peafowl Aviaries nearby were renovated, as were the Pheasantry buildings and runs on the North Bank.

The roof of the Bird House, which had not received major attention for 45 years, was extensively repaired, thus giving the building an extra few years of life as well as making it possible and worthwhile to renovate the interior.

The catering and allied facilities were improved in a number of ways. The Flamingo Kiosk was adapted to become a Photo Shop; a ramp leading to the Pavilion Cafeteria and Terrace was installed for visitors using invalid chairs and pushchairs, and the windows in the upper floor of the building were replaced.

For the second winter in succession, during the strike in January, the staff of the Works Department had the unwelcome opportunity of showing their resourcefulness and skill in dealing with the effects of electricity cuts on the power and heating systems of the Zoo. Their success was matched by other sections of the Society's staff, who managed to keep all the services going under these adverse conditions.

THE COLLECTION

Mammal Section On 10th January new regulations (the Rabies (Importation of Mammals) Order 1971) came into force, and it again became possible to import susceptible animals, although under very strict quarantine conditions. In addition to the necessary structural alterations made in the quarantine, examination and operating rooms of the Hospital, one den unit of the Michael Sobell Pavilions and two groups of cages in the Charles Clore Pavilion were modified during the year, and approved as quarantine accommodation.

The record of 1972 necessarily starts with the apes and monkeys, and with the end of their migration from the old Monkey House to the new Michael Sobell Pavilions, in some cases *via* other temporary homes in the Zoo. As reported earlier, the new exhibit initially housed nine species of monkeys, three species of great apes and a family group of Grey Gibbons, which were moved from Whipsnade because of accommodation problems there.

The species of monkeys chosen for exhibition were representative of the main ecological groups, but collecting adequately sized groups of each has been difficult during the last two years because of the ban on imports following the occurrence of rabies in Britain in 1970. Nevertheless, breeding groups of most species were collected together from the animals in the former Monkey House, and from other British collections. During 1972, three Pig-tailed Macaques, one Brown Capuchin and one Mandrill were born and reared in the Michael Sobell Pavilions.

The death of 'Chi-Chi' was not unexpected. During the spring she showed more and more signs of old age, and reports in the press elicited great public interest in her condition. She then rallied, until she died early in the morning of 22nd July after a sudden

collapse the previous day. Her age at death cannot be known exactly, but it is very likely that she was more than 15 years old.

Opportunities for studying the anatomy and physiology of Giant Pandas, which are so rare in captivity, are very limited and great care was taken during 'Chi-Chi's life to maintain complete records of her clinical history. The post-mortem findings are still being studied, and material for further study has been supplied to our own research departments and to other organizations, including the British Museum (Natural History), various research departments of universities, institutes and hospitals, both in the United Kingdom and the United States of America. The results will be published in due course.

Breeding successes which should be noted were a Ruffed Lemur and Leopard Cats in the Charles Clore Pavilion for Mammals, another Black Rhinoceros and a Polar Bear.

The Ruffed Lemur birth was an important event, not only because this species is rare in captivity, but also because the male had been on loan from the Paris Zoo for two and a half years as a mate for the female, which had been presented to the Society in 1960 by Mr David Attenborough, following his 'Zoo Quest' to Madagascar. There seemed little hope that any young would be produced by this apparently ageing pair of animals, and so the birth was all the more welcome. Unfortunately, the mother died some six weeks later but the young one, a male, survived and has been reared satisfactorily.

The Leopard Cats were born to an animal which had been born in the Clore Pavilion. They are probably the first, second generation, captive births of this species in Britain.

The Black Rhinoceros was a female and the second calf of the pair in the Elephant and Rhino Pavilion. Their first, also a female, was born in 1969 and was the first of this species to be bred in the Society's Collections. It was sent to Dublin Zoo in April, together with the male born at Whipsnade early in 1971.

A cub was born on 28th November to the Polar Bear 'Sally', the mother of 'Pipaluk' born in 1967, and of 'Triplet' born in 1970. Polar Bears always give birth late in November or early December, but 'Sally's pinpoint timing is remarkable. The dates of birth were 28th, 29th and 30th November.

In 1972, the most interesting births among the hoofed animals were, in chronological order, a Guanaco, Common Zebra, Sitatunga, Yak, Greater Kudu, Brindled Gnu and Przewalski's Horse.

The Charles Clore Pavilion for Mammals again had noteworthy successes, in spite of the fact that the rabies control regulations had made it all but impossible to obtain replacement stock for a year and a half. Apart from the Ruffed Lemur and Leopard Cats already mentioned, Cotton-headed Tamarins, Douroucouli, Small-toothed Palm Civet, Brush-tailed Porcupine, Tree Shrews, Plains Viscachas, Fire-footed Squirrel, Cuis and Siberian Chipmunks were born.

During the year it was decided to end both the Children's Zoo demonstrations of Chimpanzee intelligence and the long-established Tea Party. This step was taken mainly because the transfer of young animals to the Children's Zoo for training for the Tea Party had led to problems of assimilation when they later returned to the adult groups. Another reason was that since 1965 the Animals (Restriction of Importation) Act has rightly put a stop to the import of Chimpanzees except where the animals are needed

for breeding. The Michael Sobell Pavilions now provide the opportunity to build up proper social groups consisting of Chimpanzees of all ages.

To try to fill the gap, which will undoubtedly be felt by visitors to the Zoo, new features are to be introduced in the Children's Zoo, and a new use found for the Tea Party lawn.

Bird Section A Blue-backed Manakin was hatched in June in the Tropical House and subsequently reared successfully. This is believed to be the first time this species has bred in captivity anywhere in the world. It was an event not without problems, as the young bird left the nest before it could fly properly and was in danger of being drowned, or trodden on, or snatched by a member of the public. It was therefore removed with its mother to the safety of the Bird House, where it was reared without incident.

Owls, as is now usual, have been one of the most successful breeding groups, and seven species or subspecies have reared young. These include Savigny's and Kenya Eagle Owls, Abyssinian and African Spotted Eagle Owls, Snowy Owls, a West African Wood Owl and a Barn Owl. The pair of Kenya Eagle Owls were the most prolific and reared seven young, producing a second brood of three as late as November. Other rearings of note have included Jerdon's Imperial Pigeons, White-cheeked Turacos, Hawaiian Geese, and Bristle-crowned, Malayan Glossy and Superb Starlings.

Some James's Flamingos (*Phoenicoparrus jamesi*), a species new to the Collection, were acquired during the year. Thus, for the first time, all known species of flamingo can be seen at Regent's Park. Another new species was the Red-throated Bee-eater (*Merops bulocki*), which is the fourth Bee-eater species now on exhibition. Two of them are together in the Bird House in the artificial river bank mentioned earlier.

Species of particular interest which have been received since the beginning of the year include two Short-eared Owls from Calgary Zoo, White-fronted Bee-eaters, a Laughing Falcon, two captive-bred Desert Eagle Owls, three White-bellied Go-Away Birds and four Spoonbills. An injured Avocet was also sent in. A most welcome addition was a male Naked-throated Bellbird presented by the Government of Paraguay. This was a replacement for the popular bird which died in 1970, and whose call rang through the Bird House for 18 years. The presentation was made at a colourful, and appropriately musical, ceremony by HE The Paraguayan Ambassador to Mr David Attenborough, who received it on behalf of the Council. A female Bellbird has since been acquired.

The aviaries near the Bird House, known as the Peafowl Aviaries, were, as already noted, rebuilt and replanted. They now contain an interesting and colourful selection of species, including Scarlet Ibis, Roseate Spoonbills, Kookaburras, Ross's and Knysna Turacos, Blue and Green Peafowl. In the summer, they will also contain a number of species which spend the winter in the Bird House.

As the techniques of management improve, and as knowledge of the requirements of individual species is extended, so the average age increases. It is not uncommon to have to explain to visitors that apparent ill-health in a bird is, in fact, mainly the sluggishness of senility. During the last few months there have been a number of deaths due basically to old age and, where the longevity is known, some surprising records have

been established. For example, the Steller's Sea Eagle, which died at the end of 1971, must have been at least 36 years old. A Palm-nut Vulture died when 27 years old, a White Pelican when 25 and a Jackal Buzzard when 20. Even smaller birds such as the Black-necked Grackle and the West African Wood Owl lived for 16 years.

Unfortunately the bird collection had another bad year from egg-stealers and other vandals, despite special precautions and a good deal of publicity designed to counter the problem. The loss of eggs from Sarus Cranes, penguins and White Storks was especially frustrating. Sadism could have been the only reason why five birds in the Snowdon Aviary were killed on a dark and wet January afternoon. The only hope of an end to these forms of vandalism rests in the strength of public reaction, since it is impossible to watch all visitors for every moment they are in the Zoo.

Aquarium There have been several exchanges with aquaria in this country and overseas and, in addition, the staff have undertaken a number of fishing trips to the Channel coast to maintain the collection of marine fishes and invertebrates.

The Amphibian section has maintained a varied collection, and acquisitions of particular interest have been a North American Hellbender, an Olm from Yugoslavia, a Giant Salamander purchased to replace one that had been in the Collection for over 40 years, and four *Hyla vasta*, giant tree frogs, from San Domingo. These species can leap considerable distances.

Four new water circulation pumps have been installed to replace the pumps which have been in use since the Aquarium was built over 40 years ago.

Insect House The most outstanding exhibit has been a group of South American Heliconiid butterflies (*Heliconius melpomene*), in which the individuals have been on the wing for as long as four months. Other interesting butterflies bred during the year have been Milkweed (*Danais plexippus*) from America, and Gulf Fritillaries (*D. vanillae*) from Mexico. The Insect House now has eight species of stick-insect in culture.

There have been three matings of the West Indian Bird-eating Spider (*Avicularia avicularia*) and a number of successful pairings of the more common species *Tapinuchenius plumipes*.

Reptile House Following her visit to the Seychelles in April, Her Majesty The Queen sent to the Gardens two young female Giant Tortoises which had been presented to her. On arrival they weighed 5 kg and 4 kg respectively. By November the corresponding figures were 6.75 kg and 6 kg. In six months the bigger of the two had grown from 305 mm to 336 mm in length, and the smaller from 298 mm to 324 mm.

Two pairs of Rhinoceros Iguanas acquired during the year were the first of this species to be exhibited since 1938.

VETERINARY AND PATHOLOGY REPORTS

During the year 480 animals received veterinary attention, which is a reduction on the figures for previous years. No major changes in feeding policy have been made, except that the primates in the new Michael Sobell Pavilions are fed on a complete pelleted

diet which is proving satisfactory and acceptable. These animals appear to be in excellent health.

The high post-natal mortality referred to in the 1971 report has fallen dramatically. This improvement may be attributable to changes in husbandry methods, particularly with the Blackbuck (*Antilope cervicapra*).

Full reports of the work of the veterinary hospital, and the post-mortem examinations and research carried out in the Pathology Department, including the Fish Pathology Unit, are given in the Scientific Report referred to on page 22.

In May, Mr R. Manatunga, a student technician financed by the Overseas Development Corporation, completed a course of study, lasting eleven months, organized by the Pathologist. There have also been the usual number of visitors both from abroad and from the United Kingdom to discuss the work of the Department and veterinary problems of mutual interest.

The hospital has also attracted many visitors interested in veterinary medicine, including Mr Ulf Svensson, of Kolmardens Djurpark, with Mr Erik Anderson, Headmaster of schools in Kolmarden, and Mr Manne Jarneus, Chairman of the Norrköping County Board; Dr W. G. Harding, the President, and members of the Council of the Society of Medical Officers of Health; a group of students from Cambridge University Veterinary Society; Mr J. R. Bainbridge and others from South-East Midlands Veterinary Association, Wellingborough, Northants; students from King's College Hospital; and two parties of students from the Royal Veterinary College.

Four British veterinary students and Dr A. M. Visee, from Rotterdam Zoo, spent various periods in the hospital as part of their vacation training.

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

	<i>In the Collection on 1 January 1972</i>	<i>Received in 1972 by presentation, exchange, deposit, purchase and transfer from Whipsnade</i>	<i>Born and hatched in the Menagerie in 1972</i>	<i>Died, sold, exchanged, returned to depositor and transferred to Whipsnade</i>	<i>In the Collection on 31 December 1972</i>
Mammals	908	140	238	401	885
Birds	1,372	179	154	477	1,228
Reptiles and Amphibians	887	556	44	559	928
	3,167	875	436	1,437	3,041

Estimated numbers of fish and invertebrates in the Collection at 31 December 1972

Fishes	2,450	Invertebrates (excluding locusts, ants and bees)	1,120
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WHIPSNADE PARK

Visitors during the year 568,500
Visitors to the Children's Zoo 162,200
Cars brought into the Park 56,050

HRH The Princess Anne visited the Park privately on 28th July.

GENERAL DEVELOPMENT

On 1st June the new Water Mammals Exhibit, the most important single development in the Park for some years, was declared open at an informal ceremony at which the guest of honour was Professor S. Dillon Ripley, Secretary of the Smithsonian Institution, Washington.

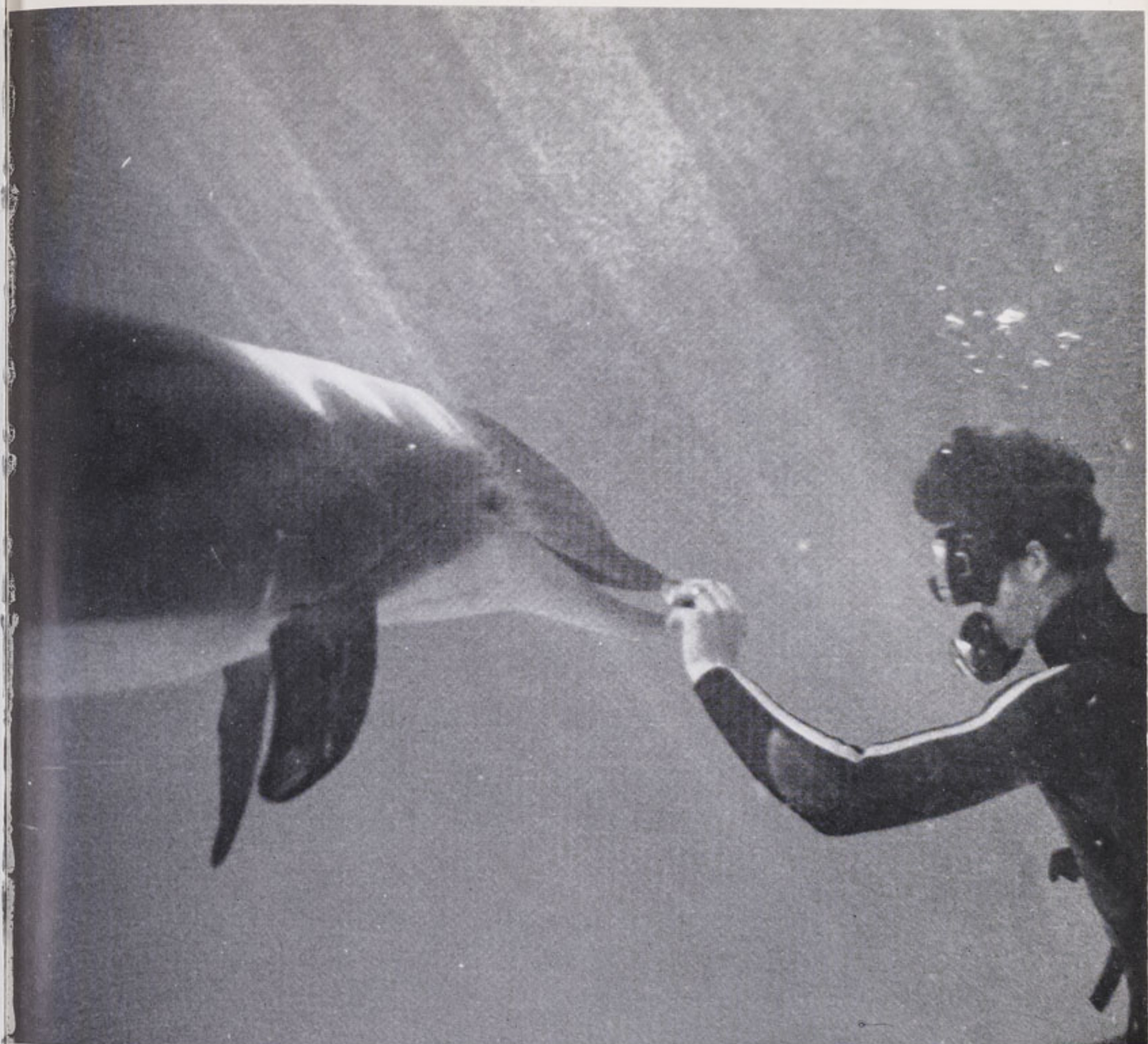
The building was completed quickly and efficiently by the contractors, John Laing Ltd, to the design of the Society's Architect, Mr J. W. Toovey. Dr M. R. Brambell, the Curator of Mammals, and Mr V. J. A. Manton, the Curator, Whipsnade Park, were responsible for preparing the specification in consultation with the appropriate advisory committees. Several other zoos and dolphinariums helped by giving information and advice. We are particularly grateful to the Director and staff of the Royal Zoological Society of Antwerp and the Harderwijk Dolphinarium in Holland. The result is an exhibit of relatively modest size, but of a high quality design and operational efficiency.

