The
NATIONAL
ZOOGLOGICAL
GARDENS
OF SOUTH AFRICA
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PRETORIA
Jan Willem Boudewyn Gunning.
THE NATIONAL ZOOLOGICAL GARDENS OF SOUTH AFRICA

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by

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This book is dedicated to the Board of Trustees of the National Zoological Gardens of South Africa.
PREFACE

Although the National Zoological Gardens of South Africa have been in existence for more than half a century, no connected account of their history and work has hitherto appeared. This book is an attempt to fill that want.

The Zoo in Pretoria was founded during a period of *Sturm und Drang* in Transvaal, and hence there is little information about its early history. It was felt, however, that the time had come to place on record something about its history and activities before what is known sinks into oblivion. As I have had the privilege of being in charge of the Zoo for almost one-half of the period of its existence, it seemed to be my duty to write this book.

It is a pleasant task to thank the Board of Trustees of the National Zoological Gardens for permission to use the photographs in this book. Cordial thanks are also extended to Mr. W. A. Macdonald, Chief Architect of the Public Works Department, for the diagram of the grounds and the graph of the admission figures. I am grateful, also, to Dr. A. K. Haagner for permission to use a copy of a photograph of the lioness “Beauty”.

There is a growing interest in the National Zoological Gardens and their work, and hence it is hoped that this book will be of interest to the many friends of the Zoo throughout South Africa and elsewhere.

R. BIGALKE.

Zoo House,

Pretoria.
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CHAPTER 1

HISTORY OF THE NATIONAL ZOOLOGICAL GARDENS

There is probably no zoological garden anywhere in the world that came into existence in the same unorthodox manner as the National Zoological Gardens. It was in October of the year 1899 that this institution was founded at “Rus in Urbe”, and up to the year 1913 its fate was inseparably linked with that of the Transvaal Museum, formerly the “Staatsmuseum der Zuid-Afrikaansche Republiek”.

The existence of a modern zoological garden in the administrative capital of the Union is entirely due to the late Dr. J. W. B. Gunning. If he had not persisted in his efforts and overcome all difficulties with great astuteness, it is most unlikely that a modern zoo would have existed in Pretoria today. During the years 1900 to 1913 he filled the dual post of Director of the Transvaal Museum and Zoological Gardens with distinction.

The idea of founding a state museum for the South African Republic originated with the Secretary of State, Dr. W. J. Leyds, as far back as 1892. In 1895 (Deed of Transfer 3076/1895) the Republican Government purchased the property known as “Rus in Urbe”, for the sum of £8,500 from the estate of Johannes Francois Celliers, founder of De Volksstem. This ground is a portion of the farm Raspoort No. 192 and was acquired for the purpose of establishing a zoological garden. In the deed of transfer the area is stated to be 19 morgen 258 square roods, but on being resurveyed by Mr. F. S. Watermeyer in February of the year 1896, the area was found to be 19 morgen 481 square roods. In the year 1935 that portion of Paul Kruger Street (formerly Market Street) that lies between Boom Street and the Apies River bridge was transferred to the City Council of Pretoria. As this portion (A 1731/35) measures 1.4958 morgen, the present area of “Rus in Urbe” is 18 morgen 184 square roods.

After the Jameson Raid (30th December, 1895, to 2nd January, 1896) the plan of establishing a zoological garden in Pretoria was abandoned for the time. The Director of Education was allowed to use the house of the late J. F. Celliers at “Rus in Urbe” as a second hostel for about twenty lads of the Staatsgymnasium, and the rest of the land was let to a horticulturist for some time.
As an interesting sidelight it may be mentioned that the official telegrams and other documents dealing with the Jameson Raid were for many years deposited in the Old Museum, which stands on a part of "Rus in Urbe". It was not until the year 1950 that these documents were transferred to the Chief Archivist.

On the 8th December, 1897, the Board of Trustees resolved to promote Dr. J. W. B. Gunning from Acting Director to Director of the Staatsmuseum. Previous to the erection of the museum in Boom Street, the museum collections were housed in the Market Hall on the market square of Pretoria. Live animals were presented to the Staatsmuseum from time to time, and by the end of January, 1898, Dr. Gunning reported that the following live animals were on hand:— one Serval, one Bushy-tailed Meerkat, one Cape Pole-cat, two Large Grey Dormice, one Duiker, one Gemsbuck, one Water Monitor, five Baboons, one Vervet Monkey, one jackal, one large tortoise, about 50 small birds of different kinds and one owl. These animals were kept at the back of the Museum in a yard measuring about twenty square yards.

Up to that time Dr. Gunning and Mr. P. A. Krantz (taxidermist of the Museum) had paid personally for the maintenance of these animals, but as the expenses connected with their keep were becoming too high, Dr. Gunning asked the Museum's Trustees to try and get a small sum placed on the estimates for the purpose of starting a zoological garden. Although this attempt failed, Dr. Gunning was not discouraged. Very soon he again approached the Trustees and obtained permission to have a few simple bird-cages made from packing-cases. These were required in order to keep the large number of small birds offered from time to time until their plumage had become suitable for mounting. He insisted that this was necessary in order to get satisfactory series of the various kinds. Dr. Gunning was authorised to have the bird-cages made at a cost not exceeding ten pounds, with the result that the birds were kept indefinitely.

In June, 1898, the Trustees agreed to the purchase of the following animals for the sum of £10: one Serval, two Kafir-cats, two Bushy-tailed Meerkats, two Slender Mongooses, one Genet, two Cape Pole-cats, one Spotted Eagle-owl, one Vlei Otomys and one Python. An expenditure of £25 was also authorised for cages for these animals, and the Director was allowed to spend not more than four shillings per day for their maintenance. This was very soon increased to ten shillings per day.

With additional purchases the collection of live animals gradually grew. As from 40 to 50 people a day wished to see the animals, the Trustees agreed on the 17th February, 1899, to levy an entrance fee
of 6d. per head for adults and 3d. each for children. The income from this source paid for the maintenance of the animals. As it was felt to be cruel to destroy birds to fill the show-cases of a museum, a private appeal for funds was made by the Director in 1899. The first large donation of £25 came from Mr. (later Sir) Julius Jeppe. Other donors were Mr. Vorstmann £25, T. W. Beckett £20, Dr. H. J. Coster £10, Mr. T. Haarhoff £5. 5. 0., Mr. J. H. de Bussy £5. 5. 0., Mr. R. T. N. James £5, Baervelt and Heyblom £2. 2. 0., Mr. A. Johnston £2 and a few smaller amounts. Through the kind offices of the Managing Director, Mr. Kretschmar van Veen, the “Nederlands Zuid-Afrikaansche Spoorwegmaatschappij” assisted the young zoo with a handsome donation of £500 in September, 1899. Earlier in the same month a donation of £17. 12. 6. was received from the management and officials of the Spoorwegmaatschappij.

On the 26th April, 1899 (Raadsbesluit No. 438) the Executive Committee granted an application submitted by Dr. Gunning through the Chief of the Public Works Department for a sum of £200. This was required for building cages for a collection of live animals. The application was granted subject to the condition “dat de hokken zullen worden opgesteld ter plaatse waar de dienentuin zal komen”. In the preceding year an amount of £100 had been made available through the Public Works Department for a similar purpose.

When the Anglo-Boer War broke out in October, 1899, the inmates of the hostel at “Rus in Urbe” either joined the Republican forces or went home. As part of the ground was not in use at the time, Dr. Gunning cast his eyes on this locality for the establishment of a zoological garden. Residents in the neighbourhood of the market square were encouraged to complain about the unpleasant odours and the noises coming from the animals, with the result that the Chairman of the Museum’s Board, Dr. N. Mansvelt (who was also Director of Education, and as such was in charge of the ground “Rus in Urbe”), allowed Dr. Gunning to transfer the small collection of live animals “temporarily” to “Rus in Urbe”. The transfer was made on the four days October 18th to 21st of the year 1899 at a cost of £7. 15. 0. As stated by Dr. Gunning the greater part of “Rus in Urbe” was at that time let to a gardener for horticultural purposes, and in order to get hold of some of the ground he was privately bought out and a few small cages were dotted about the ground.

A formal resolution to establish a zoological garden in Pretoria was never taken, and it is only due to Dr. Gunning’s perspicacity and fixity of purpose that the National Zoological Gardens ever came into existence.
In May, 1900, Dr. Gunning proposed that the Trustees of the Museum should assume responsibility not only for that portion of the grounds already occupied by the young zoo, but also for the whole of "Rus in Urbe". Under the chairmanship of Dr. N. Mansvelt the Trustees unanimously decided to inform the Government that they considered the Zoo to be a department of the Museum. In accepting responsibility for it, the Trustees desired to assume authority over the whole of "Rus in Urbe". As the lessee of the ground, Mr. C. Blok, wished to leave, the Trustees were prepared to compensate him up to an amount of £65 for the improvements that he had made and for the ground on which the new museum (i.e. the museum in Boom Street) was being built.

On the 5th June, 1900, Pretoria was occupied by the British forces. After this the Trustees appointed by the South African Republic no longer functioned, but Dr. Gunning remained as Director of the Museum and Zoological Gardens. The Military Governor, Major-General Sir J. G. Maxwell, allocated £375 per month for the combined institutions and both he and Major C. Thompson took an active interest in the work of the Zoo.

In August, 1901, the Pretoria Museum and Zoological Gardens were taken over by the Civil Administration and a new constitution was drawn up. Dr. Gunning remained as Director, and the following gentlemen were appointed as a committee of management: Mr. G. Fiddes, C.B. (Secretary to the Transvaal Administration), Col. J. Spencer Ewart, C.M.G., Mr. A. Karlson (City Engineer), Mr. A. Johnston (merchant) and Mr. J. G. C. Wagner (Civil Commissioner). Mr. Fiddes was chairman of this committee.

In November, 1901, the Transvaal Administration increased its monthly grant to £500 for the combined institutions, and the Committee was empowered to enrol subscribing members at fees of £5. 5. 0. and £2. 2. 0. per annum.

Under the energetic guidance of its able Director, the Zoo now made rapid progress and its collection of animals increased considerably.

The Committee almost immediately realised that a liberal amount of space was essential for a proper zoological garden, and, bearing future developments in mind, it wisely tried to obtain more ground on the northern side of the Apies River. The result was that by Executive Council Resolution No. 417 of the 29th August, 1902, an area of approximately 19 morgen 350 square roods on the northern side of the Apies River and abutting on Market (now Paul Kruger) Street was reserved for the Committee of the Museum and Zoological Gardens.
In January, 1904, the Secretary for Lands enquired of the Surveyor-General whether the area of the additional land could be furnished, but the Surveyor-General's reply was that this could not be done because the land had not been surveyed. The Northern Extension (Reserve 20: S.G. No. A. 5698/06) was actually surveyed by Mr. H. M. Anderson during the period December, 1905, to April, 1906, and found to be 13 morgen 274 square roods. The plan of the surveyed Northern Extension together with other surveyed reserves on the Townlands (S.G. No. A. 4586/05) was finally approved on the 28th July, 1908. By Executive Council Minute No. 1817 of the 4th March, 1909, an area of 13 morgen 274 square roods (the "Northern Extension") was reserved as a "Museum and Zoo Extension". The area of approximately 19 morgen 350 square roods reserved by Executive Council Minute No. 417 of the 29th August, 1902, was thereby cancelled.

In the year 1935 the City Council of Pretoria transferred a triangular area of 26,817 square feet (portion 52 of the farm Pretoria Town and Townlands No. 599 situated near Eloff's Cutting, A. 2302/35) to the National Zoological Gardens (Deed of Transfer No. 16213/1935 dated 11th November, 1935). This transfer was approved by Executive Council Minute No. 215 of the 6th February, 1936.

The Northern Extension was fenced with a steel paling fence five feet high at a cost of £834. 10. 0. in the years 1905 to 1906.

In January, 1903, Mr. A. Johnston was elected Vice-Chairman of the Committee and later he became Chairman. During his long term of office, which terminated with his death in November, 1919, he rendered the Zoological Gardens valuable services and did much to advance their interests.

In March, 1903, the Government approved of a change in name from Pretoria Museum and Zoological Gardens to Transvaal Museum and Zoological Gardens.

As the result of a decision taken by the Union Government, the Transvaal Museum and Zoological Gardens were separated from one another in April, 1913, and each institution was placed under a Committee of Management and a Director. Within the comparatively short period of almost fourteen years, the Transvaal Zoological Gardens, which had really come into existence as a branch of the Transvaal Museum, had grown to such an extent under the able management of Dr. Gunning that it was necessary to provide a separate Committee and Director.

On the 23rd June, 1913, the first Director of the Transvaal Zoological Gardens, Dr. J. W. B. Gunning, passed away after a pro-
tracted illness. He was responsible for the establishment of the National Zoological Gardens of South Africa, and their rapid advancement and extension in the early years are due to his never-ceasing interest and energy.

Dr. Gunning was succeeded by Dr. A. K. Haagner, who served as Director from January, 1914, until November, 1926.

In September, 1916, the name of the institution was once more changed from Transvaal Zoological Gardens to National Zoological Gardens of South Africa, the name which it still bears.

Mr. H. C. Jorissen was elected Chairman in December, 1919, and served in this capacity until he resigned in October, 1926. He was succeeded by Dr. D. E. Malan, Professor of Zoology at the Transvaal University College (now the University of Pretoria), in the same month. In September of the year 1927 Dr. Malan was succeeded by Mr. N. Spencer, who served as Chairman until August, 1932. In the latter month Dr. Malan again became Chairman and served in this capacity until he resigned as a member of the Board in 1954.

The present Director is the third and assumed duty on the 1st April, 1927.

At the beginning of the year 1927 the National Zoological Gardens were faced with an accumulated deficit of £2,739, the greater part of which was incurred during the Great War years, when the Committee was faced with reduced Government grants-in-aid, reduced revenue from other sources and increased prices of foodstuffs and commodities of all kinds. As the result of strong representations to the Government, a loan of £2,500 was received in July of the year 1927. This enabled the Committee to settle the accumulated liabilities and to make certain savings by buying in cheaper markets. But it left unsolved the vital problems of replacing tumble-down buildings and making extensive repairs to others. Relief in this respect was forthcoming in the year 1930, when the Government began to provide certain funds for repairs and minor works. The loan was liquidated early in 1938.