This exhibit will undoubtedly provide a popular public attraction to complement Whipsnade's main role as a centre specialising in the breeding and exhibition of herd animals in regional groupings. It will also fill a gap in the Society's Collections by exhibiting animals of the Order Cetacea, Whales and Dolphins, which have not been represented since the nineteenth century.

The first three Bottle-nosed Dolphins (*Tursiops truncatus*) were brought in from the United States at the beginning of May, but a failure in the air transport arrangements protracted their journey and this undoubtedly contributed to the death of one of the dolphins a few days after arrival. After the usual teething problems, the two remaining dolphins gradually settled down and adapted to regular training by their keepers. Another two animals, both female, were acquired in October and settled in more quickly. This must, in part, have been due to the experience gained by the staff during the preceding months. We now have a group of one male and three females.

Phase 1 of the modifications to the electrical system at Whipsnade was finished early in the year, in time to provide power to the new Water Mammals Exhibit. Although the Park is now far less vulnerable to the power cuts which it has suffered frequently in the past, the situation can never be perfect, and, as a safeguard, a mobile standby generator, primarily for the use of the Water Mammals Exhibit, has been bought.

In October, the Society made a long-term agreement with Pleasurerail Ltd, the



Bottle-nosed Dolphin,
Whipsnade Park
*The Zoological Society
of London*



Mandrill enclosure,
Michael Sobell Pavilions for
Apes and Monkeys,
London Zoo
*The Zoological Society
of London*



Mandrill,
Michael Sobell Pavilions,
London Zoo
*The Zoological Society
of London*



Blue-backed Manakin,
about four weeks old,
the first to be hatched
in captivity, London Zoo
*The Zoological Society
of London*



Ruffed Lemur (two months old),
London Zoo
*The Zoological Society
of London*



Rhinoceros Iguana in the Reptile House, London Zoo
The Zoological Society of London

company which in 1970 set up an experimental section of light railway through the new White Rhino (African Plains) Exhibit. The new agreement allows the company to extend the railway into a complete circuit, to build a new station in the 'Family Centre' area and a depôt on the site of the present station. Work on the extensions started in November and should be finished in time for the summer of 1973. The railway did reasonably well during the year with somewhat more passengers than the previous year.

Another transport development was the replacement of the Road Train. The vehicles were near the end of their useful, and safe, life and were replaced by three new trains each consisting of a tug, a modified diesel landrover and three trailers. The system was designed and built by Loughborough Consultants Ltd, in association with the Society's Architect.

A great deal of preparatory work for other projects continued. Although the plans were completed it was not possible to start the first two regional exhibits mentioned in the 1971 Report, the Asian Exhibit in Spicer's Field and the extension of the African Plains area. Another important project, a large Polar Exhibit mainly for Arctic animals, had to be abandoned when it became clear that the cost of building the extensive and highly imaginative design which had been put forward could not be met from present resources. However, work began on the renovation of the present Polar Bear enclosure. The modifications will improve the general outlook, and provide better dens and control areas which are necessary for the breeding and rearing of Polar Bears.

Maintenance and minor improvements to buildings and installations in the Park demanded much time and resources during the year. The repair of the roads, now under heavier use than ever before by the public and by vehicles engaged on development projects, the renovation of the perimeter fence and other major fences, the upkeep of the 25 staff houses, were among the items of work carried out. A new greenhouse for the Gardening Department, repairs to the water-tower and improvements to the ventilation of the Cloisters Cafeteria were also completed.

THE COLLECTION

1972 was another excellent year at Whipsnade as far as breeding was concerned, although the total of animals born or hatched was slightly less than the outstanding 1971 figure.

It is a measure of the achievement at Whipsnade that each year regularly brings some spectacular breeding success. The birth of a Grey Gibbon (*Hylobates moloch*) believed the first in Britain, followed later in the year by the first second-generation birth of a captive Cheetah anywhere in the world, were especially noteworthy, as was a record number of Père David's Deer, and also another litter of Northern Lynx cubs.

The Grey Gibbon birth took place in the reserve quarters of the Chimpanzee House, the parent animals having been moved there in 1971 when it became necessary to abandon the Gibbon Island exhibit. As it was impossible to provide new quarters on the island, the gibbons were moved in June to Regent's Park, where they have proved to be one of the most active and popular groups in the new Michael Sobell Pavilions.

A single cub was born on 24th October to the Cheetah, 'Janica', who herself was born at Whipsnade in July 1968, as one of the second litter of the breeding pair 'Jack' and 'Juanita'. 'Jack' is also the father of the new cub. This birth must be due, at least in part, to good management, using the technique now common in zoos of separating the

male and female for short periods. Matings at Whipsnade have nearly always taken place soon after the animals have been re-introduced. This process involves time, organization and patience on the part of the staff.

The policy of transferring Cheetahs between Whipsnade and other zoos to encourage breeding has continued. The French zoo at Montpellier has also been successful in breeding Cheetahs and, in November, a female bred at Whipsnade was exchanged for a male bred at Montpellier. Earlier in the year another female had been sent, as part of a general exchange, to the Paris Zoo, where it was later paired with another Montpellier male.

The litter of Northern Lynx, born in April, was an important event because it consolidated the success of the previous year, and it is hoped that this species will continue to breed well at Whipsnade. An exchange of females with another collection was made during the year in order to improve the stock.

The successful rearing of a Red Panda was a notable event. This species is not easy to breed in captivity and, although births are now frequent, many of the young do not survive.

A male Polar Bear, born at the end of 1971, was most popular with visitors during the spring and summer. There are difficulties in keeping male cubs since they are not usually tolerated by the father, once they start growing. A home for the cub was found in the Copenhagen Zoo, where it went in October.

As usual, there were many births among hoofed animals at Whipsnade. Thirteen Père David's Deer were born during the year. This is a record at Whipsnade for this valuable and rare species.

The birth of a male Moose calf during the year is also notable. It is the third generation that has been born in captivity, and was reared in the paddock with two older males. Other births of interest were two Hog Deer, four Arabian Camels, nine Llama, one Yak, four Brindled Gnu, two Swamp Deer, two Blesbok, four Wapiti, one Onager, one Przewalski's Horse, four Thomson's Gazelle, two Reindeer, four Guanaco and a Cape Buffalo. Although one European Bison was born, there were, unfortunately, four deaths in the main European Bison herd late in the year, including two breeding cows. It is hoped that this is only a temporary setback but it justifies the decision, taken two years ago, to establish a second herd of young animals.

In September the old female Indian Elephant 'Mangal Peary', which had been presented to the Society in 1932 by the late Mr Alfred Ezra, died. She was at least 45 years old and is thought to have been one of the longest lived elephants in a zoo.

VETERINARY REPORT

There has been a reduction in the number of clinical cases, and this has allowed the Veterinary Officer to devote more time to the preventive aspects of animal health. This includes constant review and improvement of the diets, regular clinical examination of some species and the collection of haematological and serological data.

The continuous examination of faecal samples is carried on with the help of the Cooper Technical Bureau. The interval between each examination is determined by the clinical susceptibility of the species to the parasites in their enclosures, and also by the time of year. Anthelmintics are used where faecal egg counts are rising, but careful control of the number of animals in each paddock, to prevent over-stocking, is equally important.

The search continues for the best sedative to combine with Etorphine (Reckitts) for the complete immobilization of the more excitable ruminants. Particular attention is now being given to Xylazine (Bayer) which has already been found to be suitable for the large Bovinae.

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

	<i>In the Collection on 1 January 1972</i>	<i>Received in 1972 by presentation, exchange, deposit, purchase and transfer from Regent's Park</i>	<i>Born and hatched in the Park in 1972</i>	<i>Died, sold, exchanged, returned to depositors and transferred to Regent's Park</i>	<i>In the Collection on 31 December 1972</i>
Mammals	976	31	308	392	923
Birds	1,195	90	116	277	1,124
Reptiles	8	4	—	—	12
	2,179	125	424	669	2,059

SCIENTIFIC ACTIVITIES

SCIENTIFIC MEETINGS

Many of the papers given at the eight meetings held during the year were published in the *Journal of Zoology*. Other contributions included: 'William Harvey and the circulation of the blood', a film prepared for the Royal College of Physicians of London and introduced by Dr L. G. Goodwin; Mr J. M. Hime showed a film on 'Dentistry and rehousing of the gorilla, "Guy" '; Professor D. L. Lee, who was awarded the Society's Scientific Medal for 1971, spoke on 'Development of a parasitic protozoon in a parasitic nematode'; 'The Orang-utan as a forest ape' was discussed by Mr J. R. Mackinnon; Professor J. G. Phillips, Scientific Medallist for 1970, spoke about 'Salt glands and hormones'; and Professor J. E. Webb and Mr T. A. Scott showed their film on 'Amphioxus'. The final meeting of the year, devoted to the Giant Panda 'Chi-Chi', was introduced by Professor A. J. E. Cave and contained the following items: ' "Chi-Chi" in life' by Dr M. R. Brambell, illustrated by a film produced by Mr M. Lyster, 'Clinical history' by Mr J. M. Hime, 'Pathology' by Dr I. F. Keymer, and 'Radiology of the cranial arteries' by Dr G. H. du Boulay.

SYMPOSIA

Two Symposia were held:

5th/12th April. 'Myriapoda - The Second International Congress of Myriapodology',

held in association with the Centre International de Myriapodologie, Paris, took place at Manchester and was organized by Mr J. G. Blower.

9th/10th November. 'Grafton Elliot Smith and the concepts of human evolution', held in association with The Anatomical Society of Great Britain and Ireland, to commemorate the centenary of the birth of Sir Grafton Elliot Smith.

PUBLICATIONS

Journal of Zoology

Transactions of The Zoological Society of London

Symposia of The Zoological Society of London

Zoological Record

Nomenclator Zoologicus

Editor: H. Gwynne Vevers

Assistant Editor: Marcia A. Edwards

Editorial Assistant: L. G. Ellis

Administrative Assistant: Unity M. M. McDonnell

Journal of Zoology Volumes 166, 167 and 168 were published and contain 102 papers. The Council is most grateful to those who, by giving their time to referee the contributions submitted, maintain the high standard of this journal.

Transactions Volume 32 part 3 'The genera of sea snakes of the *Hydrophis* group (Serpentes: Elapidae)' by S. B. McDowell, was published in October. Volume 32 part 4 'The structure of the pygidial defence glands of Carabidae (Coleoptera)' by D. J. Forsyth, was published in November.

Symposia Three volumes were published in the Society's Symposia series: No. 29 'Conservation and productivity of natural waters' edited by Professor R. W. Edwards and Mr D. J. Garrod; No. 30 'Diseases of fish' edited by Dr L. E. Mawdesley-Thomas; and No. 31 'Comparative physiology of desert animals' edited by Dr G. M. O. Maloiy.

Zoological Record

Managing Recorder: M. N. Dadd

Systems Analyst: Mary Owens

Senior Recorders: D. Cole, J. Fitzgibbon, Mrs J. Howcroft

Volume 105 (literature for 1968): Nineteen Sections have been published and the 'List of New Generic and Subgeneric Names' is almost complete.

Volume 106 (literature for 1969): It was decided to publish the three parts of the Vermes Section as three separate sections, thus increasing the number of Sections in the volume from 20 to 22; of these, 17 have been published, 4 sections are in press and one section is being prepared.

Volume 107 (literature for 1970): The indexing for the vertebrate sections has been completed, and is well under way for the invertebrate sections.

The new system of working, mentioned in the last report, has proved satisfactory and, as a result, the *Record* is gradually being brought up to date. Meanwhile, investigations

of the best method of production continue and, as a result of these studies, it should be possible to decide soon whether we should move to a computer-assisted system.

The Council is most grateful to the Director and to the Chief Librarian of the British Museum (Natural History), and to the Director of the National Lending Library, for providing accommodation and help for many of the Recorders. We are also grateful to those who help with the compilation of the *Record* and to the individuals and institutions whose donations to the Zoological Record Fund are listed in Appendix 6.

International Zoo Yearbook

Editor: Mrs Nicole Duplaix-Hall

Advisory Editor: H. Gwynne Vevers

Volume 13 (1973) of the *International Zoo Yearbook* is divided into three sections. The first section on Waterfowl in Captivity was edited by Dr Janet Kear of the Wildfowl Trust, Slimbridge, who is a leading authority on the behaviour of waterfowl. The 25 papers in this section cover a wide range of topics including conservation, breeding, husbandry, veterinary aspects and behaviour in captivity. They include articles on the study of waterfowl by Professor Konrad Lorenz; waterfowl and the public by Sir Peter Scott; the reintroduction of captive bred stock to the wild by Dr G. V. T. Matthews; practical hints on the keeping of waterfowl by Jean Delacour, and the breeding biology of Cape Barren geese by Dr Z. Veselovsky.

Section 2, covering new developments in the zoo world, contains 64 papers and reports on various aspects of zoo management, such as Architecture and Display Techniques, Breeding, Conservation, Education, Research and Veterinary work. The final reference section comprises a list of zoos and aquaria not listed previously in the *Yearbook*; numbers and species of vertebrates bred by zoos and aquaria in 1971; a census of rare animals in captivity; a list of studbooks for rare or endangered species in captivity; a special survey which includes the seasons and hours of birth of mammals in captivity; and a census of second or multiple generation births of animals in captivity.

LIBRARY

The library service provided for the members of the Society, for the staff and for research institutes has been much in demand. The classification and recataloguing of the books in the library, which is supported by a grant from the Wellcome Trust, is continuing and more than 60 per cent of this work has now been completed.

The use of the Meetings Rooms by scientific societies and organizations is increasing, 120 meetings having been held during the year.

RESEARCH

A comprehensive report of the research carried out by the Society during the period 1969-71 was published in May in Part IV, Volume 166 of the *Journal of Zoology*. This included the research undertaken at the Veterinary Hospital, Pathology Department, Whipsnade Park, Curators' departments, the Wellcome Institute of Comparative Physiology and the Nuffield Institute of Comparative Medicine. The papers by members of the Society's staff and research workers which were published in 1972 are listed in Appendix 3. Only a brief review of the main aspects of research is, therefore, given below.

In collaboration with Dr G. Y. Kennedy (Cancer Research Laboratory, Sheffield), Dr H. G. Vevers, Assistant Director of Science, has continued work on eggshell pigments. They have now extracted and identified pigments from the eggshells of over 40 bird species, which have been obtained mostly from the Society's Collections. The main pigments present are protoporphyrin and biliverdin.

Some preliminary work has been carried out on the pigments of parrot feathers.

Mr P. J. S. Olney, Curator of Birds, is continuing his investigations into the feeding habits of *Capella gallinago* and other Charadriiformes. He is also acting as an Honorary Editor of *The Birds of the Western Palearctic*, being responsible for the sections on food and feeding habits.

Professor A. J. E. Cave has continued to study the anatomy of the rhinoceros and of cetaceans.

THE NUFFIELD INSTITUTE OF COMPARATIVE MEDICINE

Staff

Director: L. G. Goodwin. *Biochemistry*: M. A. Crawford. *Infectious Diseases*: G. R. Smith. *Pathology*: R. N. T-W-Fiennes. *Haematology*: Christine M. Hawkey. *Research Assistant Infectious Diseases*: D. E. Bidwell. *Laboratory Superintendent*: P. R. E. Wallace. *Administrative Assistant*: Patricia E. Wright.

Visiting Graduates: P. K. C. Austwick; G. H. du Boulay; D. A. Dyson; A. W. M. Hay; A. T. Nurden; J. P. W. Rivers; A. J. Sinclair; A. Voller. *Research Student*: A. Hassam. *Wellcome Trust Research Laboratories, Nairobi*: *Director*: J. D. Gatenby Davies. *Research Graduates*: Sister Fredericka Jacob; R. C. Siddons; Patricia F. Uphill. *Services Officer*: R. A. Whittingham.

Dr Hawkey was appointed to the permanent staff in October as Head of the Haematology Section (Pathology Department). Mr Hay joined the staff with support from the Wellcome Trust and Mr Rivers with support from Unilever Research, Vlaardingen/Duiven.

Mr Hassam, a game biologist from Makerere University College, Kampala, who is in this country to study for a higher degree, will be assisting in the Biochemistry Department on a part-time basis for the next two years.

Various grants came to an end during the year. Mr B. E. Brooker, whose work had been supported by the Overseas Development Administration, has taken a permanent appointment at the National Institute for Research in Dairying; Dr A. S. Young is continuing to work in East Africa; Dr B. R. Manawadu is working temporarily at the Hammersmith Hospital before returning to Ceylon, and Dr P. A. J. Ball has not renewed his grant owing to pressure of other work at the Middlesex Hospital.

Visiting scientists who worked for short periods in the Institute included: Dr J. M. B. Smith (Otago), Dr G. T. Strickland and Dr S. Bodner (U.S.A.), Dr M. Anwar (Iran), Dr T. Ponnudurai (Ceylon), and Dr J. Erich (West Germany).

Dr Goodwin was elected to the Fellowship of the Royal College of Physicians.