In the year 1930 the Committee established a Pension and Provident Fund for its European employees. This was no simple matter, since no provision of any kind had previously been made, and the institution's financial position was still very precarious. The very inadequate pension fund will cease to operate when those employees have retired who were in the institution's service prior to January, 1930.

By Government Notice No. 1399 of the 6th October, 1933, the institution was incorporated under the State-aided Institutions Act Act No. 23 of 1931), and the Committee became the Board of
Trustees of the National Zoological Gardens of South Africa. A new constitution was drawn up and published in the Government Gazette of the 6th October, 1933.

In the year 1935 the area of the National Zoological Gardens was further increased by 16·3493 morgen reserved by Executive Council Minute No. 2779 of the 15th November, 1935 (Position O of the farm Prinshof No. 628, diagram S.G. No. A. 1567/36). This area lies on the eastern side of the Northern Extension. At present the total area of the National Zoological Gardens is 48 morgen 254 square roods.

Apart from the new zoo built on the Northern Extension, numerous replacements, alterations and repairs have been made since the year 1927 and new buildings built. A complete enumeration cannot be made here, but it should be stated that the drainage of "Rus in

Plan of the National Zoological Gardens.

Kindly supplied by Mr. W. A. Macdonald, Chief Architect of the Public Works Department.
Urbe" met with special attention in the years 1936 and 1937. Previous to this there was only one brick furrow in the Zoo. In the year 1937 the macadamising of the more important roads in the Zoo was started, and this work is being continued as funds permit.

With the exception of the depression years 1930 to 1932 and an occasional subsequent year, the number of persons visiting the Zoo has steadily risen since the year 1927. A record admission was attained in the year 1952, when 368,266 people passed through the turnstiles.

In view of the much larger crowds that must be handled in recent years, the Board found it necessary to replace the two small ticket-offices that had served since the year 1904. An entrance worthy of the institution was, therefore, built in the year 1942.

On the 23rd November, 1951, the Minister of Education, Arts and Science, the Honourable J. H. Viljoen, unveiled a bronze tablet in memory of the late Dr. J. W. B. Gunning. The memorial was designed by the late Mr. J. S. Cleland, formerly a member of the Board of Trustees, and is situated in the main avenue not far from the main entrance.
CHAPTER 2

MANNER OF ADMINISTRATION

When the Transvaal Museum was established in the year 1892, it was founded as the "Staatsmuseum der Zuid-Afrikaansche Republiek". From the beginning it was clearly realised that the principal functions of the Staatsmuseum should be scientific, educational and historical. Sound judgment was displayed, therefore, when it was decided that the Museum should come under the jurisdiction of the Republic’s Department of Education. A Board of Trustees of five members was appointed to administer the institution, and of these five gentlemen the Superintendent of Education was the chairman *ex officio*. In this manner a close link between the Museum and the Department of Education was maintained.

The first Board of Trustees consisted of the following members: Dr. N. Mansvelt (chairman), Dr. G. W. S. Lingbeek, Dr. H. G. Breijer, Dr. W. J. Fockens and Mr. Geo. Leith. When the late Dr. Gunning began to collect live animals at the Staatsmuseum in 1897, the young zoo was, of course, administered by the same Board of Trustees as the Museum.

Although the Board derived the whole of the Museum’s income from the Republican Government, the Staatsmuseum was not considered to be a Government department in the strict sense of the term.

It has already been pointed out that the name of the combined institutions was changed from Pretoria Museum and Zoological Gardens to Transvaal Museum and Zoological Gardens in March of the year 1903.

In his annual report for the year 1904-05, Dr. J. W. B. Gunning states that "the year 1904-05 is the last year that the Transvaal Museum and the Transvaal Zoological Gardens have one and the same administration; as from 1st July, 1905, the Transvaal Museum has been raised to the rank of a Government Department under the Colonial Secretary as Executive head". Although this report does not state how this change affected the administration of the Transvaal Zoological Gardens, it does state that "the Gardens are governed by the same Committee as the Transvaal Museum".

In his report for the year 1st July, 1905, to 30th June, 1906, Dr. Gunning makes no mention of the affairs of the Transvaal Zoological Gardens. But in the report for the year 1st July, 1906,
to 30th June, 1907, he points out that the administration of the Transvaal Zoological Gardens gradually became the principal function of the Committee of the Transvaal Museum and Zoological Gardens. He states further that "in 1906 the Transvaal Museum, which had hitherto been maintained as a semi-private institution financed by the Government, was raised to the status of a Government sub-department and was placed under the direct control of the Minister of Agriculture. No change, however, was made in the status of the Zoological Gardens, which remain to this day a semi-private institution, partially supported by an annual grant made by the Colonial Secretary's office".

With the advent of the Union of South Africa on the 31st May, 1910, a number of institutions in the four colonies were grouped together as state-aided institutions and placed under the jurisdiction of the Department of the Interior. On the 1st April, 1948, the following fourteen state-aided institutions existed in the Union of South Africa: The South African Museum, Cape Town; the South African National Art Gallery, Cape Town; the Michaelis Collection, Cape Town; the Koopmans-de Wet House, Cape Town; the South African Public Library, Cape Town; the Transvaal Museum, Pretoria (Old Museum, New Museum and Kruger House); the Engelenburg House, Pretoria; the National Zoological Gardens of South Africa, Pretoria; the State Library, Pretoria; the South African War Museum, Johannesburg; the Natal Museum, Pietermaritzburg; the Voortrekker Museum, Pietermaritzburg; the National Museum and Monument Museum, Bloemfontein and the National Botanic Gardens, Kirstenbosch.

For what reasons state-aided institutions were placed under the Department of the Interior is not clear. The decision may merely have been a case of following the path of least resistance, or possibly the Department of the Interior was at that time not so heavily burdened with administrative work as other departments. At any rate, the institutions remained under that department until the 31st March, 1948, and were then taken over by the Department of Education, now the Department of Education, Arts and Science. The transfer was made as the result of a recommendation in the Sixth Report of the Public Service Enquiry Commission dated 8th April, 1947. The relevant section of this report reads as follows: (Paragraph 430) "Grants to museums, libraries, art galleries and kindred institutions (which include the National Zoological Gardens of South Africa, the National Botanic Gardens, the Engelenburg Collection and the Natural and Historical Monuments Commission) are made by the Department of the Interior. Both the Secretary for the Interior and the Secretary for Union Education agree that
these grants should be made by the Department of Union Education and your Commission takes the same view. Your Commission accordingly recommends that all such grants should appear on the Estimates of Expenditure of the Department of Union Education”.

A proposal that state-aided institutions should be placed under the jurisdiction of the Union Department of Education was made by Dr. T. G. Nel (at that time guide-lecturer of the National Zoological Gardens) and myself as far back as the 30th September, 1943, when a joint memorandum was submitted to the Committee of Enquiry on Adult Education.