Research Projects Mr Hay, who joined the staff in September is, in collaboration with the Dunn Nutritional Laboratory, Cambridge, extending work on the metabolism of vitamin D in monkeys which had previously been carried out in the Pathology Department. Earlier work has also provided interesting information about the essential fatty acids in *Cebus* monkeys; this work is being followed up by Mr Fiennes in association with the Biochemistry Department. Dr Hawkey has continued to investigate problems of coagulation and fibrinolysis in mammals, and the effects of adrenergic blocking drugs on the development of diffuse intravascular coagulation. Mr Nurden has continued his studies on platelet glycoproteins. Mr Austwick is studying the pathogenesis of aspergillosis, and is collaborating with Dr Keymer, the Pathologist, on the problems associated with fungous disease in animals.

In the Infectious Diseases Department, Dr Smith and Mr Dyson have continued their investigations on contagious bovine pleuropneumonia both at the Institute and at Vom in Nigeria. Mr Dyson returned from Vom in December and has started work on a large number of bovine serum samples which he collected over a period of 15 months. Dr Smith has also continued his studies on immunity to *Aspergillus fumigatus*. Dr Bidwell has continued his work on the susceptibility of mosquitoes and their tissues to arboviruses. Dr Voller has been developing techniques whereby immuno-fluorescence methods may be adapted for use by the World Health Organization in large-scale malaria surveys, and has also continued studies on the immunology of malaria. Dr Ball concluded his work on helminth immunity and is preparing his findings for publication. Dr Goodwin has applied new techniques for the collection of tissue fluid to studies of the pathology of trypanosomiasis.

In the Biochemistry Department, special attention has been given to nutrition and the development of the brain. Dr Crawford and Dr Sinclair are continuing their studies on brain polyunsaturated fatty acids and, in association with the University of Dar es Salaam, are studying human and animal milk lipids. Mr Rivers, who joined the staff in April, has set up a related project in carnivores.

In the Radiology Department, Dr du Boulay received further support to extend his work with Mr L. Symon and Mr B. Kendall of the National Hospital, Queen Square, London. Work has also been carried out on the rete caroticum in connection with the regulation of cerebral blood flow. The collection of radiographs of normal and diseased animals for the Wellcome Animal X-ray Museum continues to expand, and is in constant use both by staff and visitors.

In the affiliated Wellcome Trust Research Laboratories, Nairobi, the effects on baboons of diets deficient in vitamin B₁₂ and folic acid are still being studied. Dr Siddons has studied the sites of intestinal absorption using isotopically labelled B₁₂ and Mrs Uphill has examined the gut microbes that produce the vitamin. Dr Gatenby Davies has investigated the association between folate and ascorbic acid in the production of anaemia. Dr Z. Verjee left the Unit during the year on his appointment to the Biochemistry Department of the University of Nairobi. The Wellcome Trustees have decided to bring this research programme to an end when the contract with the Society expires in 1973.

WELLCOME INSTITUTE OF COMPARATIVE PHYSIOLOGY

Staff

Senior Research Fellow: I. W. Rowlands. *Research Fellows*: Barbara J. Weir; R. C. Jones; A. R. Thawley. *Visiting Research Fellow*: D. R. Patil. *Research Students*: Christine M. Roberts; A. P. Gulamhusein; Margot E. Marston; P. B. Bull. *Senior Technician*: G. F. Nevill.

Dr Rowlands accepted an invitation by the British Council to officiate in various capacities at Universities in the Sudan, Ethiopia, Kenya, Zambia and South Africa.

The Fellowship of Dr Weir was extended to September 1973. Dr Jones accepted an appointment in Australia and resigned at 8th December. Dr Patil of Nagpur University, joined the staff in August for one year on a World Health Organization Research Training Grant. Miss Roberts and Mr Gulamhusein completed their studies for the Ph.D. degree (London); Miss Roberts took up an appointment at the MRC Clinical Research Centre and Mr Gulamhusein went to the University of Leicester. On 1st October, Miss Marston (Sheffield) started work as a Ford Research Student and Mr Bull (Bristol) as an SRC Student.

Research Projects Much of the research work of the Institute has again centred around the hystricomorph rodents. The Plains Viscacha (*Lagostomus maximus*), Chinchilla (*Chinchilla laniger*), Cuis (*Galea musteloides*), Degu (*Octodon degus*) and Casiragua (*Proechimys guairae*) have all bred well. A study of the breeding biology of the last species is being undertaken by Miss Marston, and Mr Bull is investigating male hystricomorphs.

A Mountain Viscacha (*Lagidium peruanum*), born after a 140-day gestation, is the first known conception and birth of this species in captivity. Plains Viscacha have been used for embryological studies (Miss Roberts), and Drs Weir and Rowlands have continued their studies of the reproductive physiology, particularly the control of ovarian function in this species. Dr Weir has investigated the cause of the death of all embryos other than those that are implanted nearest the cervix in each uterine horn.

Dr Weir has also shown that the evocation of oestrus in the Cuis by the male appears to be induced partly by the behavioural pattern of 'chin-rump following', and partly by ingestion of the secretion deposited on the rump of the female from the large sebaceous gland under the chin of the male. Dr Jones and Mr Holt could not find any ultra-structural characteristics to clarify the metabolism of the chin gland. Dr Patil is

investigating the pituitary gland of Cuis during oestrus and those of some Indian bats.

The Tuco-tuco (*Ctenomys talarum*) colony was reduced as a result of infertility caused by the occurrence of diabetes. The chemistry of the insulin of this and other hystricomorph species, is being studied by Dr Weir and Mr R. Neville of the Wellcome Foundation.

Mr Thawley has prepared new derivatives of sex steroids which can be detected at extremely low concentrations, and has standardized the characterization of electron-capturing derivatives of steroids. He and Mr Gulamhusein have used these techniques to investigate the progesterone level in the blood of the Stoat (*Mustela erminea*) during the reproductive cycle. Further work on the secretion of progesterone, particularly in the Cuis and Casiragua, has been done jointly by Dr Weir and Dr Illingworth at Babraham, Cambridge, and material from these animals was used to provide embryological stages for Miss Roberts. Mr Gulamhusein has continued to investigate, by histochemical and ultrastructural techniques, the activity of the ovaries and embryos of the Stoat and of the Ferret (*Mustela putorius*) during the period of delay of implantation.

Dr Jones has continued his studies of the maturation of spermatozoa in the male and female reproductive tracts, and of the susceptibility of these cells to damage by diluents. One of his aims is to discover the optimal conditions for preservation of semen by freezing, and here his studies have been extended to the African Elephant (*Loxodonta africana*). The extension of the project to establish a semen bank for the artificial insemination of captive female elephants in zoos arose from a suggestion made by Mr Ronald Reuther, San Francisco, and Professor H. Hediger, Zurich. Material and facilities for this project were provided by the Kruger National Park (Dr U. de V. Pienaar) through the good offices of Professor J. D. Skinner, Pretoria. A quantity of diluted semen was preserved by Dr Jones in the National Park and is now stored at the Institute.

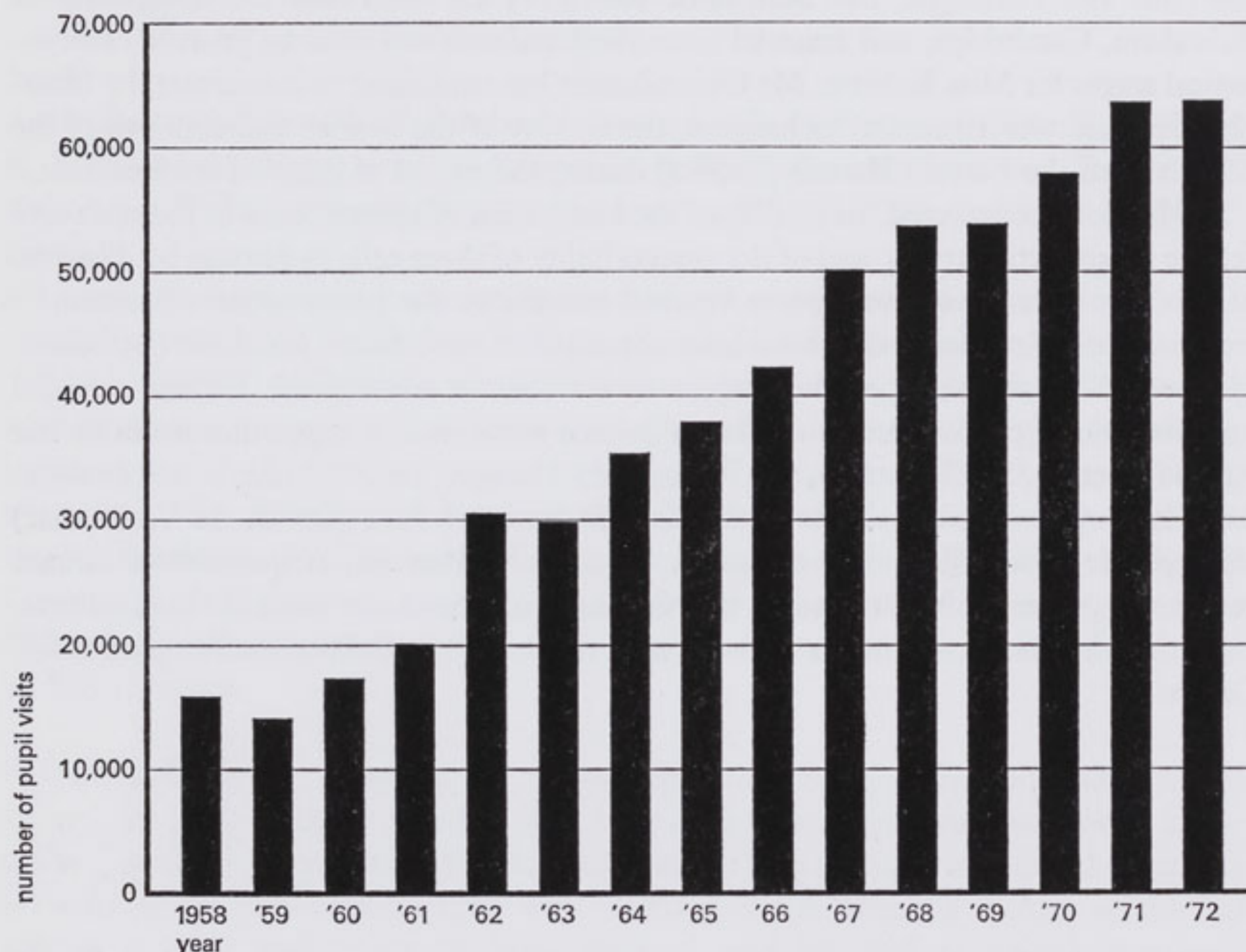
During the year 41 specimens were added to the Reference Collection of Reproductive Organs.

EDUCATIONAL ACTIVITIES

EDUCATIONAL PROGRAMME FOR SCHOOLS

(London and Whipsnade Park)

Since the inauguration of the education programme in 1958 the number of pupils taking part has tended to increase almost every year, as the following graph shows:



The facilities necessary to operate this extensive programme have been improved, but are still inadequate. In 1959 the Small Cat House was converted into the present Education Centre, and later the Mappin Cafe was brought into regular use as an additional lecture room. The plans for a new Education Centre in the north-west corner of the Zoo are now complete, and building will start during the coming year. The facilities will include three lecture theatres, a seminar room, and a laboratory/classroom specially designed to meet the needs of handicapped children. Originally there were two teachers in the Department; now there are four. The service offered has also been adapted and improved so as to meet as nearly as possible the requirements of schools.

The numbers attending during the year were not very much higher than in the previous year, but this was primarily because our existing facilities are being used to full capacity, and sometimes beyond capacity. No further major increase can be hoped for

until the new Education Centre is complete. Attendances for 1972 as compared with the previous year were

		1971	1972
Regent's Park	Spring Term (Secondary Schools)	20,401	20,149
	Summer Term (Primary Schools)	20,035	19,847
	Autumn Term (Secondary Schools)	18,896	19,266
Whipsnade Park	Summer Term (Secondary Schools)	4,150	4,354
		63,482	63,616

OTHER COURSES

Lectures and demonstrations were held for various groups of students from universities, colleges of education, and technical colleges. A number of groups of students from colleges of education also came in order to observe the methods used in teaching. During the Easter vacation a two-day course for university students was held, and the Council is grateful to Professor A. d'A. Bellairs, Dr P. H. Greenwood, Professor J. R. Napier, and Dr B. J. Weir who lectured at this course.

CHRISTMAS LECTURES

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

Dr Oliphant Jackson gave an illustrated talk on 'Pets and Vets', and Dr Eric Duffey gave an illustrated talk on 'Spiders'. The film 'The Vanishing Prairie' was also shown, and all three meetings had enthusiastic audiences.

YOUNG ZOOLOGISTS' CLUB

Club activities throughout the year have been well supported by members. As is customary, most of the meetings were held during the school holidays, and included films, and a chance to meet some of the animals in the Zoo as well as tours of the collections at Regent's Park and Whipsnade. Visits to Bristol Zoo and the Norfolk Wildlife Park, Great Witchingham were also organized.

Three issues of the Zoo Magazine were published during the year. These went some way towards meeting the members' need for information about animals in general, and our zoos in particular. Written answers to questions were also provided for many individual members, sometimes by means of information leaflets, but more frequently by detailed replies to queries.

GENERAL MATTERS

The Society and its staff are glad to receive the many official visitors from all over the world who come to the London Zoo and Whipsnade Park each year. The visit of the delegation from the Academia Sinica in October has already been noted. Particularly welcome are the parties and individuals whose purpose is to seek information and advice about the planning of new zoological gardens, often for collections of national importance in the country concerned. During 1972, help of this kind was given to parties from Bulgaria for a new zoo in Sofia, from the North-Western State of Nigeria, from Zaire where a new national zoo is planned near Kinshasa, and from the Mulhouse Zoo in France.

PUBLICITY

Television was again used as the main advertising medium and was concentrated on Thames Television, but was also backed up by extra advertising on Midlands and Anglia TV.

The Collection continues to attract considerable press interest. All important events at Regent's Park and Whipsnade were covered, both by photographs and editorial items, in the national and provincial press.

Special arrangements were made for the press to photograph the Bactrian Camel and the Black Rhino, both born at Regent's Park; and the two Arabian Camels, born at Whipsnade in March, and the Polar Bear which was the eighth cub to be reared there. The opening of the Michael Sobell Pavilions was also reported extensively by the national and provincial press, as well as in radio and television programmes.

The activities of the TV and Film Unit followed a fairly typical pattern during the year, with assistance being given to the numerous television and film producers who constantly avail themselves of the unique facilities we can provide.

Work continued on the production of the considerable number of black and white photographs and colour transparencies needed for the successful new London Zoo and Whipsnade guides. Many hundreds of photographs and transparencies were supplied to publishers and others.

STAFF

At the end of the year the Society's permanent staff totalled 577; a list of senior members is given in Appendix 2.

The training courses for Keeper staff continue to make good progress and once again we must express our thanks to Mr S. F. Everiss and his colleagues of the Biological Sciences Department, Paddington Technical College for their co-operation and assistance.

In February and March, two keepers spent some weeks at Antwerp Zoo gaining experience in the handling and training of Dolphins, in order to equip them for their

work in the new Water Mammals Exhibit at Whipsnade. They also visited the Duisburg Zoo in Germany and Harderwijk Dolphinarium in Holland. For the same purpose these keepers, together with other Whipsnade staff, were trained, with the help of the British Sub-Aqua Club, in the use of underwater breathing apparatus.

During the year three keepers from the Singapore Zoological Gardens and a Senior Keeper from Brookfield Zoo, Chicago, spent varying periods with the Society gaining experience of animal management in London Zoo and Whipsnade Park.

Miss A. Bartlett, Laboratory Technician, Nuffield Institute of Comparative Medicine, spent three weeks at the Medical School of Hanover University, Germany, learning new micro-analytical techniques.

The Catering Department was well represented in the Salon Culinaire at the International Hotel & Catering Exhibition held at Olympia in January. With four entries we were successful in gaining two awards; Mr Brauer (Chef de Cuisine) won the Nestle Challenge Trophy and Gold Medal for his entry, and Paul Cox (Restaurant Kitchen Apprentice trainee) was awarded a Silver Medal for cooking (against the clock) a meal for four persons in the presence of a jury and audience.

Medals

The Society's Bronze Medal was awarded to Mr A. E. Scrivener, Headkeeper, Aquatic Birds and Birds of Prey, and to Mr L. G. Ellis, Editorial Assistant, Publications Department, for long and meritorious service.

Retirements and Resignations

Retirements on pension during the year included Mr H. G. Robinson, Headkeeper Ungulate Section, Regent's Park, after almost 43 years of service; Mr A. T. Smith and Mr J. M. Randall, Building Craftsmen, after 37 and 27 years' service respectively; Mrs E. Clouston, Supervisor, Cloisters Cafeteria, Whipsnade, after 25 years' service; and Mr V. Salmon, Senior Boiler House Assistant, Regent's Park, after 16 years' service. An example to all who might fear the boredom of retirement was Mr J. Murray, Clerk, Works Department, who was accepted as a mature student in the Social and Economic History Department of Nottingham University, following his retirement at the age of 65, after 11 years' service with the Society!

Amongst those who resigned were Mr J. Boswood, Catering Manager, Whipsnade, Mr J. Owston, Assistant Librarian, and Mr C. H. Johns, Supplies Officer.

Appointments and Promotions

REGENT'S PARK

- Miss F. Hamilton, *Assistant Librarian*
- Mrs J. Howcroft, *Senior Recorder, Zoological Record*
- Mr T. B. Kichenside, *Headkeeper, Ungulate Section*
- Mr H. J. Mason, *Purchasing and Transport Manager*
- Miss M. Owens, *Systems Analyst, Zoological Record*
- Mr R. Poland, *Heating and Electrical Engineer*
- Mr S. B. Savage, *Headkeeper, Reptile House*
- Mr M. Welshman, *Veterinary Clinician*

WHIPSNADDE PARK

Mr R. N. Cinderey, *Veterinary Technician*

Mr C. Robertson, *Foreman Plant Engineer*

Obituary

It is with deep regret that we record the death of Mr J. G. Hansford, Heating and Electrical Engineer, Regent's Park, a very valued and skilled member of the staff, who was in his 38th year of service; and of Messrs V. Beattie and T. Bentley, Toilet Attendants, Regent's Park; Mr M. Tuohy, Catering Department, and Mr W. H. West, Gatekeeper, Regent's Park.

ACKNOWLEDGMENTS

The Council records its gratitude for the invaluable assistance given by the members of the various committees, whose expert advice is of the greatest help in carrying through the work of the Society.

We are indebted to the many Fellows and others who have sent specimens for the Collection and who help us in so many ways. We are always grateful to Senhora Hermione Blandy de Freitas Martins and Senhor João de Freitas Martins of Madeira who have given us many fine marine invertebrates, fishes and reptiles, and to Mr Lunn for his help in obtaining grayling.

The Council also gratefully acknowledges the assistance of the many scientists, veterinarians, departments, organizations and firms for their ready co-operation. We should like to thank Dr G. Corbet, Miss A. Grandison and Mr J. E. Hill of the British Museum (Natural History) for their help in the identification of animals; Mr N. Whitaker of the RSPCA, London Airport, for his interest and care of our animals when in transit and for a number of fine specimens which he has presented; the St John Ambulance Brigade for their constant help at the First Aid Centre, London Zoo; Messrs G. & M. Viner, Cee Vee Engineering Company for their generous co-operation in manufacturing and presenting snake-handling tools, and Messrs Piggott Bros. & Co. in producing muzzles and restraining stretchers for the capture of crocodiles.

We wish also to express our thanks for the help given to:

The Architect's Department by Davis Belfield and Everest, Quantity Surveyors; Anthony Hunt Associates, Structural Engineers; David Kut and Partners, Mechanical Engineers; R. T. James and Partners, Structural Engineers; Polyplan Ltd, Plastics Consultants. At Whipnade Park, by E. W. H. Gifford and Partners, Structural and Mechanical Engineers; Mr Brian Richards; Loughborough Consultants Ltd; Adams and Adams, Structural Engineers.

The Veterinary Officer by Beecham Laboratories, Cooper Nutrition Products, Dr R. B. Heath, Miss A. Hill, MRC Laboratory Animals Centre, Kodak Ltd, Miss G. Lewis, Messrs Parke-Davis Ltd, Dr H. Platt, Roche Products Ltd, and Mr J. E. N. Sloan.

The Pathologist by Dr W. H. Allan, Dr E. S. Anderson, Dr E. C. Appleby, Mr A. R. Austin, Dr Peter Cavanagh, Dr H. P. Chu, Dr T. Clay, Dr M. E. Coates, Mr G. B. Collins, Professor E. Cotchin, Professor H. J. A. Dartnall, Mr D. E. Deakins, Dr E. Elkan, Dr Adrian Friday, Professor P. C. C. Garnham, Dr E. J. G. Glencross, Dr L. F. Khalil, Dr S. P. Lapage, Dr B. R. Laurence, Miss G. Lewis, Dr J. Marks, Dr L. E. Mawdesley-Thomas, Dr M. J. Mitchinson, Colonel G. Morrissey, Dr I. Poudayl, Dr S. Prudhoe, Dr B. Rowe, Dr V. Sarich, Professor G. B. D. Scott, Mr E. W. Trow, Dr L. H. Turner, and Dr Sheila Wilmott.

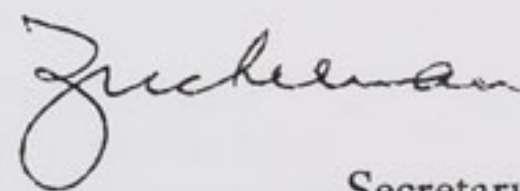
The Nuffield Institute of Comparative Medicine by Dr F. L. Mitchell, Dr K. M. Dormandy, Miss A. Blofield, Dr W. Lane-Petter, Herr H. Altrogge, Mr G. H. Townsend, Mr G. A. Pepin, Mr A. D. Bird, Mr Musa Goni, Dr M. Weise, Mr K. Smith, Dr K. Gold, Professor J. Boldingh, Mr M. Hill and Mr P. Hurden of the British High Commission, Kaduna.

The Wellcome Institute of Comparative Physiology by the Ford Foundation, Meat & Livestock Commission, Medical Research Council, Science Research Council, Overseas Development Administration and the World Health Organization who have given financial assistance; and the help and advice given by Mr J. Trethewey, Dr U. de V. Pienaar, Professor J. D. Skinner, Dr P. A. Racey, Professor F. Beck and Professor D. Lacy.

Supplies, Shipping and Transport Sections by the Department of Trade and Industry and HM Customs and Excise, Carworth Europe, the many people who have offered Evergreen Oak for feeding animals, Mr Barry Hilton and the Polkerris Boy Scout Troop for bamboo, Aer Lingus Airlines, Air Canada, Air France, Air India, Frederick Attwood & Son, British Caledonian Airways, British European Airways, British Overseas Airways Corporation, British Rail, Cambrian Airways, R. L. Dobbs Transport, East African Airways, KLM Royal Dutch Airlines, Lufthansa German Airlines, Nigeria Airways, J. F. Obree & Son Ltd, Overseas Containers Ltd, Pan American World Airlines, Rennie Hogg Ltd, Sabena (Belgian) Airlines, South African Airways, Swiss Airlines and Union-Castle Mail Steamship Company.

Whipsnade Park by Bayer Agrochem Limited, Dr J. Brown, Dr P. Cavanagh, the Central Veterinary Laboratories, Export and General Haulage Co. Ltd, Janssen Pharmaceutica, Pandair Freight Ltd, Reckitt and Colman, Royal Veterinary College, Mr J. E. N. Sloan, and Mr A. P. L. Wallis.

Finally, the Council wishes to thank the press representatives and photographers for their co-operation and interest in the Collection.



Secretary

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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.

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G. E. Hughes
Insects: R. P. Humphrys, AIAT
Lion House: G. A. S. Figgitt
Monkeys: G. Callard
Parrot House and Eastern Aviary: R. J. Watkins
Pheasantry and Ostrich House: R. Barrow
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Small Mammals: D. Clarke
Ungulates: T. B. Kichenside

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PUBLICATIONS BY SOCIETY'S STAFF AND RESEARCH WORKERS

(including those published in collaboration)

- ASHBY, G. J. (1972). The Housefly: 549-553; Blowflies: 554-555; Locusts: 582-587; The House Cricket: 588-589; Earthworms: 610-616. In *The UFAW handbook on the care and management of laboratory animals*. UFAW (Ed.) 4th Ed. Edinburgh and London: Churchill Livingstone.
- AUSTWICK, P. K. C. (1972). The pathogenicity of fungi. In *Microbial pathogenicity in man and animals*: 251-268. Smith, H. and Pearce, J. H. (Eds.). *Symp. Soc. gen. Microbiol.* No. 22: 251-268.
- BALL, D. J. & BELLAIRS, A. d'A. (1972). Reptiles. In *The UFAW handbook on the care and management of laboratory animals*: 490-510. UFAW (Ed.) 4th Ed. Edinburgh and London: Churchill Livingstone.
- BARKER, M. J. M. & HERBERT, R. T. (1972). Diseases of the skeleton. In *Pathology of simian primates*. Part 1: 433-519. Fiennes, R. N. T-W- (Ed.). Basel: S. Karger.
- BARTLETT, A. & BALL, P. A. J. (1972). *Nematospiroides dubius* in the mouse as a possible model of endemic human hook-worm infection. *Ann. trop. Med. Parasit.* 66: 129-134.
- BELLAMY, D. & WEIR, B. J. (1972). Urine composition of some hystricomorph rodents confined to metabolism cages. *Comp. Biochem. Physiol.* 42A: 759-771.
- BRAMBELL, M. R. (1972). Mammals: their nutrition and habitat. In *Biology of nutrition*. Fiennes, R. N. T-W-. *Int. Encycl. Food Nutrition* 18: 613-648. Oxford and New York: Pergamon Press.
- BROOKER, B. E. (1971). Flagellar attachment and detachment of *Crithidia fasciculata* to the gut wall of *Anopheles gambiae*. *Protoplasma* 73: 191-202.
- BROOKER, B. E. (1972). The sense organs of trematode miracidia. *Zool. J. Linn. Soc. Suppl.* No. 1 51: 171-180.
- BROOKER, B. E., GOODWIN, L. G. & GUY, M. W. (1971). Ciliated fibroblasts in rabbit ear chambers. *J. Anat.* 110: 363-365.
- BROOKER, B. E. & OGDEN, C. G. (1972). Encystment of *Bodo caudatus*. *Protoplasma* 74: 397-409.
- DU BOULAY, G. (1972). Specialization broadens the view. The significance of a C.S.F. pulse. (2nd Glyn Evans Memorial Lecture). *Clin. Radiol.* 23: 401-409.
- DU BOULAY, G. H., HIME, J. M. & VERITY, P. M. (1972). Spondylosis in captive wild animals. A possible relationship with nutritional osteodystrophy. *Br. J. Radiol.* 45: 841-847.
- DU BOULAY, G., SYMON, L., SHAH, S., DORSCH, N. & ACKERMAN, R. (1972). Cerebral arterial reactivity and spasm after subarachnoid haemorrhage. *Proc. R. Soc. Med.* 65: 80-82.
- CARTER, N. D., HILL, M. R. & WEIR, B. J. (1972). Genetic variation of phosphoglucose isomerase in some hystricomorph rodents. *Biochem. Genetics* 6: 147-156.
- CRAWFORD, M. A. (1971). Balancing the inner man. *Wld Med.* 7: 17-20.
- CRAWFORD, M. A. (1972). Current nutritional research: implication of the new proteins. *Nutrition, Lond.* 26: 76-82.
- CRAWFORD, M. A. (1972). Chemical evolution. In *Biology of nutrition*. Fiennes, R. N. T-W- (Ed.). *Int. Encycl. Food Nutrition* 18: 27-44. Oxford and New York: Pergamon Press.
- CRAWFORD, M. A. (1972). Chemical evolution in relation to advanced life forms. In *Biology of nutrition*. Fiennes, R. N. T-W- (Ed.). *Int. Encycl. Food Nutrition* 18: 251-256. Oxford and New York: Pergamon Press.
- CRAWFORD, M. A. & SINCLAIR, A. J. (1972). Nutritional influences in the evolution of mammalian brain. In *Lipids, malnutrition and the developing brain*: 267-292. Elliot, K. and Knight, J. (Eds). A Ciba Foundation Symposium (19-21 October, 1971). Amsterdam: Elsevier.
- CRAWFORD, M. A. & SINCLAIR, A. J. (1972). The limitations of whole tissue analysis to define linolenic acid deficiency. *J. Nutr.* 102: 1315-1321.
- CRAWFORD, M. A. & WOODFORD, M. H. (1971). Fatty acid composition in liver, aorta, skeletal and heart muscle of two free-living ruminants. *Int. J. Biochem.* 2: 493-496.
- DUPLAIX-HALL, N. (1971). La Bretagne, un des derniers refuge de la loutre *Lutra lutra* en France. *Penn Ar Bed* 8 (64): 8-16.
- DUPLAIX-HALL, N. (1972). Notes on maintaining river otters in captivity. *Int. Zoo Yb.* 12: 178-181.
- DUPLAIX-HALL, N. (1972). Otters of the World. *Animals* 14 (10): 438-442.
- FIENNES, R. N. T-W- (1971). Primate studies in

- Britain, with a note on the functional anatomy of the vena cava in relation to hypotensive states. In *Medical Primatology 1970. Proc. 2nd Conf. exp. Med. Surg. Primates*, New York 1969: 970-975. Goldsmith, E. I. and Moor-Jankowski, J. (Eds). Basel: S. Karger.
- FIENNES, R. N. T-W- (1971). Rabies in primates. In *Medical Primatology 1970. Proc. 2nd Conf. exp. Med. Surg. Primates*, New York 1969: 683-685. Goldsmith, E. I. and Moor-Jankowski, J. (Eds). Basel: S. Karger.
- FIENNES, R. N. T-W- (Ed.) (1972). *Biology of nutrition. Int. Encycl. Food Nutrition* 18: 1-681. Oxford and New York: Pergamon Press.
- FIENNES, R. N. T-W- (1972). The evolution of the living earth. In *Biology of nutrition*. Fiennes, R. N. T-W- (Ed.). *Int. Encycl. Food Nutrition* 18: 3-7. Oxford and New York: Pergamon Press.
- FIENNES, R. N. T-W- (1972). The evolution and colonization of habitats. In *Biology of nutrition*. Fiennes, R. N. T-W- (Ed.). *Int. Encycl. Food Nutrition* 18: 257-265. Oxford and New York: Pergamon Press.
- FIENNES, R. N. T-W- (Ed.) (1972). *Pathology of simian primates*. Part 1. General pathology: 1-929. Basel: S. Karger.
- FIENNES, R. N. T-W- (1972). Poisons and toxins. In *Pathology of simian primates*. Part 1: 414-415. Fiennes, R. N. T-W- (Ed.). Basel: S. Karger.
- FIENNES, R. N. T-W- (1972). The skin and appendages, and special senses. In *Pathology of simian primates*. Part 1: 418-432. Fiennes, R. N. T-W- (Ed.). Basel: S. Karger.
- FIENNES, R. N. T-W- (Ed.) (1972). *Pathology of simian primates*. Part 2. Infections and parasitic diseases: 1-770. Basel: S. Karger.
- FIENNES, R. N. T-W- (1972). Ectoparasites and vectors. In *Pathology of simian primates*. Part 2: 158-176. Fiennes, R. N. T-W- (Ed.). Basel: S. Karger.
- FIENNES, R. N. T-W- (1972). The anatomy of primatology. *J. Human Evol.* 1: 333-337.
- FIENNES, R. N. T-W- (1972). Monkeys and man. *Health* 9: 28-34.
- FIENNES, R. N. T-W- (1972). Tuberculosis. In *Pathology of simian primates*. Part 2: 314-334. Fiennes, R. N. T-W- (Ed.). Basel: S. Karger.
- FIENNES, R. N. T-W- (1972). Rabies. In *Pathology of simian primates*. Part 2: 646-662. Fiennes, R. N. T-W- (Ed.). Basel: S. Karger.
- FIENNES, R. N. T-W- (Chairman, Editorial Subcommittee) (1972). UFAW. *The UFAW handbook on the care and management of laboratory animals*: 1-624. Edinburgh: Churchill Livingstone.
- FIENNES, R. N. T-W-, BOWEN, W. H., COID, C. R. & MAHONEY, C. J. (1972). Primates. In *The UFAW handbook on the care and management of laboratory animals*: 374-424. UFAW (Ed.). Edinburgh: Churchill Livingstone.
- FIENNES, R. N. T-W- & DZHIKIDZE, E. K. (1972). Respiratory pathogens and other organisms. In *Pathology of simian primates*. Part 2: 277-282. Fiennes, R. N. T-W- (Ed.). Basel: S. Karger.
- FIENNES, R. N. T-W-, LAPIN, B. A., DZHIKIDZE, E. K. & YAKOLEVA, L. A. (1972). The respiratory and alimentary systems. In *Pathology of simian primates*. Part 1: 671-710. Fiennes, R. N. T-W- (Ed.). Basel: S. Karger.
- FIENNES, R. N. T-W-, PINKERTON, M. & DZHIKIDZE, E. K. (1972). Enteropathogenic organisms. In *Pathology of simian primates*. Part 2: 263-276. Fiennes, R. N. T-W- (Ed.). Basel: S. Karger.
- GEORGE, W. & WEIR, B. J. (1972). Record chromosome number in a mammal? *Nature, Lond.* (New Biol.) 236: 205-206.
- GEORGE, W. & WEIR, B. J. (1972). The chromosomes of some octodontids with special reference to *Octodontomys* (Rodentia: Hystricomorpha). *Chromosoma (Berl.)* 37: 53-62.
- GEORGE, W., WEIR, B. J. & BEDFORD, J. (1972). Chromosome studies in some members of the family *Caviidae* (Mammalia: Rodentia). *J. Zool., Lond.* 168: 81-89.
- GOODWIN, L. G., GREEN, D. G., GUY, M. W. & VOLLER, A. (1972). Immunosuppression during Trypanosomiasis. *Br. J. exp. Path.* 53: 4043.
- GULAMHUSEIN, A. P. & THAWLEY, A. R. (1972). Ovarian cycle and plasma progesterone levels in the female stoat, *Mustela erminea*. *J. Reprod. Fert.* 31: 492-493.
- HAWKEY, C. (1972). Coagulation, fibrinolysis and platelet function. In *Pathology of simian primates*. Part 1: 318-330. Fiennes, R. N. T-W- (Ed.). Basel: S. Karger.
- HIME, J. M. (1972). Radiographic examination of animals after death. *X-Ray Focus* 11 (3): 59-63.
- HIME, J. M. (1972). The Dog. In *The UFAW handbook on the care and management of laboratory animals*: 309-327. UFAW (Ed.). 4th ed. Edinburgh and London: Churchill Livingstone.
- HIME, J. M. & JONES, D. M. (1972). Bone tuberculosis in wallabies (*Protemnodon rufogrisea fruticosa*). *J. small Anim. Pract.* 13: 91-96.
- HIME, J. M., KEYMER, I. F. & APPLEBY, E. C. (1972). Hypertrophic pulmonary osteoarthropathy in an orang utan (*Pongo pygmaeus*). *Vet. Rec.* 91: 334-337.
- IRVING, M. H. & HAWKEY, C. M. (1972). Preliminary studies on the effects of adrenergic blockade on haemorrhage-induced changes in blood coagulation and fibrinolysis. *Br. J. Surg.* 59: 313.
- JONES, R. C. (1972). Evaluation of semen quality