After the lapse of almost 49 years, during which the National Zoological Gardens shared all the status vicissitudes of the parent institution (the Transvaal Museum) since 1899, the Zoo was again placed under the jurisdiction of the same department under which it had originally come into existence. No greater compliment than this can be paid to the acumen of the late Secretary of State, Dr. W. J. Leyds, for it was during his term of office that the Transvaal Museum was established under the jurisdiction of the Republic’s Department of Education. It seems remarkable that 38 years should have elapsed after Union before it was realised that the obvious home for the country’s state-aided institutions was the Department of Education, Arts and Science. The matter is all the more remarkable since the way was shown by the Government of the S.A. Republic as far back as 1892.

Although the Department of Education, Arts and Science is the obvious home for the country’s state-aided institutions, the change made in the year 1948 will be of little practical significance to the various boards of trustees, unless it is associated with a new deal for all the institutions concerned. What all of them require more than anything else to enable them to carry on their educational, scientific and recreational functions in a proper manner is adequate financial support from the State.

Apart from the small zoological garden at Groote Schuur, which is administered by the Public Works Department as a portion of the Groote Schuur Estate under the will of the late Cecil John Rhodes (Rhodes Will Act No. 9 of 1910), the National Zoological Gardens are the only state-owned zoo in the Union. They are not, as is often believed, a municipal institution, but the City Council of Pretoria makes an annual grant-in-aid, albeit an inadequate one, towards the cost of maintaining the Zoo. The Groote Schuur Zoo in Cape Town is really being maintained in memory of Rhodes’s munificent gift to the country. It is unlikely to undergo any great expansion in the future.

As the combined Government and municipal grants-in-aid
received by the Board of Trustees of the National Zoological Gardens cover only a part of the annual expenditure, it is necessary to levy a charge for admission. The revenue from this source covers about one-third of the annual expenditure.

It has often been pointed out to me that no charge is made in the case of the Zoological Gardens of Johannesburg. The explanation is simple. In the case of Johannesburg the annual expenditure on the Zoological Gardens amounting at present to more than £55,000 is met in toto by the City Council of Johannesburg. The Johannesburg Zoo is a municipal institution, and as such the ratepayers bear the whole cost of running their zoo.

The National Zoological Gardens are controlled by a Board of Trustees the fourteen members of which serve in an honorary capacity. Twelve members are appointed by the Minister of Education, Arts and Science in accordance with the provisions of the State-aided Institutions Act, No. 23 of 1931, and two by the City Council of Pretoria. In making grants to public institutions and Societies, the City Council of Pretoria stipulates that if the grant exceeds £100 per annum the Council must have two representatives
on the institution or society concerned. The Minister's candidates are appointed for a period of three years and the Council's representatives for a period of one year.

At the annual meeting held in April the Board appoints its own chairman and vice-chairman.

The Zoo's regulations make provision for a number of standing committees among which the work is apportioned. Of these committees the Finance Committee meets once a month. As a rule the Board holds eleven meetings every year.

The Director of the National Zoological Gardens is the chief official and is directly responsible to the Board for the management of the institution. Apart from the clerical staff in the Director's office, there is also a professional assistant who helps the Director and takes the latter's place when he is absent from office. The scientific tradition of the institution has been maintained ever since the late Dr. J. W. B. Gunning founded the Zoo in the year 1899.

In addition to the Finance Committee, there have for many years been three other standing committees, namely a Gardens and Works Committee, a Buying and Selling Committee and a General Purposes Committee.

The Gardens and Works Committee deals with all matters affecting the lay-out or alteration of the Gardens, the planning of new buildings and camps, the arrangement of entertainments and the repairs and maintenance of buildings.

The Buying and Selling Committee, as the name implies, deals with the purchase and sale of animals.

The General Purposes Committee meets only occasionally and deals with such matters as are assigned to it by the Board.

The work of the Zoo is divided up among two main sections, namely the animal section and the gardens section. The former is under the immediate control of a Foreman-Storekeeper and the latter under that of a Head-Gardener. As there are usually more than two thousand animals in the national collection, it is necessary to divide it into a number of smaller sections. This is done by having several sections each of which is in charge of an European keeper with the necessary native labour. The Zoo is open on every day of the year.

There are numerous buildings and enclosures to house the collection, and as these require constant attention, the staff also includes an iron-worker, a handyman-carpenter, a mason and a painter.

Successive Head-Gardeners at the Zoo have built up its reputation for its flowers and trees. Among the latter there are beautiful specimens and rare kinds like the Ginkgo, the Giant Redwood and others. There are also fine specimens of *Eucalyptus, Araucaria,*
*Taxodium, Tipuana, Celtis*, oaks, poplars, pines, coral trees and many others.

On the Jeppe Terraces there are many specimens of the indigenous Kaffir *Wag-'n-Bietjie* in the natural enclosures for lions and cheetahs. Here some lions are exhibited among the same kind of natural vegetation among which these animals used to roam in the free state in the days of the Voortrekkers.

For many years the large carnivorous animals in the Zoo's collection were under the care of keeper F. Schlüter. He fought in the Anglo-Boer War and was captured by the British near Nelspruit in 1900. For about six months he was kept as a prisoner of war in a camp near to the Zoo's present open-air enclosure for lions. As a lad of 18 years it did not occur to him that he would at a later date be in charge of the Zoo's lions on practically the same site.

The gardening activities keep several gardeners, a number of natives and about twenty convicts fully occupied. Many hundreds of thousands of flowering plants, shrubs and trees required every year are grown in what is now a well-equipped nursery. All gardeners of public institutions get new specimens from time to time by way of exchange, and the Zoo's Head-Gardeners have followed this time-honoured custom. Prior to the year 1946 the Zoo's nursery was much too small and left much to be desired. But in that year a large area that formerly served as an orchard for the Director's official residence was made available, and on this and an adjacent piece of ground a spacious nursery was laid out.

The Head-Gardener is also responsible for cleaning the grounds, attending to lawns, filling up eroded enclosures, cutting down and replacing old trees and for many other jobs that need not be mentioned here.

Nature-lovers keep a watchful eye on the Zoo's gardening activities, and sometimes the Director is called upon to give an explanation when trees are cut down. As the Zoo has been in existence since 1899, it is necessary at times to remove old trees and bad specimens and to clear up untidy areas. But in such cases new trees are always planted.

On the southern bank of the Apies River, which runs through the Zoo, it has been customary to have a number of weeping willows, but the life of these trees does not exceed about 30 to 40 years in the Zoo. They are liable to be attacked by the larvae of boring beetles and for this and other reasons the pith rots. After a storm or heavy rains the trees are liable to fall down and sometimes this results in damage. On one occasion not so long ago a large willow tree fell on to the western boundary fence across Paul Kruger Street. It slowed down the traffic on this busy street until the wood could be
cut up and removed. But on account of their delicate foliage in the spring and their attractive yellow autumn tints, it is felt that there should always be some weeping willows along the river-bank.

Of all trees in the Zoo, the kind with the most attractive autumn foliage is, no doubt, the Swamp Cypress. The delicate foliage becomes a coppery red before it is shed in the winter. Apart from a few single specimens, an avenue of *Taxodium* trees was planted along the Deer Paddocks in the year 1930 by Mr. J. Korthals, F.R.H.S., the Zoo's Head-Gardener at that time.