- using the transmission electron microscope. *Vet. Rec.* 91: 191-192.
- KENNEDY, G. Y. & VEVERS, H. G. (1972). Tetrapyrrol pigments in the test of the echinoid *Arbacia lixula*. *J. Zool., Lond.* 168: 527-533.
- KEYMER, I. F. (1972). Breckland Wilds. *World of Birds* 1 (6): 25-28.
- KEYMER, I. F. (1972). Diseases of birds of prey. *Vet. Rec.* 90: 579-594.
- KEYMER, I. F. (1972). The unsuitability of non-domesticated animals as pets. *Vet. Rec.* 91: 373-381.
- KEYMER, I. F. (1972). The Canary. In *The UFAW handbook on the care and management of laboratory animals*: 471-481. 4th Ed. UFAW (Ed.). Edinburgh and London: Churchill Livingstone.
- KEYMER, I. F. (1972). The Budgerigar. In *The UFAW handbook on the care and management of laboratory animals*: 482-489. 4th Ed. UFAW (Ed.). Edinburgh and London: Churchill Livingstone.
- KEYMER, I. F., SMITH, G. R., ROBERTS, T. A., HEANEY, S. I. & HIBBERD, D. J. (1972). Botulism as a factor in waterfowl mortality at St James's Park, London. *Vet. Rec.* 90: 111-114.
- MITCHINSON, M. J. & KEYMER, I. F. (1972). Tuberculous aortitis in birds. *J. Comp. Path.* 82: 483-486.
- ORTON, W. T., HENDERSON, W. G. & BALL, D. (1972). The infected terrapin. With an appendix on 'Varieties, importation and care of terrapins'. *Community Med.* 127: 89-92.
- REICHL, D. (1972). Lipoprotein lipase activity in the adipose tissue of rats adapted to controlled feeding schedules. *Biochem. J.* 128: 79-87.
- ROBERTS, T. A., KEYMER, I. F., BORLAND, E. D. & SMITH, G. R. (1972). Botulism in birds and mammals in Great Britain. *Vet. Rec.* 91: 11-12.
- SINCLAIR, A. J. & CRAWFORD, M. A. (1971). Low-fat diets and the survival of newborn rats. *Biochem. J.* 126: 18-19P.
- SINCLAIR, A. J. & CRAWFORD, M. A. (1972). The accumulation of arachidonate and docosahexaenoate in the developing rat brain. *J. Neurochem.* 19: 1753-1758.
- SINCLAIR, A. J. & CRAWFORD, M. A. (1972). The incorporation of linolenic and docosahexaenoic acid into liver and brain lipids of developing rats. *FEBS Lett.* 26: 127-129.
- SMITH, G. R. (1972). Experimental aspergillosis in mice: aspects of resistance. *J. Hyg. (Camb.)* 70: 741-754.
- TAM, W. H. (1972). Steroid metabolic pathways in the ovary of the chinchilla (*Chinchilla laniger*). *J. Endocr.* 52: 37-50.
- TRIPP, H. R. H. (1972). Capture, laboratory care and breeding of elephant shrews (Macroscelididae). *Lab. Anim.* 6: 213-224.
- VERJEE, Z. H. M. (1971). A note on the fluorometric determination of plasma cortisol. *Clin. Chim. Acta* 33: 268.
- VERJEE, Z. H. M. (1971). Tryptophan metabolism in baboons: Effect of Riboflavin and Pyridoxine deficiency. *Int. J. Biochem.* 2: 711-718.
- VEVERS, H. G. (1972). Freshwater fish: 535-536; Marine aquaria: 537-542. In *The UFAW handbook on the care and management of laboratory animals*. UFAW (Ed.). 4th Ed. Edinburgh and London: Churchill Livingstone.
- VOLLER, A. (1972). Plasmodium and hepatocystis. In *Pathology of simian primates*. Part 2: 57-73. Fiennes, R. N. T-W- (Ed.). Basel: S. Karger.
- VOLLER, A., GALL, D. & MANAWADU, B. R. (1972). Depression of the antibody response to tetanus toxoid in mice infected with malaria parasites. *Z. tropenmed. Parasit.* 23: 152-155.
- VOLLER, A. & O'NEILL, P. (1971). Immunofluorescence method suitable for large-scale application to malaria. *Bull. Wld Hlth Org.* 45: 524-529.
- WEIR, B. J. (1971). A trapping technique for tuco-tucos (*Ctenomys talarum*). *J. Mammal.* 52: 836-839.
- WEIR, B. J. (1972). Reproduction in casiraguas, *Proechimys guairae*. *J. Reprod. Fert.* 31: 491 (Title only).
- WEIR, B. J. (1972). The Chinchilla. In *The UFAW handbook on the care and management of laboratory animals*: 269-277. UFAW (Ed.). 4th Ed. Edinburgh and London: Churchill Livingstone.
- WEIR, B. J. (1972). Hystricomorph rodents other than the guinea-pig and chinchilla. In *The UFAW handbook on the care and management of laboratory animals*: 278-286. UFAW (Ed.). 4th Ed. Edinburgh and London: Churchill Livingstone.
- WHITTINGHAM, R. A. (1971). Training animal technicians. *J. Inst. Anim. Techn.* 22: 37-39.
- WHITTINGHAM, R. A. (1971). Trapping and shipping of baboons. *J. Inst. Anim. Techn.* 22: 66-82.
- WHITTINGHAM, R. A. (1971). Animal identification. A system using colours to represent numbers. *J. Inst. Anim. Techn.* 22: 143-148.
- WISE, P. H., WEIR, B. J., HIME, J. M. & FORREST, F. (1972). The diabetic syndrome in the tuco-tuco (*Ctenomys talarum*). *Diabetologia* 8: 165-172.
- WILSON, R. J. M. & VOLLER, A. (1972). A comparison of malarial antigens from human and *Aotus* monkey blood infected with *Plasmodium falciparum*. *Parasitology* 64: 191-195.
- YOUNG, D. A. B. & BALANT, L. (1972). Intra-peritoneal test of insulin activity on the rat diaphragm *in vivo*: factors controlling the variability of response. *Acta endocr., Copenh.* 71: 103-114.

LIST OF ANIMALS RECEIVED

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

Key

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

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

In the column 'Total number acquired', the figures in brackets indicate animals which have been transferred between the Society's two Collections.

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
REGENT'S PARK			
Mammals			
MARSUPIALIA			
<i>Protemnodon rufogrisea</i>	Red-necked Wallaby	2 (1)	1
INSECTIVORA			
<i>Elephantulus rozeti</i>	Ruddy Elephant Shrew	6	
CHIROPTERA			
<i>Pteropus giganteus</i>	Flying Fox	1	
<i>Demodus rotundus</i>	Vampire Bat	27	3 (1)
PRIMATES			
<i>Tupaia glis</i>	Common Tree Shrew	6	6 (1)
<i>Tupaia minor</i>	Günther's Tree Shrew	3	
<i>Tupaia tana</i>	Large Tree Shrew	2	
<i>Lemur catta</i>	Ring-tailed Lemur	1	
<i>Lemur variegatus</i>	Ruffed Lemur	1	1
<i>Lemur fulvus</i>	Brown Lemur	4	
<i>Galago crassicaudatus</i>	Thick-tailed Bushbaby	2	2 (1)
<i>Galago senegalensis</i>	Common Bushbaby	1	1 (1)
<i>Galago demidovii</i>	Demidoff's Bushbaby	1	1 (1)
<i>Aotus trivirgatus</i>	Douroucouli	4	1 (1)
<i>Cebus apella</i>	Brown Capuchin	2	2 (1)
<i>Saimiri sciureus</i>	Squirrel Monkey	4	
<i>Saguinus oedipus</i>	Cotton-headed Tamarin	5	5 (3)
<i>Saguinus geoffroyi</i>	Geoffroy's Tamarin	1	
<i>Saguinus illigeri</i>	Red-mantled Tamarins	2	2 (2)
<i>Macaca nemestrina</i>	Pig-tailed Macaque	4	4 (1)
<i>Cercocebus atys</i>	Sooty Mangabey	2	
<i>Cercopithecus diana</i>	Diana Monkey	2	
<i>Mandrillus sphinx</i>	Mandrill	1	1
<i>Pygathrix nemaus</i>	Douc Langur	2	
<i>Hylobates moloch</i>	Grey Gibbon	3 (3)	

		Total number acquired	Number born or hatched in the Menagerie
RODENTIA			
<i>Funisciurus pyrrhopus</i>	Fire-footed Squirrel	1	1
<i>Callosciurus prevosti</i>	Prevost's Squirrel	5	
<i>Funambulus pennanti</i>	Palm Squirrel	1	
<i>Eutamias sibiricus</i>	Siberian Chipmunk	6	4 (1)
<i>Pedetes capensis</i>	Springhaas	1	
<i>Peromyscus maniculatus</i>	Deer Mouse	2	
<i>Castor fiber</i>	European Beaver	2	
<i>Phodopus sungorus</i>	Dwarf Hamster	8	3 (2)
<i>Gerbillus harwoodi</i>	Pygmy Gerbil	8	8 (1)
<i>Meriones libycus</i>	Gerbil	1	
<i>Micromys minutus</i>	Harvest Mouse	5	
<i>Grammomys dolichurus</i>	Long-tailed Thicket Rat	9	9 (1)
<i>Arvicanthis niloticus</i>	Nile Rat	11	11
<i>Cricetomys gambianus</i>	Giant Pouched Rat	4	4
<i>Muscardinus avellanarius</i>	Common Dormouse	1	
<i>Glis glis</i>	Fat Dormouse	4	
<i>Atherurus africanus</i>	African Brush-tailed Porcupine	4	4
<i>Galea musteloides</i>	Cuis	15	8 (6)
<i>Myoprocta pratti</i>	Green Acouchy	6	6 (4)
<i>Lagostomus maximus</i>	Viscacha	2	2
<i>Chinchilla laniger</i>	Chinchilla	14	14 (1)
<i>Octodon degus</i>	Degu	6	6 (2)
<i>Proechimys guairae</i>	Casiragua	23	23 (14)
<i>Dolichotis patagonum</i>	Patagonian cavy	6	
<i>Ctenomys talarum</i>	Tuco Tuco	6	
CARNIVORA			
<i>Fennecus zerda</i>	Fennec Fox	1	1 (1)
<i>Ursus americanus</i>	American Black Bear	1	1 (1)
<i>Thalarctos maritimus</i>	Polar Bear	2	2 (1)
<i>Nasua nasua</i>	Ring-tailed Coati	5	5 (5)
<i>Mustela nivalis</i>	Weasel	2	
<i>Mustela putorius</i>	Polecat	2	
<i>Arctogalidia trivirgata</i>	Small-toothed Palm Civet	1	1
<i>Felis bengalensis</i>	Leopard Cat	3	3 (1)
<i>Felis serval</i>	Serval	2 (1)	
<i>Felis concolor</i>	Puma	2 (1)	1 (1)
PINNIPEDIA			
<i>Zalophus californianus</i>	Californian Sea Lion	2	2 (2)
PROBOSCIDEA			
<i>Loxodonta africana</i>	African Elephant	1	
PERISSODACTYLA			
<i>Equus przewalskii</i>	Przewalski's Wild Horse	1	1
<i>Equus burchelli</i>	Common Zebra	1	1
<i>Tapirus indicus</i>	Malay Tapir	1	
<i>Diceros bicornis</i>	Black Rhinoceros	1	1
ARTIODACTYLA			
<i>Sus scrofa</i>	Wild Boar	11	11
<i>Lama pacos</i>	Alpaca	1	1 (1)

		Total number acquired	Number born or hatched in the Menagerie
<i>Camelus bactrianus</i>	Bactrian Camel	1	1
<i>Muntiacus reevesi</i>	Reeves' Muntjac	1	
<i>Dama dama</i>	Fallow Deer	2	2 (1)
<i>Cervus timorensis</i>	Timor Deer	3	3 (2)
<i>Tragelaphus spekei</i>	Sitatunga	1	1
<i>Tragelaphus strepsiceros</i>	Greater Kudu	1	1
<i>Bos grunniens</i>	Yak	1	1
<i>Bison bonasus</i>	European Bison	2	1 (1)
<i>Bison bison</i>	North American Bison	1	1
<i>Connochaetes taurinus</i>	Brindled Gnu	2	2
<i>Antilope cervicapra</i>	Blackbuck	9	9 (4)
<i>Capra falconeri</i>	Markhor	1	
<i>Ammotragus lervia</i>	Barbary Sheep	24	24 (12)
<i>Ovis musimon</i>	Mouflon	6	6 (4)
<i>Ovis canadensis</i>	Bighorn Sheep	4	1 (1)
DOMESTIC			
	Cream Pony	4 (4)	
	Domestic Pig	12	
	Jersey Calf	2	
	Goat	10	10 (2)
	Sheep	11	11 (4)
Birds			
STRUTHIONIFORMES			
<i>Struthio camelus</i>	Ostrich	4	
SPHENISCIFORMES			
<i>Spheniscus humboldti</i>	Humboldt's Penguin	3	
PELECANIFORMES			
<i>Pelecanus crispus</i>	Crested Pelican	1	
CICONIIFORMES			
<i>Egretta alba</i>	Great White Egret	1	
<i>Egretta intermedia</i>	Yellow-billed Egret	4	
<i>Ciconia ciconia</i>	White Stork	4	
<i>Platalea leucorodia</i>	Common Spoonbill	6	
<i>Ajaia ajaia</i>	Roseate Spoonbill	2	
<i>Threskiornis aethiopica</i>	Sacred Ibis	2	2
s <i>Phoenicoparrus jamesi</i> (Sclater) (S. America)	James's Flamingo	3	
ANSERIFORMES			
<i>Branta sandvicensis</i>	Hawaiian Goose	2	2 (1)
<i>Tadorna tadorna</i>	Common Shelduck	4	4 (1)
<i>Mergus cucullatus</i>	Hooded Merganser	3	
FALCONIFORMES			
<i>Butastur rufipennis</i>	Grasshopper Buzzard	1	
<i>Herpetotheres cachinnans</i>	Laughing Falcon	1	
GALLIFORMES			
<i>Coturnix chinensis</i>	Painted Quail	2	
<i>Lophura nycthemera</i>	Silver Pheasant	10	9

		Total number acquired	Number born or hatched in the Menagerie
<i>Lophura swinhoii</i>	Swinhoe's Pheasant	2	
<i>Gallus sonneratii</i>	Sonnerat's Jungle Fowl	3	3 (2)
<i>Catreus wallichii</i>	Cheer Pheasant	1	1
<i>Alectoris chukar</i>	Chukor Partridge	1	
<i>Afropavo congensis</i>	Congo Peafowl	1	
GRUIFORMES			
<i>Grus antigone</i>	Sarus Crane	1	1 (1)
<i>Anthropoides virgo</i>	Demoiselle Crane	1	
<i>Tribonyx mortierii</i>	Tasmanian Waterhen	2	2 (2)
<i>Porphyryla alleni</i>	Allen's Gallinule	3	
CHARADRIIFORMES			
<i>Tringa totanus</i>	Redshank	9	
<i>Recurvirostra avosetta</i>	Avocet	2	
<i>Larosterna inca</i>	Inca Tern	1	
<i>Fratercula arctica</i>	Puffin	1	
COLUMBIFORMES			
<i>Ducula badia cuprea</i>	Jerdon's Imperial Pigeon	2	2
<i>Columba guinea</i>	Speckled Pigeon	1	1
<i>Streptopelia vinacea vinacea</i>	Vinaceous Dove	6	6
<i>Streptopelia chinensis chinensis</i>	Chinese Necklace Dove	1	1
<i>Ocyphaps lophotes</i>	Crested Pigeon	1	1 (1)
PSITTACIFORMES			
<i>Nymphicus hollandicus</i>	Cockatiel	8	7 (2)
<i>Aratinga canicularis</i>	Petz Conure	1	
<i>Myiopsitta monachus</i>	Quaker Parrakeet	4	4 (1)
<i>Psittacula krameri manillensis</i>	Lutino Ring-necked Parrakeet	2	
<i>Melopsittacus undulatus</i>	Budgerigar	23	23 (2)
CUCULIFORMES			
<i>Tauraco leucotis leucotis</i>	White-cheeked Turaco	1	1
<i>Tauraco erythrolophus</i>	Red-crested Turaco	2	
<i>Corythaixoides leucogaster</i>	White-bellied Go-away Bird	3	
STRIGIFORMES			
<i>Tyto alba</i>	Barn Owl	1	1
<i>Bubo bubo ascalaphus</i>	Savigny's Eagle Owl	4	4
SS <i>Bubo bubo desertorum</i> Erlander. (N. Africa)	Desert Eagle Owl	2	
<i>Bubo capensis mackinderi</i>	Kenya Eagle Owl	7	7
<i>Bubo africanus cinerascens</i>	Abyssinian Spotted Eagle Owl	3	3
<i>Bubo africanus</i>	Spotted Eagle Owl	1	1
<i>Nyctea scandiaca</i>	Snowy Owl	3	3
<i>Strix woodfordi</i>	West African Wood Owl	1	1
<i>Asio flammeus</i>	Short-eared Owl	2	
CORACIIFORMES			
<i>Momotus momota</i>	Blue-crowned Motmot	2	
<i>Melittophagus bullockoides</i>	White-fronted Bee-eater	6	
S <i>Merops bulocki</i> (Vieillot) (W. Africa)	Red-throated Bee-eater	4	
<i>Tockus erythrorhynchus</i>	Red-billed Hornbill	1	