In the autumn the yellow leaves of the Ginkgo also draw the attention of visitors.

The keepers have to attend to the feeding of the animals in their particular section, the cleaning of the buildings, cages and enclosures, the treatment of sick animals, the rearing of young animals by hand when necessary, the moving of animals and the general comfort and welfare of their animals.

The Board of Trustees has complete control over the institution with the Director in charge of the internal management. All matters that call for the Board’s decision are placed before the Board and its committees, and the Director carries out the decisions that have been taken. In the case of the committees, the recommendations must be approved by the Board before they can be acted on. As the Director also acts as Secretary to the Board, he is responsible for preparing the agendas and drafting the minutes. The Director submits both a monthly and an annual report to the Board.

The institution’s accounts are subject to Government audit. Prior to the 1st April, 1948, the books were kept by a part-time book-keeper. Much of the routine work thus devolved upon the Director. But from the 1st April, 1948, a full-time book-keeper-clerk attends to the books and accounts.

Most foodstuffs are bought under the Government contracts arranged by the Union Tender Board, but in the case of meat, bread, fish, green fodder and bananas, the Board arranges its own contracts. The constantly rising prices since the year 1938 have resulted in a very substantial increase in expenditure on the Zoo’s annual food-bill. Beef, for example, now costs about four times as much as it did in the year 1938. But substantial savings on the outlay for meat are achieved by using cast animals and donkeys.

The Board pays for all services rendered by the City Council of Pretoria, that is to say for water, sanitation and current. But in the deed of transfer of “Rus in Urbe” there is a servitude on irrigation water from the Apies River. In the spring and early summer, however, when the irrigation water is most needed, very little is usually available. The water is obtained from a weir across the Apies
River just above the Esselen Street bridge. In the days of the Staatsrepubliek irrigation water used to run in open furrows along some of Pretoria’s streets, but many years ago a brick furrow was built along the northern pavement of Boom Street, and the Zoo takes the water from this furrow by means of sluices. Much trouble is experienced from the roots of the plane trees on the pavement. The roots grow through between the bricks and form large matted bunches which obstruct the flow of the water. The fine plane trees along the northern pavement of Boom Street adjoining the Zoo owe their luxurious growth to the water that they take from the Zoo’s irrigation furrow. But in spite of this the servitude is of value to the institution. The water can, of course, be used only for irrigating flower-beds and can only be brought to certain parts of the grounds.

Although the plane trees along the Zoo’s fence in Boom Street cause a great deal of work at times and deprive the Zoo of water to which it is entitled, it has not yet been possible to get the City Council to keep the furrow clear of obstructions caused by the Council’s trees.

During the past quarter of a century the administration of the National Zoological Gardens by means of a Board of Trustees has worked well. It has, in fact, worked so well that the Government auditors have been able to find but little fault with the administration from year to year.
On the 1st April, 1927, I assumed duty as the third Director of the National Zoological Gardens. It was not a propitious day on which to start work. All day long local and long-distance telephone calls were coming through for Captain Lyon, Mr. G. Raffe, Mr. Joseph (the name of a renowned Chimpanzee in the collection at that time) and the like. This sort of thing goes on throughout the year, but on the 1st April it often gathers the momentum of an offensive. The Zoo's office staff soon learned, however, how to deal with these disturbing telephone calls on April fool's day. It became the practice to telephone the exchange as early as possible on the 1st April and to tell the operator that no calls would be accepted irrespective of where they came from. When the automatic system came into operation, the receiver was merely taken off the bracket and a single digit dialled. On the few occasions on which a call did slip through, the reply was either that the wrong number had been dialled or that the person was unknown. The same replies are given during the year.

It is remarkable how heavily time drags on the hands of some people. More remarkable still is the fact that there seem to be so many people with so little to do. I have recently learned that this dull form of amusement, if such it is, is not limited to Pretoria. Most zoological gardens in other parts of the world seem to be pestered with the same thing.

It did not take long to discover that the Zoo's position was indeed bad. Not only were the coffers empty, but the Committee (now the Board of Trustees) was faced with accumulated debts to the extent of £2,739 at the end of the year 1926. Most of this was due to local merchants for foodstuffs and other supplies purchased before the year 1926. Prior to my appointment, the Committee took up the matter with the Minister of the Interior, at that time Dr. D. F. Malan, with the result that a loan of £2,500 free of interest became available in July of the year 1927. This was the position as I found it. But to this day I cannot help feeling that it was a mistake to ask for a loan. The financial difficulties with which the Committee was faced were largely due to increased prices during the First World War and subsequent years. Then, as now, prices had continued to rise, but no compensating increases were made in the grants. The position was
greatly aggravated by the fact that the Government grant-in-aid was actually reduced during the two years 1915 and 1916 and again in 1918 and 1919. Even with somewhat higher grants in the years 1917 and 1920, the Committee lost £1,400 in Government grants-in-aid during the years 1915 to 1920. Half of the deficit was due, therefore, to reductions in the Government grants.

Under these circumstances it was impossible for any Director, even if he had been sent to the Zoo direct from the Treasury, to make ends meet. If the Committee had made it quite clear that it was not prepared to continue to serve the institution unless the accumulated deficit was wiped out by the Government, so that a new start could be made, I feel that a grant would have been made instead of a loan.

With the exception of the years mentioned above and also the years 1931 to 1934, when reductions were again made, the Government grant-in-aid remained unaltered at £6,000 per annum during the twenty-eight years 1909 to 1937. The significance of this did not seem to be realised by those in charge of the Department. It could mean only one of two things, namely either that no progress had been made at the Zoo during 28 years, or that it was not proposed to acknowledge that progress had been made.

Apart from the unsatisfactory state of the finances, the position was even worse in the Zoo itself. On all sides it was the same story of dilapidated and tumble-down buildings. At that time there were a number of buildings constructed of wood and corrugated iron with wooden palings or trellis-work on the front side. In most cases the wood had rotted away to a greater or lesser extent, and this gave the impression of extreme neglect. There was not a single tarred road in the 38 acres of "Rus in Urbe" nor a single stormwater furrow of a permanent nature. The only brick furrow in the Zoo was one in front of the Pheasantry, and it served for irrigation water. As the gradient from Boom Street to the Apies River is considerable, it was necessary for the Head-Gardener after heavy rains to recover as much of the surface soil as he could from the river-bed, or to bring soil from elsewhere to make good the damage done to the dirt roads and stormwater furrows. The lack of proper drainage was a serious problem that required prompt attention.

It was clear that the administration of the Zoo could not continue on the basis on which I found it. It would have to be brought home to the Secretary for the Interior that the annual grant-in-aid of £6,000 could at best be intended only for maintaining the collection and the grounds. It was impossible to finance capital expenditure out of a grant-in-aid that was totally inadequate even for maintenance, and that had remained practically unchanged for 28 years.
All efforts to provide buildings and improvements out of the Government grant-in-aid were doomed to failure from the outset. Such attempts could only result in insignificant patchwork.