		Total number acquired	Number born or hatched in the Menagerie
PICIFORMES			
s <i>Megalaima chrysopogon</i> (Temminck) (Sumatra)	Golden-whiskered Barbet	2	
<i>Ramphastos swainsonii</i>	Swainson's Toucan	2	
PASSERIFORMES			
<i>Calyptomena viridis</i>	Green Broadbill	1	
<i>Procnias nudicollis</i>	Naked-throated Bellbird	2	
<i>Chiroxiphia pareola</i>	Blue-backed Manakin	1	1
<i>Motacilla flava beema</i>	Sykes's Wagtail	2	
<i>Motacilla alba</i>	Pied Wagtail	2	
<i>Anthus spinoletta</i>	Rock Pipits	2	
<i>Hypsipetes flava</i>	Brown-eared Bulbul	4	
<i>Chloropsis aurifrons</i>	Golden-fronted Fruitsucker	1	
<i>Chloropsis hardwickei</i>	Hardwick's Fruitsucker	1	
<i>Prionops plumata cristata</i>	Curly-crested Helmet Shrike	7	
s <i>Telophorus dohertyi</i> (Rothschild) (Kenya and Uganda)	Doherty's Bush Shrike	1	
<i>Lanius schach</i>	Rufous-backed Shrike	1	
<i>Copsychus malabaricus</i>	Shama	1	
<i>Monticola cinclorhynchus</i>	Blue-headed Rock Thrush	2	
<i>Zoothera citrina</i>	Orange-headed Ground Thrush	1	
<i>Turdus dissimilis hortulorum</i>	Grey-backed Thrush	1	1
<i>Garrulax pectoralis</i>	Necklace Jay Thrush	2	
<i>Panurus biarmicus</i>	Bearded Tit	4	
<i>Aegithalos concinnus</i>	Red-headed Tit	2	
<i>Parus caeruleus</i>	Blue Tit	2	
<i>Zosterops senegalensis</i>	Yellow White-eye	1	
<i>Paroaria coronata</i>	Red-crested Cardinal	1	
<i>Paroaria dominicana</i>	Pope Cardinal	1	
<i>Passerina ciris</i>	Painted Bunting	1	
<i>Tangara fastuosa</i>	Superb Tanager	1	
<i>Cyanerpes cyaneus</i>	Red-legged Honeycreeper	1	
<i>Icterus nigrogularis</i>	Black-throated Oriole	1	
<i>Fringilla coelebs</i>	Chaffinch	2	
<i>Serinus leucopygius</i>	Grey Singing Finch	2	
<i>Carduelis</i> sp.	Siskin	1	
<i>Acanthis flammea</i>	Redpoll	3	
<i>Pyrrhula pyrrhula</i>	Bullfinch	2	
<i>Lagonosticta senegala senegala</i>	Fire Finch	1	
<i>Uraeginthus bengalus</i>	Cordon Bleu	4	
<i>Estrilda melpoda</i>	Orange-cheeked Waxbill	2	
<i>Estrilda troglodytes</i>	Common Waxbill	5	
<i>Amandava amandava</i>	Avadavat	2	
<i>Poephila guttata castanotis</i>	Zebra Finch	56	56
<i>Lonchura striata</i>	Striated Finch	4 (4)	
<i>Lonchura striata</i> var.	Bengalese Finch	5 (2)	
<i>Lonchura punctulata</i>	Nutmeg Finch	1	
<i>Lonchura malacca</i>	Tri-coloured Mannikin	2	
<i>Petronia petronia</i>	Rock Sparrow	2	
<i>Euplectes progne delamerei</i>	Delamere's Whydah	4	
<i>Aplonis panayensis strigata</i>	Malay Glossy Starling	2	2
<i>Onychognathus salvadorii</i>	Bristle-crowned Starling	2	2

		Total number acquired	Number born or hatched in the Menagerie
<i>Spreo superbus</i>	Superb Glossy Starling	4	2
<i>Garrulus glandarius</i>	Jay	1	
<i>Pyrrhocorax graculus</i>	Alpine Chough	2	
Reptiles			
TESTUDINES			
<i>Staurotypus triporcatus</i>	Three-keeled Terrapin	1	
<i>Sternotherus odoratus</i>	Musk-turtle	1	
<i>Kinosternon scorpioides</i>	Scorpion Mud-terrapin	1	
<i>Kachuga smithii</i>	Smith's Terrapin	1	
<i>Pseudemys scripta elegans</i>	Red-eared Terrapin	31	
<i>Pseudemys ornata callirostris</i>	Ornate Terrapin	3	
<i>Pseudemys floridana</i>	Florida Terrapin	1	
<i>Mauremys caspica leprosa</i>	Spanish Terrapin	8	
<i>Clemmys guttata</i>	Spotted Terrapin	1	
<i>Emys orbicularis</i>	European Pond Tortoise	1	
<i>Terrapene carolina major</i>	Greater American Box-tortoise	1	
<i>Rhinoclemys punctularia punctularia</i>	Rough Terrapin	1	
<i>Geoemyda grandis</i>	Burmese Terrapin	1	
<i>Cyclemys dentata</i>	Oldham's Terrapin	1	
<i>Testudo graeca</i>	Mediterranean Spur-thighed Tortoise	11	1
<i>Testudo hermanni</i>	Hermann's Tortoise	5	
<i>Testudo marginata</i>	Marginated Tortoise	9	
<i>Geochelone pardalis</i>	Leopard Tortoise	1	
<i>Geochelone gigantea gigantea</i>	Giant Tortoise	3	
<i>Geochelone carbonaria</i>	Red-legged Tortoise	1	
<i>Chelonia mydas</i>	Green Turtle	2	
<i>Caretta caretta</i>	Loggerhead Turtle	2	
<i>Pelusios niger</i>	Black Terrapin	1	
<i>Pelomedusa s. subrufa</i>	Helmeted Terrapin	3	
<i>Chelus fimbriatus</i>	Matamata Terrapin	1	
<i>Mesoclemmys gibba</i>	Gibba Terrapin	1	
CROCODILIA			
<i>Alligator mississippiensis</i>	Mississippi Alligator	2	
<i>Caiman crocodilus</i>	Spectacled Cayman	1	
SAURIA			
<i>Thecadactylus rapicauda</i>	Turnip-tailed Gecko	2	
<i>Gekko gekko</i>	Greater Indian House Gecko	3	
<i>Polychrus marmoratus</i>	Marbled Syclops Lizard	1	
<i>Plica plica</i>	Plica Lizard	5	
<i>Cyclura cornuta</i>	Rhinoceros Iguana	4	
<i>Iguana iguana</i>	Common Iguana	6	
<i>Dipsosaurus dorsalis</i>	Desert Iguana	2	
<i>Agama agama</i>	Margouillat Agama	2	
<i>Physignathus cocincinus</i>	Cochin China Water Dragon	5	
<i>Uromastyx aegyptius</i>	Egyptian Dabb-lizard	1	
<i>Chamaeleo chamaeleon</i>	Common Chameleon	1	
<i>Chamaeleo senegalensis</i>	Senegal Chameleon	1	
<i>Chamaeleo bitaeniatus ellioti</i>	Montane Side-striped Chameleon	2	

		Total number acquired	Number born or hatched in the Menagerie
<i>Chamaeleon jacksoni</i>	Kikuyu Three-horned Chameleon	6	
Sp. inc.	Skink	2	
<i>Mabuya brevicollis</i>	Short-necked Skink	1	
<i>Eumeces schneideri algeriensis</i>	Algerian Skink	1	
<i>Tupinambis nigropunctatus</i>	Black-pointed Tegu	13	
<i>Ameiva ameiva</i>	Surinam Lizard	7	
<i>Varanus exanthematicus</i>	Bosc's Monitor	1	
<i>Varanus salvator</i>	Two-banded Monitor	1	
<i>Varanus griseus</i>	Grey Monitor	2	
<i>Ophisaurus apodus</i>	Glass Snakes	2	
SERPENTES			
<i>Morelia spilotes spilotes</i>	Diamond Python	6	
<i>Liasis amethystinus</i>	Amethystine Python	2	
<i>Morelia spilotes variegata</i>	Carpet Python	3	
G <i>Aspidites melanocephalus</i> Krefft (Australia)	Black-headed Python	1	
<i>Python reticulatus</i>	Reticulated Python	2	
<i>Python sebae</i>	African Python	1	
<i>Python molurus</i>	Indian Python	2	
<i>Corallus caninus</i>	Emerald Tree-boa	1	
<i>Eunectes murinus</i>	Anaconda	1	
<i>Boa constrictor</i>	Boa Constrictor	3	
<i>Eryx conicus</i>	Russell's Sand-boa	1	
<i>Natrix natrix</i>	Grass Snake	1	
<i>Natrix natrix persa</i>	Grass Snake	1	
<i>Natrix tassellata</i>	Diced Water-snake	4	
<i>Thamnophis sirtalis</i>	Common Garter Snake	4	3
<i>Helicops angulatus</i>	Surinam Snake	9	
<i>Pseustes sulphureus</i>	Cananina Snake	3	
<i>Drymarchon corais</i>	Indigo Snake	1	
<i>Elaphe taeniura ridleyi</i>	Sacred Cave Snake	1	
<i>Crotaphopeltis hotamboeia</i>	Herald Snake	1	
<i>Coluber jugularis</i>		2	
<i>Liophis cobella</i>	Cobella Snake	2	
<i>Liophis miliaris</i>	Merrem's Water-snake	3	
<i>Coronella austriaca</i>	Smooth Snake	2	
<i>Coronella girondica</i>	Southern Smooth Snake	1	
<i>Lampropeltis getulus</i>	King Snake	1	
<i>Boiga dendrophila</i>	Black-and-gold Tree Snake	7	
<i>Psammophis sibilans</i>	African Sand Snake	1	
<i>Psammophis biseriatus</i>	Eastern Link-marked Snake	2	
<i>Ahaetulla prasinus</i>	Emerald Whip Snake	4	
G <i>Lycodryas sanctijohannis</i> Gunther (Comoro Islands)		2	
G <i>Lycognathophis sechellensis</i> Schlegel (Seychelles)		1	
G <i>Walterinnesia aegyptia</i> Lataste (Israel, N. and M. East)	Desert Black Snake	2	
<i>Naja melanoleuca</i>	Black-and-white Cobra	1	
<i>Dendroaspis angusticeps</i>	Common Green Mamba	2	
<i>Vipera aspis</i>	Asp	1	
<i>Vipera xanthina palaestinae</i>	Palestine Viper	5	
<i>Vipera ammodytes meridionalis</i>	Long-nosed Viper	4	

		Total number acquired	Number born or hatched in the Menagerie
<i>Vipera lebetina schweizeri</i>	Daudin's Viper	2	
<i>Vipera russellii</i>	Russell's Viper	1	
<i>Bitis gabonica</i>	Gaboon Viper	1	
<i>Cerastes cerastes</i>	Horned Cerastes Viper	1	
<i>Cerastes vipera</i>	Lesser Cerastes Viper	5	
<i>Echis coloratus</i>	Burton's Carpet Viper	1	
<i>Agkistrodon piscivorus</i>	Cottonmouth	2	
AMPHIBIA			
<i>Andrias japonicus</i>	Giant Salamander	3	
<i>Triturus marmoratus</i>	Marbled Newt	2	
<i>Triturus vulgaris</i>	Common Smooth Newt	6	
<i>Salamandra salamandra</i>	European Salamander	53	
<i>Ambystoma tigrinum</i>	Tiger Salamander	2	
<i>Ambystoma mexicanum</i>	Axolotl	98	40
<i>Xenopus laevis</i>	Smooth Clawed-toad	6	
<i>Pipa pipa</i>	Surinam Toad	4	
<i>Bufo viridis</i>	Green Toad	3	
<i>Bufo regularis</i>	Common African Toad	6	
<i>Bufo carens</i>	Slender Toad	2	
<i>Bufo garmani</i>	Garman's Toad	2	
<i>Bufo bufo</i>	Common European Toad	40	
<i>Bufo paracnemis</i>	Rococo Toad	4	
<i>Bufo terrestris americanus</i>	American Toad	1	
<i>Bufo marinus</i>	Giant Toad	9	
<i>Bufo granulatus</i>	Granulated Toad	4	
<i>Hyla arborea</i>	European Tree-frog	6	
s <i>Hyla vasta</i> Cope (San Domingo, West Indies)	Giant Tree-frog	4	
<i>Hyla rubra</i>	Daudin's Hyla	5	
<i>Leptodactylus pentadactylus</i>	Slender-fingered Bladder-frog	1	
<i>Rana occipitalis</i>	Groove-head River Frog	2	
<i>Rana esculenta</i>	Edible Frog	20	
<i>Rana temporaria</i>	Common Frog	20	
<i>Pyxicephalus adspersa</i>	African Bull Frog	2	
<i>Pyxicephalus delalandii</i>	Delalande's Frog	2	
<i>Rana erythraea</i>	Gold-lined Frog	6	
<i>Dendrobates</i> sp.	Poison Arrow Frog	7	
<i>Atelopus</i> sp.	Poison Arrow Frog	3	
<i>Kaloula pulchra</i>	Malayan Bull-frog	5	
<i>Chiromantis xerampelina</i>	Braided Tree-frog	1	

Fishes new to the collection

- Lucania goodei* Jordan (North America)
- Paracanthurus hepatus* (Valenciennes) (Indo-Pacific)
- Steatocranus casuarius* Poll (Lower & Middle Congo)
- Platax pinnatus* (L.) (Indo-Pacific)

WHIPSNADE

PARK

Mammals

MARSUPIALIA

<i>Protemnodon rufogrisea</i>	Red-necked Wallaby	65	65 (1)
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		Total number acquired	Number born or hatched in the Menagerie
PRIMATES			
<i>Macaca mulatta</i>	Rhesus Macaque	1	1
<i>Hylobates moloch</i>	Grey Gibbon	1	1
RODENTIA			
<i>Sciurus vulgaris</i>	Red Squirrel	3	
<i>Cynomys ludovicianus</i>	Prairie Marmot	5	
<i>Dolichotis patagonum</i>	Mara	7	7 (4)
CETACEA			
G <i>Tursiops truncatus</i>	Bottle-nosed Dolphin	5	
CARNIVORA			
<i>Tremarctos ornatus</i>	Spectacled Bear	2	2 (2)
<i>Ailurus fulgens</i>	Red Panda	1	1
<i>Felis lynx</i>	Northern Lynx	3	2
<i>Felis serval</i>	Serval	5	5 (3)
<i>Panthera leo</i>	Lion	1	
<i>Panthera tigris</i>	Sumatran Tiger	2	2 (2)
<i>Acinonyx jubatus</i>	Cheetah	2	1
PINNIPEDIA			
<i>Zalophus californianus</i>	Californian Sealion	1 (1)	
PERISSODACTYLA			
<i>Equus przewalskii</i>	Przewalski's Horse	1	1
<i>Equus burchelli</i>	Common Zebra	2	2 (2)
<i>Asinus hemionus</i>	Persian Onager	2	2 (1)
<i>Diceros simus</i>	White Rhinoceros	1	
ARTIODACTYLA			
<i>Sus scrofa</i>	Wild Boar	3	3 (3)
<i>Tayassu tajacu</i>	Collared Peccary	3	3
<i>Hippopotamus amphibius</i>	Hippopotamus	3	3 (2)
<i>Lama glama</i>	Llama	11	11 (2)
<i>Lama guanicoe</i>	Guanaco	5	4
<i>Camelus bactrianus</i>	Bactrian Camel	2	
<i>Camelus dromedarius</i>	Arabian Camel	4	4 (2)
<i>Muntiacus reevesi</i>	Reeves' Muntjac	1	1
<i>Dama dama</i>	Fallow Deer	23	18 (5)
<i>Axis axis</i>	Axis Deer	10	10 (6)
<i>Axis porcinus</i>	Hog Deer	10	10 (5)
<i>Cervus duvauceli</i>	Barasingha	4	4 (1)
<i>Cervus nippon</i>	Black × Japanese Sika Deer	2	2
	Formosan Sika Deer	14	14 (2)
<i>Cervus elaphus</i>	Red Deer	11	11 (2)
	Wapiti	5	5 (3)
<i>Elaphurus davidianus</i>	Pere David's Deer	11	11 (2)
<i>Alces alces</i>	Moose	3	3 (2)
<i>Rangifer tarandus</i>	Reindeer	2	2
<i>Tragelaphus spekei</i>	Sitatunga	1	1 (1)
<i>Boselaphus tragocamelus</i>	Nilgai	4	4 (2)
<i>Bos grunniens</i>	Yak	2	2 (1)

		Total number acquired	Number born or hatched in the Menagerie
<i>Syncerus caffer</i>	Cape Buffalo	3	3 (2)
<i>Bison bonasus</i>	European Bison	3	3 (1)
<i>Bison bison</i>	American Bison	5	5 (1)
<i>Damaliscus dorcas</i>	Blesbok	2	2
<i>Connochaetes taurinus</i>	Brindled Gnu	7 (2)	5 (3)
<i>Gazella thomsoni</i>	Thomson's Gazelle	6	6
<i>Ovibos moschatus</i>	Musk Ox	1	1 (1)
<i>Ovis musimon</i>	Mouflon	18	18 (6)
DOMESTIC			
	Ponies	3	3
	Pygmy Donkey	2	1
	Pitman Moore Miniature Swine	2	
	Windsor White Goat	19	19 (7)
	Four-horned Sheep	24	24 (17)
Birds			
STRUTHIONIFORMES			
<i>Struthio camelus</i>	Ostrich	2 (1)	
RHEIFORMES			
<i>Rhea americana albescens</i>	Common Rhea	6	6
SPHENISCIFORMES			
<i>Eudyptes crestatus</i>	Rock-hopper Penguin	6	
<i>Spheniscus humboldti</i>	Humboldt's Penguin	1	1 (1)
CICONIIFORMES			
<i>Ciconia ciconia</i>	White Stork	4	
<i>Ciconia nigra</i>	Black Stork	5	
<i>Threskiornis aethiopica</i>	Sacred Ibis	2 (2)	
<i>Guara rubra</i>	Scarlet Ibis	18	
ANSERIFORMES			
<i>Anseranas semipalmata</i>	Magpie Goose	2	
<i>Cygnus atratus</i>	Black Swan	4	4 (1)
<i>Cereopsis novae-hollandiae</i>	Cereopsis Goose	6	6 (1)
<i>Anser caerulescens caerulescens</i>	Lesser Snow Goose	6	6
<i>Anser canagicus</i>	Emperor Goose	9	9 (4)
<i>Branta leucopsis</i>	Barnacle Goose	6	6
<i>Branta ruficollis</i>	Red-breasted Goose	5	5 (1)
<i>Lophonetta specularioides</i>	Crested Duck	2	2 (2)
<i>Anas querquedula</i>	Garganey	1	
<i>Anas crecca</i>	Common Teal	4	
<i>Anas falcata</i>	Falcated Teal	2	
<i>Anas bahamensis</i>	Bahama Pintail	2	
<i>Netta rufina</i>	Red-crested Pochard	1	1 (1)
<i>Aythya ferina</i>	Common Pochard	8	
<i>Aix sponsa</i>	Carolina Duck	5	3 (3)
<i>Aix galericulata</i>	Mandarin Duck	6 (2)	
<i>Chenonetta jubata</i>	Maned Goose	2	
<i>Bucephala islandica</i>	Barrow's Golden-eye	1	

	<i>Total number acquired</i>	<i>Number born or hatched in the Menagerie</i>
GALLIFORMES		
<i>Lophura nycthemera</i>	Silver Pheasant	15 (10) 5
<i>Catreus wallichi</i>	Cheer Pheasant	3 3 (2)
<i>Syrmaticus reevesi</i>	Reeves's Pheasant	6 6
<i>Syrmaticus humiae humiae</i>	Hume's Bar-tailed Pheasant	4 4 (2)
<i>Chrysolophus pictus</i>	Golden Pheasant	9 9 (1)
<i>Chrysolophus amherstiae</i>	Lady Amherst's Pheasant	3 3
<i>Pavo cristatus</i>	Common Peafowl	1 (1)
<i>Meleagris gallopavo</i>	North American Turkey	20 20 (1)
GRUIFORMES		
<i>Grus antigone</i>	Sarus Crane	1 1
CHARADRIIFORMES		
<i>Larus argentatus</i>	Herring Gull	1 (1)
COLUMBIFORMES		
<i>Goura victoria</i>	Victoria Crowned Pigeon	2
PSITTACIFORMES		
<i>Trichoglossus haematod moluccanus</i>	Swainson's Lorikeet	4 4
<i>Cacatua sulphurea</i>	Lesser Sulphur-crested Cockatoo	1
<i>Nymphicus hollandicus</i>	Cockatiel	3 3
<i>Ara ararauna</i>	Blue and Yellow Macaw	1
<i>Psittacula krameri manillensis</i>	Indian Ring-necked Parrakeet	2 2
<i>Psittacula derbyana</i> × <i>Psittacula krameri manillensis</i>	Derbyan × Indian Ring-necked Parrakeet	2 2
<i>Platycercus eximius ceciliae</i>	Golden-mantled Rosella Parrakeet	2 2
<i>Melopsittacus undulatus</i>	Budgerigar	3 3
PASSERIFORMES		
<i>Lagonosticta senegala</i>	Fire Finch	1 (1)
<i>Estrilda melpoda</i>	Orange-checked Waxbill	2 (2)
<i>Amandava amandava</i>	Avadavat	2 (2)
<i>Uraeginthus bengalus</i>	Cordon Bleu	2 (2)
Reptiles		
SAURIA		
<i>Trachydosaurus rugosus</i>	Stump-tailed Skink	2
<i>Tiliqua gerrardii</i>	Pink-tongued Skink	2

LIST OF DONORS OF ANIMALS TO THE SOCIETY

REGENT'S PARK

- Acosta, Peter, 6 *Romalia microptera*
 Aitken, Mr K., 1 Prevost's Squirrel
 Allen, Mr, 1 Red-eared Terrapin
 Antwerp Zoo, 1 Congo Peafowl
 Archer, Mr Ian, 1 Indian Python, 1 Reticulated Python
 Arnold, Mr N., 1 Horned Cerastes Viper
 Baker, Mr Ray, 1 Loggerhead Turtle
 Bamber, Mr A., 10 *Oryctes nasicornis*
 Barcelona Zoo, 2 *Mantis religiosa*, 2 *Lycosid* spiders, 10 *Buthus* sp., 4 Scarab Beetles, 3 *Carabus* sp., 1 *Nepa* sp., 3 *Argiope* sp., 3 *Tegenaria* sp., 2 *Aranea diadema*, 1 *Gryllus campestris*
 Barnes, Mrs, 1 Pope Cardinal, 1 Red-crested Cardinal
 Barrass, Mrs, 1 Iguana
 Barrington, Mrs, 1 Red-eared Terrapin
 Bates, R., 2 Wels, 3 Tench, 3 Crucian Carp, 8 Pike, 2 Golden Tench, 12 Roach, 1 Koi Carp
 Bath, Mr, 1 Great White Egret
 Bearman, Mrs, 28 European Salamanders
 Bennet, Mr H., 1 *Mantis religiosa*
 Betts, Mr G., 2 *Centuroides* sp., 1 *Parabuthus* sp.
 Bewlay, Mr C. W., 1 Common Sunfish
 Birch, Mr S., 8 Marginated Tortoises
 Blest, Mr D., 1 *Anthia* sp.
 Bonasz, Mrs T., 1 Ornate Terrapin
 Boss, Mr Michael, 1 *Anostomus anostomus*
 Boston, Mr P., 1 Polydesmid millipede, 6 Millipedes
 Bourke, D. O'D., 1 Southern Smooth Snake
 Bowsyr, Mr J. C., 1 Giant Toad
 Boyd-Harvey, Mrs, 1 Marginated Tortoise
 Brimson, Mrs, 7 Red-eared Terrapins
 Brown, Mr P. K., 1 Red-tail Black Shark
 Brown, Mr R., 1 Musk-turtle, 1 Smith's Terrapin, 2 Red-eared Terrapins, 2 Spanish Terrapins, 1 Spotted Terrapin, 1 Greater American Box-tortoise, 1 Burmese Terrapin, 1 Red-legged Tortoise, 1 Black Terrapin, 1 Helmeted Terrapin, 1 Oldham's Terrapin
 Burgess, Mr G., 1 Red-eared Terrapin
 Buxton, Mr A., 4 White Storks
 Chaplin, The Viscount, 1 Yellow White-eye
 Chinneck Scoble, Miss M. B., 2 Mediterranean Spur-thighed Tortoises
 Clarke, Prof. C. A., 45 *Heliconius melpomene*
 Corob, Mrs A., 1 Iguana
 Creane, Mr P., 4 Brown-eared Bulbuls, 1 Orange-headed Ground Thrush, 2 Sykes's Wagtails
 Crewe, Mr R., *Tapinauchinius plumipes*
 Dansie, Dr, 1 Reeves' Muntjac
 Davies, Mr John, 2 Greater Indian House Geckos
 Davis, Caroline, 2 Deer Mice
 Day, Mr David P., 1 *Clarias*
 Denny, Mr Thomas, 2 Squirrel Monkeys
 de Souza, Mrs F., 3 Günther's Tree Shrews, 2 Large Tree Shrews
 Diamond, Mrs, 3 Kikuyu Three-horned Chameleons, 2 Montane Side-striped Chameleons
 Douglas, Mr A., 1 Black-throated Oriole
 Duffy, Mrs, 2 Mediterranean Spur-thighed Tortoises
 Dyer, Mr Steve, 1 Tinsel Barb
 Edinburgh Zoo, 1 Sooty Mangabey
 Edwards, Mr F., 2 Avocets
 Edwell, Mrs, 1 Flying Fox
 Gelbart, Mr A., 1 Boa Constrictor
 Ghiggini, Mr A., 1 Geoffroy's Tamarin
 Gorman, Mrs, 1 Spanish Terrapin, 1 Red-eared Terrapin, 1 Ornate Terrapin
 Goss-Custard, Dr J. D., 9 Redshanks
 Green, Mr, 1 Russell's Viper
 Hamilton, Mrs J., 1 Mediterranean Spur-thighed Tortoise
 Hare, Mr A. J., 1 Mediterranean Spur-thighed Tortoise
 Harman, Mr A. J. E., 1 Iguana
 Harman, Mr B., 1 *Deilephila alpenor*
 Harmon, Mr A., 6 *Phibalosoma phyllinum*, 6 *Gromphadorhina portentosa*, 26 Polydesmid millipedes, 1 *Melopeus albostrigatus*, 2 *Passalid* sp., 8 Millipedes, 4 *Broteus* sp., 1 *Ctenus* sp., 1 *Nephila* sp., 1 *Argiope* sp., 1 *Heteropoda venatoria*
 Hayes, Mr A. G., 1 African Python
 Heath, Mr G., 2 *Polypilota aeruginosa*, 18 *Sibylla pretiosa*, 3 *Sibylla pretiosa*, 1 *Archimantis* sp.
 Hinchcliffe, Mr D., 1 Grey Monitor
 Hogarth, Miss Yvonne, *Carausius morosus*
 Holdgate, Mr Nicholas, 1 *Lucanus cervus*
 Holland, Mrs J., 2 Red-eared Terrapins
 Houston, Mr M. J., 1 Marbled Cichlid
 Hughes, Mrs, 1 Hermann's Tortoise, 1 Mediterranean Spur-thighed Tortoise
 Humphrey, Mr P., 1 Mediterranean Spur-thighed Tortoise
 Hunt, Mr R. D., cocoon of *Heteropoda venatoria*

- James, Dr M. J., 1 Marbled Syrclops Lizard
 James, Mr R., 1 *Tenodera* sp.
 Jolona, Mr, 5 European Salamanders
 Keeling, Mr, 27 *Dysdercus* sp., 11 *Blaps* sp., 5
Carabus sp.
 Kennedy, Mr David, 2 Mississippi Alligators
 Kirk, Mr P. A., 2 Daudin's Vipers
 Klage, Mrs S. M., 1 Giant Tortoise
 Knell, Mr D. G., 1 Chipmunk
 Kuznicka, Lisa, 4 Red-eared Terrapins
 Lang, Miss M, 2 Red-eared Terrapins
 Lilley, Mrs, 1 Fat Dormouse
 Lockett, Dr A. 2 *Lycodryas sanctijohannis*
 Main, Mr Clive, 2 Mediterranean Spur-thighed
 Tortoises
 Mariculture Ltd, 2 Green Turtles
 McClellan, Mr A., 2 Hermann's Tortoises
 McCulloch, Mr J. S., 1 *Lycognathophis sechellensis*
 Meadon, Mr F., 3 Redpolls, 2 Blue Tits, 2 Bull-
 finches, 2 Rock Pipits, 2 Pied Wagtails
 Middlesex Hospital, 50 Axolotls
 Milton, Mr B., 1 Jay
 Mills, Mr D., 4 Smooth Clawed-toads
 Milner, Mr Giles, 1 Pike
 Nash, Mrs, 1 Common Dormouse
 Newmark, J. R. and G. H., 8 Giant Toads, 1
 Gibba Terrapin, 1 Iguana, 2 Turnip-tailed
 Geckos, 2 Cobella Snakes, 2 Surinam Snakes,
 50 Millipedes, 6 *Argiope* sp., 8 *Avicularia avi-*
cularia, 3 Praying Mantis, 16 Passalid Beetles,
 1 Reduvid Bug, 6 *Blaps* sp., 20 Poldesmid Mil-
 lipedes, 1 *Ctenus* sp., 1 *Nepila* Spider, 2 *Gaster-*
cantha Spiders, 5 Phasmids and 14 *Eutropidacris*
collaris, 1 Marbled Syrclops Lizard, 4 Granu-
 lated Toads, 1 Slender-fingered Bladder-frog,
 5 Daudin's Hyla
 N.I.C.M., 24 Vampire Bats
 Nixon, Mrs, 1 Iguana
 Osborne, Mrs H. D., 5 *Carausius morosus*
 Owen, Mr W., 1 Black Shark, 1 Pink Kissing
 Gourami
 Government of Paraguay, 1 Naked-throated Bell-
 bird
 Parker, Captain A. A., 1 Common Chameleon
 Parsons, Mr J., 40 Common European Toads
 Patterson, Mr W., 1 *Brachypelma smithi*
 Pearson, Mr R. F., 2 Marbled Cichlids, 1 Ameri-
 can Catfish
 Philipson, Mrs, 3 Fat Dormice
 Poole, Dr T., 2 Polecats
 Potts, Mr C. D., 1 Algerian Skink
 Pryor, R., 1 Spectacled Cayman
 Read, Mr, 1 Puffin
 Rhodesia, Zoological Society of, 2 Common Green
 Mambas, 8 Millipedes
 Riley, Mr A., 2 Skinks sp. inc.
 Riley, A. E., 2 Grey Singing Finches, 2 Painted
 Quails, 1 Fire Finch, 2 Cordon Bleu, 2 Orange-
 checked Waxbills, 2 Avadavats, 2 Common
 Waxbills, 1 Siskin, 1 Shama
 Riva, Mrs, 2 Siberian Chipmunks
 Robinson, Mr, 1 Asp
 Røgler, Hans Christian, 1 Greater Indian House
 Gecko
 Romer, Mr J. D., 5 Malayan Bull-frogs
 Rose, Mr D. J., 1 Green Broadbill
 Royal Air Force Research Establishment, 3
 Douroucoulis
 Sackheim, Mr Sol, 6 Cocoons of *Latrodectus*
mactans
 Salkilld, Mr, 8 Axolotls
 Sassoon, Mr E., 5 Discus
 Savage, Mrs, 2 Discus
 Schaap, W., 1 Leopard Tortoise
 Schlesinger, Mr John, 1 Emerald Tree-boa
 Sebastian, Mrs, 1 King Snake
 Shergold, Mrs, 1 Hermann's Tortoise
 Sillers, Mrs, 1 Red-eared Terrapin
 Skone, Mr M., 1 Iguana
 Smith, Mr, Wayhill Wildlife Park, 1 Indigo Snake
 Smith, Dr Michael John, 1 *Clarias*
 Spring, Mr N. P., 2 Spanish Terrapins
 Spurling, Miss C., Eggs of *Carausius morosus*
 Steggle, Mr, 1 Grasshopper Buzzard
 Stephenson, Mrs, 1 Red-eared Terrapin
 Stephenson, Mrs, 1 Ornate Terrapin
 Stout, Mr Tim, 1 European Pond Tortoise
 Thomas, Mrs V. I., 1 Southern Terrapin
 Trench, Mrs M. A., 1 Hermann's Tortoise
 Trujaillo, Mr S., 1 Petz Conure
 Turner, Dr J. R. G., 10 *Heliconius melpomene*
 Underwood, Mrs, 2 Squirrel Monkeys
 Wagstaff, Mr J., 1 *Cerura vinula*
 Waller, Mrs, 1 Common Garter Snake
 Webb, Mrs, 1 Spanish Terrapin
 Weir, Dr B., 6 Tuco Tuco, 7 Cuis
 Wesley, Mr J., 2 Blennies, 1 Rockling, 1 Anemone,
 1 Starfish
 Wesley, Mr T., 2 *Lucanus cervus*
 Westland, Mrs M., 2 Red-eared Terrapins
 Whimster, Dr, 2 Groove-head River Frogs
 Whitehead, Mr Steve, 5 Red-eared Terrapins, 2
 Spanish Terrapins, 2 Smooth Clawed-toads
 Whitelock, Miss, 3 Bengalese Finches, 1 Nutmeg
 Finch, 1 Common Waxbill, 2 Tri-coloured
 Mannikins, 2 Cordon Bleu, 2 Chaffinches
 Whittaker, Mr N., RSPCA, Heathrow Airport, 2
 Amethystine Pythons, 6 Diamond Pythons, 3
 Carpet Pythons, 1 Black-headed Python, 1
 Reticulated Python, 20 Edible Frogs, 20 Com-
 mon Frogs
 Whittick, Mr John, 1 *Lucanus cervus*
 Wilson, Mr M. L., 2 Red Oscars, 2 Tiger Oscars,
 1 *Plecostomus*
 Wittenberg, Mr J., 1 Scorpion Mud-terrapin