In the sphere of the actual administration, it was obvious that new regulations would have to be drawn up on a number of matters.

Although some European employees had been in the Zoo's service for more than twenty years, they could not look forward to benefits of any kind on retirement. This was a serious matter, particularly in view of the fact that their emoluments left much to be desired. Regulations for a provident fund were drawn up, but they could not be applied until January of the year 1930 for the simple reason that funds were not available. In addition to this, some slight provision was made for a pension for the older employees. While the provision under both of these headings was very inadequate and still is unsatisfactory, it was better than nothing at all. As a result of the report of the Commission of Enquiry regarding certain State-aided Institutions (1950), there is now some hope that all state-aided institutions will eventually get a uniform Provident or Pension Fund scheme. Some time is likely to pass, however, before that is achieved.

New leave regulations were drawn up as well as regulations for the free admission of scholars and students, for the purchase of animals, for the depositing of animals by dealers, for the wages of native employees and general regulations for the staff.

The collection of animals also called for improvement. At that time there were few restrictions on the acquisition of wild animals in Transvaal, and practically no restrictions in neighbouring territories. It was customary, therefore, for dealers in wild animals to come from other parts of the world to Pretoria. They came principally from Europe to collect consignments of South African animals for supplying European zoological gardens. If space was available, their animals were kept in the National Zoological Gardens at authorised rates until the consignments were ready for shipment. To try and raise additional income some trading was done with these dealers. This meant that animals were sometimes in the collection for short periods only, with the result that little breeding was possible under the circumstances.

The old tea-room, which stood where the present brick shelter at the playground for European children is situated, afforded little shelter in unfavourable weather. A new kiosk authorised by the Committee was completed on the 1st August, 1928. For this purpose the long iron shed with open sides on the northern side of the Large Antelopes' Paddocks was converted into an all-weather tea-room. This building measuring 200 by 50 feet was imported from
England in the year 1908 and was erected for the purpose of providing shelter for visitors during bad weather. Several dog shows were also held in it at various times, and on such occasions the open sides were closed with sail curtains. In the years 1914 and 1915 eighteen wire-netting enclosures were built under the shed for exhibiting such birds as cranes, peafowl, storks and various poultry breeds. When the shed was converted into the spacious Palm-Court Tea-Room, all the enclosures except one at each corner were removed and a kiosk built in the middle of the southern side. Later the floor was paved with slate, and this gave a clean and comfortable tea-room with accommodation for about 500 people.

In the same year a new bandstand was built opposite the new tea-room and provision made for holding at least one concert per month.

On my assumption of duty I did not have a clear picture of what was expected of me. Besides myself there was only a typist-clerk in the office. The books were kept by a part-time book-keeper, which meant that much of the routine work connected with the books had to be done by the typist and myself. The office consisted of a large downstairs room with an upstairs room for records, journals and stationery. These two rooms in the western wing of the Old Museum had kindly been placed at the Board’s disposal by the Director of the Transvaal Museum in about 1914. My office also accommodated the typist-clerk and was used as a Board Room. In 1941 a portion of an adjacent room was partitioned off, and this new room was occupied by the Director and at a later date also by the European guide-lecturer. It is also used for Board and committee meetings. This additional space was also made available by the Director of the Transvaal Museum.

For about three years prior to 1914 the Director was housed in the Zoo’s carpenter shop and the Committee actually held a few meetings there.

After the lapse of more than half a century, the Board of Trustees of the National Zoological Gardens is still without permanent office accommodation.

Whatever may be expected of the directors of zoological gardens in other parts of the world, I found that the following duties were expected of me: that I must control all the administrative work of the institution and do most of the routine work myself, that I must try to do some scientific work without equipment or a laboratory, that I must initiate and control educational work, that I must control and improve the Zoo’s precarious finances, that I must control skilled and unskilled workmen and pay attention to the gardening activities, buy and sell animals and arrange exchanges with zoological gardens in other parts of the world. I was also expected to
plan the required buildings and to accept responsibility for their
maintenance, to act as an information and publicity officer, to
frame and apply regulations, to maintain a large correspondence,
to act as committee clerk for the Committee (now the Board) and
three standing sub-committees, to participate in the activities of
scientific and semi-scientific societies, particularly those associated
with the conservation of the country's fauna and flora, to beg
efficiently, and finally to do all this with a Government grant-in-aid
that bore little relation to the requirements.

The task of begging was, perhaps, the least agreeable of all. While I
could put a case reasonably well in writing, I was unable to beg verbally. But in spite of this success was achieved at times, in
witness whereof it may be said that two of the Zoo's most valuable
animals found their way to the collection free of charge as the result
of representations made by me. The story of the manner in which
"Zuluana" and "Folosi" came to the Zoo will be told later.

In the important gardens of Europe and other parts of the world
there is a much greater division of labour in the many-sided
administration. But a bankrupt institution like the National Zoological Gardens had perforce to be largely a one-man undertaking
at that time. In these very difficult circumstances I found a pillar of
strength in the Foreman and Store-keeper, Mr. T. Combrink, who
joined the Zoo's service in the year 1900 as a lad barely 17 years old,
and I could also rely fully on the co-operation of the Head-Gardener,
at that time Mr. J. Korthals.

The late Justice Carl Jeppe, who was chairman of the Gardens
and Works Sub-committee in those difficult years, was full of enthu­
siasm, and we spent many hours together drafting letters and
marshalling the facts with legal precision for the Department of the
Interior.

Mr. P. I. Hoogenhout became a member of the Committee in
May of the year 1927 but resigned when he became Secretary for the
Interior towards the end of the year 1929. Better days dawned for
the institution when he took over the department under which the
Zoo resorted. His intimate association with the Zoo during a period
of about 2½ years had given him a first-hand insight into its diffi­
culties. When representations were made to him, therefore, he knew
from independent personal knowledge that the claims were well­
founded.

It was not long before Mr. Hoogenhout informed the Secretary
for Public Works that "the Government is responsible for maintain­
ing buildings in exactly the same way as it accepts responsibility
in regard, for example, to the national museums at Pretoria, Cape
Town and Bloemfontein. It has been the case that, practically since
Union, the Zoo Committee has endeavoured to meet the cost of building and maintenance from the Government's grant-in-aid without requiring the Government to do the work”.

Mr. Hoogenhout’s letter (dated 24th April, 1930) stated further “that the Committee has struggled for years to carry on on that basis, and the position has now become extremely acute. Extensive repairs and replacements are absolutely essential owing to the disgraceful state of a number of the buildings”.

At long last the matter was placed in a nutshell and help was in sight. The immediate result was that funds were made available in the year 1930 for some urgent repairs. Ever since then, with a couple of exceptions, something has been provided annually for repairs and minor new works. The funds that are made available for these purposes are not handled by the Board of Trustees. The procedure is that the Secretary for Education, Arts and Science requests the Director to submit a list of his requirements every year. Whatever amounts are provided are placed at the disposal of the Secretary of Public Works, who carries out the programmes or so much of the programmes for which funds have been provided.

At the time of my assumption of duty, children under 14 years of age were admitted at a charge of three pence each. On Dingaans Day of the year 1928 an experiment was tried, namely to admit European children under 14 years of age free provided that they were accompanied by adults. Two such free days were held in the year 1929, three in the year 1930 and four in 1931. These days proved so successful that representations were made to the City Council of Pretoria for an increased grant-in-aid, so that the Committee of Management might make the Zoo free for European children under 14 years of age throughout the year. This proposal had the warm support of the editor of the Pretoria News, Mr. J. Gray, who also was a member of the Committee at that time. This is what he wrote in support of the scheme in a leading article in the Pretoria News on the 30th January, 1932: “Shrill juvenile cheers will greet the announcement that the Management Committee of the National Zoological Gardens have contingently decided in favour of abolishing the admission charge for children, and we are confident that the news will be received with equal if more restrained approval by their elders. The Zoo Committee want to do this, but they cannot do it unless they are assured that the revenue which will thus be sacrificed will be made up from another source. It can be done for £400. Everyone will agree that that is a small price to pay. Surely no greater boon could be purchased so cheaply as this? For £400 the people who control the purse-strings are being offered the privilege of buying a constant and liberal supply of unalloyed happiness for every child in the city and
district. As we know, until the present enterprising Director started his splendid idea of 'free days' on certain public holidays, hundreds of the poorer children in Pretoria and neighbourhood had never been to the Zoo at all. Even the humble 'tickey' can be an effective barrier, particularly in such times as we are living in. Free admission will serve another purpose which, in itself, would justify the grant of £400 or £500 which is being sought. It will give the hundreds of children in North Central district, one of the most crowded areas of the city, a public park which they surely need. This has long been the subject of complaint and agitation, and long a problem for our City Fathers. Here surely is a heaven-sent opportunity to meet the need at a cost that is virtually negligible”.

The result was that the City Council of Pretoria increased its grant-in-aid by an amount of £500 per annum, and the admission fee for European children under 14 years of age was abolished on the 1st August, 1932. Since the 16th September, 1932, non-European children under 12 years of age have been admitted free on one day in each month, and on the 1st July, 1948, this age limit was also raised to 14 years.

Apart from the thousands of European and non-European scholars admitted without charge for educational purposes, about eighty thousand European children under 14 years of age now visit the Zoo every year and pay no admission fee. The Committee’s decision taken in the year 1932 has proved to be a complete success. The tickies that would have been spent on admission are now spent on rides.

But ominous clouds again began to gather. The world was heading for a depression, and owing to the unfavourable economic conditions practically every source of revenue showed a decrease at the Zoo. Both the Government and municipal grants-in-aid were reduced in the year 1931, and the normal Government grant of £6,000 was not restored until the year 1935. Fortunately the Minister of the Interior realised the Committee’s plight and authorised the suspension of the repayment of the Government loan during the years 1931 to 1934.

The effect of the depression is shown by the fact that the admission figures fell from 115,218 in the year 1929 to 105,869 in the year 1931. The decrease would probably have been much greater but for the steady propaganda that was made. Since the year 1931, however, there has been an almost uninterrupted increase of the admission figures to an all-time record of 368,266 in the year 1952.

But in spite of all the financial and other difficulties progress continued to be made, and buildings, enclosures, roads, drainage and the layout of the gardens were gradually improved.
Financial difficulties will continue to recur owing to such factors as wars, depressions and other unstable economic conditions over which the Board, of course, has no control. But the Board is in the fortunate position that its income does not consist entirely of Government and municipal grants-in-aid, as is the case in most other state-aided institutions. When abnormal conditions necessitate increased grants-in-aid, experience during a quarter of a century has shown that it is always a very difficult matter to convince the Secretary that greater financial assistance must be given. Whereas inflated prices are acknowledged to be an adequate reason for increased votes for departments of state, there seems to be great reluctance to acknowledge that these prices must affect state-aided institutions in the same way. Relief is tardily granted and generally follows only some time, perhaps a year or two or even more, after the votes of Government departments have been increased to meet the altered conditions.

A disturbing feature of recent years is the fact that state-aided institutions are being saddled to an increasing extent with expenditure imposed on them by all kinds of Acts and regulations. Among these are the Workmen's Compensation Act, the Unemployment Insurance Act, the compulsory payment of travelling expenses for native employees payable under a War Measure, and the Native Services Levy Act. State-aided institutions are the property of the State. They do not pay dividends in kind, and if they are fortunate enough at any time to have a small excess of income over expenditure this is not paid out to shareholders but is used for the improvement of the institutions. Their dividends are invisible dividends on educational, scientific and cultural planes. The institutions should, therefore, either be exempted from the provisions of the Acts and regulations referred to, or the State should bear the cost by corresponding increases in the grants-in-aid.

In the year 1935 the Board resolved that the time had come to appoint a Professional Assistant at the Zoo. Not only would it be his duty to help the Director with the administrative work of the Gardens, but he would be trained with a view to becoming the Director's successor in due course, and he would act in the Director's place when the latter was absent from office. The first Professional Assistant, Mr. O. P. van der Westhuizen, M.Sc., assumed duty on the 23rd March, 1936.
CHAPTER 4

UNEXPECTED EXPANSION

It has already been stated that additional land for further development was reserved as far back as the 29th August, 1902. It was fortunate indeed that the Committee realised at that early date that more land was necessary for the extension of the Zoo at some future time. It can be taken for granted that the alert Dr. Gunning propagated this matter with his customary vigour, and that he often dreamed of developing the area on modern lines. But his early death prevented such a plan from being realised.

In the year 1929 it was announced that the sum of £9,500 would be expended on the reorganization of the zoological collection at Groote Schuur. The City Council of Cape Town agreed to provide one-half of this amount if the Government gave the other half. When this announcement was made, representations were immediately made to the Secretary for the Interior. It was pointed out to him that the Committee of the National Zoological Gardens had made several unsuccessful appeals for financial assistance in order to place the institution on a proper basis. As the Zoo in Pretoria was a national one, it was felt that the Committee had a prior claim to consideration. It was also pointed out that if a special grant of about £5,000 was being provided for the very small collection at Groote Schuur, at least three times that amount would be necessary for the National Zoological Gardens.

The Secretary for the Interior assured the Committee that the Government would not make financial contributions to any zoological garden other than the national one in Pretoria. But the Government felt that there were special circumstances in the case of Groote Schuur. Apart from the fact that the collection of animals at Groote Schuur was originally brought together by Rhodes and was part of his great gift to the country, it was necessary to move some of the buildings owing to the growth of motor traffic. The only alternative was to do away with the collection.

The Committee availed itself of the opportunity to emphasize that the National Zoological Gardens had a very suitable area for the establishment of a “tierpark”. On account of the natural features of this area, it would not be necessary to build artificial hills and landscapes as had been done at Carl Hagenbeck’s famous “tierpark” near Hamburg. Although no funds were provided for such a
Some of the crates used for moving antelopes to the Northern Extension in the year 1938.

"tierpark" in Pretoria at this stage, the matter was brought prominently to the Government's notice and it enjoyed publicity in the daily press.