Woodbrass, Mr Richard, 2 Spanish Terrapins
Woodbridge, Mrs Judith, 1 Russell's Sand Boa
Yardley, Mr R., 1 Red-eared Terrapin

WHIPSNADE PARK

Audinwood, Miss S., 3 Gerbils
Brooks, Mrs J. H., 1 Blue and Yellow Macaw

Manton, Mr V. J. A., 2 Pink-tongued Skinks, 2
Stump-tailed Skinks
Northern Area National Trust, 3 Red Squirrels
Rawlings, Miss R., 3 Gerbils
Roberts, Mr, 1 Fat Dormouse
Seldon, Mrs G., 1 Lesser Sulphur-crested
Cockatoo
Sopwell House, 1 Pygmy Donkey

DONATIONS TO THE ZOOLOGICAL RECORD FUND

	£
American Museum of Natural History (Vol 107)	192.33
(Vol 108)	190.86
American Ornithologists' Union	41.30
American Society of Mammalogists	162.59
British Museum (Natural History)	1,450.00
Conchological Society of Great Britain & Ireland	2.00
Entomological Society of Alberta	4.22
Entomological Society of America	82.86
Malacological Society of London	2.10
Michigan, University of	40.46
Ness, A. R.	3.00
Royal Entomological Society	10.00
Society of Systematic Zoology	114.47
	<hr/>
	£2,296.19
	<hr/>

BOOKS PRESENTED TO THE LIBRARY

- AUSTWICK, P. K. C.
 BANNIKOV, DR A. G.
 BAXTER, MRS M.
- BEATTY, R. A. &
 GLUECKSOHN-WAELSCH, S.
- BELLAIRS, PROFESSOR A. D'A.
- BOYLE, C. L.
 BRITISH MUSEUM
 (NATURAL HISTORY),
 TRUSTEES OF
- COLEMAN, B.
- DIRECTOR-GENERAL,
 QUEENSLAND DEPARTMENT
 OF PRIMARY INDUSTRIES
 EDINBURGH UNIVERSITY PRESS
- ELKAN, DR E.
- FAIRLEY, J. S.
- FIENNES, R. N. T-W-
- HARRISON, D. L.
 IVANOV, A.
- JEWELL, PROFESSOR P.
- KEYMER, DR I. F.
- MEDICAL RESEARCH COUNCIL
- The evolution and distribution of fishes. By J. M. MacFarlane. 1923.
 Transactions of the 9th Congress of the International Union of Game Biologists, 1969. 1970.
 Birds and men: the bird life of British towns, villages, gardens, and farmland. By E. M. Nicholson. 1951.
 Chromosomes, sex-cells and evolution in a mammal, based mainly on studies of the reproductive glands of the gerbil. By P. V. Tobias. 1956.
 Evolution and geography. By G. G. Simpson. 1953.
 General endocrinology. By C. D. Turner. 1948.
 The natural history of mammals. By F. Bourlière. 1955.
 Vertebrate paleontology. 2nd ed. By A. S. Romer. 1945.
 The genetics of the spermatozoon. Proceedings of an international symposium. Edited by R. A. Beatty & S. Gluecksohn-Waelsch. 1972.
 Crocodiles. International Union for Conservation of Nature and Natural Resources. 1971-72.
 Britannica book of the year, 1964-71.
 Bulletin of the British Museum (Natural History). Entomology: Vol. 26, nos. 7-9; Vol. 27, nos. 1-5; Suppl. 18: Geology: Vol. 20, no. 7; Vol. 21, nos. 1-2, 4-5; Zoology; Vol. 22, nos. 2-8; Vol. 23, nos. 1-4, 6-8; Vol. 24, no. 2.
 Grote en kleine spaarders van moeder natuur. By A. Stolk. 1971.
 Taal en teken in de dieren wereld. By J. G. Constant. 1971.
 Guide to fishes. 2nd ed. By E. M. Grant. 1972.
- On evolution. By J. M. Smith. 1972.
 The principal diseases of lower vertebrates. By H. Reichenbach-Klinke & E. Elkan. 3v. 1965.
 Irish wild mammals: a guide to the literature. By J. S. Fairley, 1972.
 Pathology of simian primates. By R. N. T-W- Fiennes. 1972.
 The mammals of Arabia. Vol. 3. By D. L. Harrison. 1972.
 Ptitsy SSSR: bibliograficheskiy ukazatel', 1881-1917 gg. 1972.
 Mountain sheep: a study in behavior and evolution. By V. Geist. 1971.
 Annotated bibliography of helminths of waterfowl (Anatidae). By M. E. McDonald. 1969.
 Bibliography of ticks and tickborne diseases from Homer (about 800 BC) to 31 December, 1969. By H. Hoogstraal, 1970.
 Catalogue of helminths of waterfowl (Anatidae). By M. E. McDonald, 1969.
 Espécies da fauna brasileira ameaçadas de extinção. By Academia Brasileira de Ciências. 1972.

OLIVER & BOYD LTD

UNIVERSITY OF OXFORD,
DEPARTMENT OF ZOOLOGY
WARD, ROWLAND, LTD

WOOD, G.

The cichlid fishes of the great lakes of Africa. By G. Fryer
& T. D. Iles. 1972.

Tod durch Verhalten bei Zootieren. By P. Dollinger. 1971.

Rowland Ward's records of big game. 14th ed. (Africa).
Edited by A. A. Best & F. Edmond-Blanc. 1971.

Ngorongoro: the eighth wonder. By H. Fosbrooke. 1972.

Operation rhino. By J. G. Davis. 1972.

Meetings during 1973

Scientific Meetings at 5.00 pm

Tuesday, 13th February

Tuesday, 13th March

Tuesday, 10th April

Tuesday, 8th May

Tuesday, 12th June

Tuesday, 9th October

Tuesday, 13th November

Tuesday, 11th December

Symposia

Thursday and Friday, 7th-8th June: 'Hystricomorph rodents'.

Thursday and Friday, 22nd-23rd November: 'Avian physiology'.

Report of the Auditors

on the accounts of The
Zoological Society of London

In accordance with the provisions of Byelaw 33 we report that we have examined the Books and Accounts of the Society for the year ended 31st December 1972, including those relating to the Ford Research Fund, and have found them to be in order. Having received all the information and explanations we have required, we are of the opinion that the attached Balance Sheets, the accompanying Income and Expenditure Accounts and Notes show a true and fair view of the position as shown by the books of the Society. We have verified the Investments and the Cash Balances.

NORTON KEEN & CO *Chartered Accountants*
Knightway House, 20 Soho Square, London, W1V 6QJ
22nd February 1973

Balance Sheet at 31st December 1972

1971			
£	£		£
	148,739	Sundry creditors and receipts in advance	154,202
	199,973	Bank overdraft	161,851
	91	Heer Bequest	91
	5,000	Fantham Bequest (note 1)	5,201
	14,649	Nuffield Institute Fund (note 2)	14,879
	—	Special Scientific Fund	21,080
	63,702	Wolfson Donation Fund (note 3)	68,189
		Publications Funds (note 4)	
13,929		Zoological Record Fund	20,366
13,794		Neave Lloyd Fund	12,914
—	27,723		—
	16,627	Composition Fund	16,508
	1,082	Staff Benevolent Fund (note 5)	1,125
		Reserves	
90,000		General Reserve (note 6)	125,030
254,870		Buildings Replacement Fund (note 7)	327,679
100,000		Pensions Contributions Reserve	100,000
—	444,870		—
	120,621	General Purposes Account	128,263
	<u>£1,043,077</u>		<u>£1,157,378</u>

For the notes which form part of these accounts see pages 63 and 64.

Income and Expenditure Account for the year ended 31st December 1972

1971		INCOME		
£	£		£	£
31,369		Members' subscriptions and entrance fees	30,588	
4,885		<i>Less</i> transferred to publications	5,175	
<u> </u>	26,484		<u> </u>	25,413
		Interest and dividends		
18,263		General (after allocation to funds)	13,236	
5,084		Net income from De Arroyave Fund (note 11)	5,120	
57		Income from Davis Fund (note 12)	57	
<u> </u>	23,404		<u> </u>	18,413
		<i>Scientific</i>		
28,845		Sale of scientific publications	30,837	
11,460		Educational scheme – visits	12,676	
2,582		Young Zoologists' Club	2,433	
14,550		International Zoo Yearbook	15,921	
<u> </u>	57,437		<u> </u>	61,867
		<i>Regent's Park</i>		
679,350		Admission of visitors to Gardens	766,372	
33,098		Admission of visitors to Aquarium	41,262	
28,077		Admission of visitors to Children's Zoo	25,640	
735		Chimpanzees' tea party	1,615	
3,573		Riding receipts	4,636	
2,968		Push chairs, hire of	3,163	
71,377		Catering and other services, net income	80,524	
18,298		Zoo Restaurants Ltd.	21,984	
1,734		Television and film permits	1,711	
2,330		Animals	1,689	
8,800		Miscellaneous receipts	10,547	
<u> </u>	850,340		<u> </u>	959,143
		<i>Whipsnade</i>		
171,126		Admission of visitors to Park	192,777	
11,684		Admission of visitors to Children's Zoo	11,854	
41,623		Admission of cars to Park	42,768	
3,225		Train receipts	3,212	
2,868		Riding receipts	3,305	
481		Push chairs, hire of	443	
9,815		Car parks – parking fees	9,248	
1,042		Farm, gardens and forestry sales	457	
7,692		Animals	9,929	
13,810		Catering and other services, net income	17,607	
1,360		Miscellaneous receipts	1,154	
<u> </u>	264,726		<u> </u>	292,754
	<u> </u>		<u> </u>	
	<u>£1,222,391</u>		<u>£1,357,590</u>	

For the notes which form part of these accounts see pages 63 and 64.

1971		EXPENDITURE			
£	£		£	£	£
	92,585	General administration			98,376
	26,000	Contribution to Buildings Replacement Fund			26,000
	21,578	Interest on overdraft			10,982
		<i>Pensions</i>			
9,335		Payments to pensioners		8,774	
37,674		Contribution to Trustees of Pension Fund		42,777	
<u> </u>	47,009			<u> </u>	51,551
		<i>Scientific</i>			
23,259		General scientific	27,695		
12,817		Wellcome Institute	20,191		
48,617		Nuffield Institute	70,006		
			<u> </u>	117,892	
17,478		Library		20,850	
24,106		Scientific publications		26,076	
12,179		Educational scheme		13,886	
5,190		Young Zoologists' Club		5,006	
12,600		International Zoo Yearbook		14,994	
<u> </u>	156,246			<u> </u>	198,704
		<i>Regent's Park</i>			
		Menagerie			
7,428		Rates and insurance	7,871		
290,669		Salaries	314,816		
56,922		Provisions	66,392		
58,663		Fuel, light, water, transport	59,217		
27,634		Miscellaneous	34,787		
			<u> </u>	483,083	
		Works			
93,679		General maintenance	97,396		
4,634		Alterations	9,065		
			<u> </u>	106,461	
21,907		Gardening		23,728	
29,401		Advertising		41,169	
6,529		Purchase of animals		8,914	
<u> </u>	597,466			<u> </u>	663,355
		<i>Whipsnade</i>			
		Menagerie			
7,037		Rates and insurance	8,090		
118,692		Salaries	129,630		
44,644		Provisions	43,164		
17,390		Fuel, light, water, transport	16,007		
15,311		Miscellaneous	18,271		
			<u> </u>	215,162	
		Works			
32,235		General maintenance	38,124		
4,315		Alterations	3,808		
			<u> </u>	41,932	
14,394		Farm, gardens and forestry		13,082	
20,617		Advertising		18,938	
5,852		Purchase of animals		8,782	
<u> </u>	280,487			<u> </u>	297,896
		Surplus carried to Balance Sheet			10,726
	1,020				
	<u>£1,222,391</u>				<u>£1,357,590</u>

Wellcome Institute of Comparative Physiology

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31st DECEMBER 1972

	£	£		£	£
Ford Research Fund – interest and dividends		14,613	Salaries (including pension contributions)		32,645
Research funds transferred from Birmingham University		10,573	Laboratory and other scientific expenses		6,289
Society's contribution		20,191	Administrative charges		2,582
Miscellaneous income		201	Heating, lighting and miscellaneous		3,312
		<u>45,578</u>	Transfer – Equipment Fund		750
					<u>45,578</u>
Project grants		4,723	Expenditure from project grants:		
			Salaries	2,656	
			Scientific expenses	2,067	
				<u>4,723</u>	
		<u>£50,301</u>			<u>£50,301</u>

BALANCE SHEET AT 31st DECEMBER 1972

Sundry creditors and receipts in advance	1,216	Sundry debtors and payments in advance	3,181
Capital Account (Ford Research Fund):		Investments at cost (market value £334,682)	235,825
Balance 1st Jan. 1972	242,601	Cash on deposit and in hand	2,407
Less Loss on investments	5,074		
	<u>237,527</u>		
Equipment Fund:			
Balance 1st Jan. 1972	2,233		
Add Transfer	750		
	<u>2,983</u>		
Less Maintenance and renewals	313		
	<u>2,670</u>		
	<u>£241,413</u>		<u>£241,413</u>

Notes on the Accounts

31st December 1972

1. Fantham Bequest	Balance at 1st January 1972	£	£	£	
	Investment income			5,000	
				493	
	<i>Less: Expenditure</i>			5,493	
	Balance at 31st December 1972			292	
<hr/>					
2. Nuffield Institute Fund	Balance at 1st January 1972			14,649	
	Donations and grants			116,358	
	Society's contribution			70,006	
				201,013	
	<i>Less: Salaries (including pension contributions)</i>		129,942		
	Scientific expenses		40,532		
Other expenses		15,660			
	Balance at 31st December 1972			186,134	
<hr/>					
3. Wolfson Donation Fund	Balance at 1st January 1972			63,702	
	Investment income			4,487	
	Balance at 31st December 1972			£68,189	
<hr/>					
4. Publications Funds			<i>Zoological Record Fund</i>	<i>Neave Lloyd Fund (Nomenclator Zoologicus)</i>	
	Balance at 1st January 1972		13,929	13,794	
	Sales and donations		95,983	1,072	
	Investment income		783	496	
			110,695	15,362	
	<i>Less: Publication and distribution costs</i>		90,329	2,448	
		Balance at 31st December 1972		£20,366	£12,914
	<hr/>				
	5. Staff Benevolent Fund	Balance at 1st January 1972			1,082
		Investment income			43
Balance at 31st December 1972				£1,125	
<hr/>					
6. General Reserve Fund	Balance at 1st January 1972			90,000	
	Fees of deceased Compounders (from Composition Fund)			439	
	Net profit on sale of investments			132,233	
				222,672	
	<i>Less: Transfers - General Purposes Account</i>		7,642		
	Buildings Replacement Fund		45,000		
Rebuilding Account		45,000			
	Balance at 31st December 1972			97,642	
<hr/>					
7. Buildings Replacement Fund	Balance at 1st January 1972			254,870	
	Investment income			9,872	
	Transfers - Income and Expenditure Account			26,000	
	General Reserve Fund			45,000	
				335,742	
	<i>Less: Expenditure</i>			8,063	
	Balance at 31st December 1972			£327,679	
<hr/>					
8. Freehold Property at Cost	Balance at 1st January 1972			120,621	
	Purchase of staff house			7,642	
	Balance at 31st December 1972			£128,263	
<hr/>					
9. Stocks	No values are included in the Balance Sheet for:				
	a. Animals			c. Plant, vehicles, fittings and furniture	
	b. Library books and pictures			d. Farm and garden stocks (Whipsnade)	

10. Rebuilding Account	Balance at 1st January 1972	£	£	£
	New works			110,267 Dr. 191,783
				<u>302,050 Dr.</u>
	<i>Less: Transferred from General Reserve</i>		45,000	
	Donations and grants (received or due):			
	H.M. Government	114,174		
	Sobell donation (final instalment)	27,435		
	Miscellaneous	3,579		
		<u> </u>	<u>145,188</u>	<u>190,188</u>
	Balance at 31st December 1972			<u>£111,862 Dr.</u>

11. De Arroyave Fund The capital of the De Arroyave Fund is held by the Official Trustee of Charitable Funds. The income from the Fund was £5,130, and from this £10 was spent on the upkeep of the Lopes grave and mausoleum, in accordance with the terms of the Trust.

12. Davis Fund The capital of the Davis Fund is held in trust by the Society, but is not included in the Balance Sheet.