The opportunity to start the development of the Northern Extension came most unexpectedly in June of the year 1932. When the Government announced its intention of providing funds for unemployment relief during the depression, I drew the Committee's attention to the possibility of obtaining funds from this source for the development of the Northern Extension of the Zoo. No time was lost in making representations to the Secretary for Labour, and the result was that fifty men were allocated and work started about the middle of August of that year.

A general plan for the layout of the area was drawn up by an architect of the Public Works Department in consultation with myself. That section of the Daspoort Range that lies within the Zoo's Northern Extension varies in height up to about 218 feet above the bed of the Apies River. It is very suitable for such animals as lions, bears, monkeys, Barbary sheep, thars and mouflons. The enclosures for these animals were designed in such a manner as to disturb the natural topography as little as possible. In the case of the two en-
closures for lions and tigers (now cheetahs) the cages for isolating
the animals are situated underneath the road on which the observers
stand, with the result that the cages are almost completely out of
sight.

On the southern side of the raised road an area of several acres
forms an enclosure for Low Veld animals like the Transvaal Zebra,
the Blue Wildebeest, the Impala, the Waterbuck and so on.

In designing this bold scheme two matters met with special
attention, namely (1) to preserve the natural beauty of the area as
much as possible, and (2) to make the enclosures so large that
no objections could be raised in this respect. The size of the en­
closures was, in any event, dependent upon the topography of the
available land. To achieve a natural effect, most of the walls were
built of Daspoort quartzite excavated on the site, and they were sunk
below the surface with the necessary ditches alongside of them. The
ditches are not filled with water as is sometimes done in other parts
of the world. In order to minimise the danger of children falling
into the lion, bear and other enclosures, a double fence was provided
on the front side of these enclosures.

The dominant indigenous tree on the southern slopes of the hillside
is the Kafir Wag-'n-Bietjie (Acacia caffra). The lions can, therefore,
be seen in an environment in which they occurred in the free state
about a century ago.

As no equipment was available for the work, most of it was
obtained on loan from the Public Works Department, the Depart­
ment of Irrigation, the Superintendent of Roads and the City Council
of Pretoria.

The late Mr. Justice Carl Jeppe, who was chairman of the Gardens
and Works Sub-committee at that time, and who had been a
Johannesburg member of the Volksraad during Republican days,
obtained 10 cocopans and 1,000 feet of track as a gift from the
President of the Chamber of Mines, at that time Mr. P. M. Anderson.
To help with the blasting work on the slopes of the hillside, twenty
cases of gelignite were presented by the African Explosives and
Industries Ltd.

After work had started, the number of men was increased on
several occasions until 200 were working on the site by the middle
of 1933. It suited the Secretary of Labour very well at that time to
have a convenient place to which unemployed could be sent. But
as the unemployment position improved, the number of men was
reduced until about 80 were working in the Zoo in December of the
year 1934.

For some weeks the men were engaged in cleaning up the site for
development, in taking down trees where these were not necessary
An aviary for Budgerigars. This aviary is a gift from Mrs. Eileen Orpen.

and in blasting stone on the hillside so as to make the necessary excavations for the natural enclosures. In the year 1933-34 the sum of £4,240 was placed at the disposal of the Public Works Department so that building operations could be started. Various amounts were provided in subsequent years until work ceased on the 13th March, 1940.

By October of the year 1938 the work had reached such a stage that the large Low Veld Enclosure could be occupied. During that month two Transvaal Zebras, eleven Elands, five Blue Wildebeeste, three Kudus, five Waterbucks, five Impalas, four Sable Antelopes, two Tsessebes, one Roan Antelope and four Crowned Cranes were transferred to this enclosure, in which a number of indigenous trees had previously been planted. This population was altered somewhat from time to time, and as it was later found desirable to separate the Transvaal Zebras, Blue Wildebeeste and Ostriches from the rest, a partition was built in the enclosure towards the western end. The reason for this was that the zebras and wildebeeste were inclined to monopolise the hay-racks and food-troughs and thus keep the other animals at a distance for some time.

On the 6th December, 1938, five lions (one male, “Leo”, received
some time previously from the Kruger National Park, and four lionesses) and five tigers (one male and four tigresses) were let out into the two central hillside enclosures on the Zoo Extension. The event took place in the presence of Board members, Cabinet Ministers, City Councillors and season-ticket holders. On account of the large size of the enclosures observation towers were built on the top of the hill. At present two towers are in use. When the animals are on the upper slopes, they can be seen from these two towers, access to which is gained by means of a flight of stone steps on the eastern side. These towers are of interest because the usual procedure is here reversed, that is to say the visitors are behind the bars in the towers and the lions are at large under the trees on the hillside. A fine view of the City is obtained from the towers. When the enclosure for monkeys is completed, the third tower will be used.

The lions are fed in the morning, and they soon learned to come down to the cages when the keeper approached with their food. It is the practice to lock them up in the cages for feeding, so that the natives may go into the enclosure to do the necessary cleaning. The lions are let out again when the work is finished. This has worked well and hitherto there have been no accidents.

After the lapse of more than fourteen years, one may pause to ask whether the enclosures for lions and tigers have been a success.

As already stated, the large enclosure intended for tigers is now occupied by cheetahs. It was found that this enclosure could not be used for tigers if it was intended to breed the animals. It appears that when the females are in oestrus much fighting takes place, particularly at nighttime, and at least two specimens were lost in this manner. For this reason the tigers were removed and three pairs of cheetahs were introduced in January of the year 1949.

The Tiger is more solitary and less social in habit than the Lion. It is well known that in the Kruger Park the Lion occurs in troops of a dozen or more individuals, and frequently such troops consist of both adult males and females. Although the males are probably more or less closely attached to one or more lionesses in these mixed troops, all seem to live amicably together, each male respecting the other's attachment to certain females. Where fighting does occur among adult males of one troop, it is probably the result of the intrusion of strange males. One finds such mixed troops in the Kruger National Park both in the summer and winter months. Much remains to be learnt, however, about the social habits of the Lion.

The group of five lions introduced into the enclosure on 6th December, 1938, did not live very peacefully together. After a time it was found that one lioness in particular became rather
aggressive towards her companions. This adult lioness had previously been kept together with the male for some time, and this is probably the reason why she quarrelled with her mates. It was decided, therefore, to take the four lionesses out of the enclosure and to replace them by young animals. On the 21st October, 1944, four young lionesses (two about six months old and two about three months old) were let into the enclosure together with the male “Leo”, and since that time there has been no trouble. Successful breeding is taking place in the enclosure and quite a number of litters have been born. Some time before the cubs are expected to arrive, the mother is locked up in one of the cages, and when the cubs are from six to twelve weeks old they are taken away and the mother is let out into the enclosure again. The only reliable criterion for the establishment of a satisfactory environment for wild animals in captivity is the success achieved in breeding. If the animals are breeding satisfactorily, there can be no doubt that a suitable environment has been established for them.

On one occasion a litter of three lion cubs was born in the open-air enclosure. The lioness kept her cubs for about three weeks under a ledge of rock before the keeper found out that she had cubs.

When the male “Leo” had to be removed on account of age and bad teeth, and it was necessary to introduce a new male, some adjustment was necessary between the animals. There was some fighting, but this was soon over, and the new male has been the father of a number of litters.

At the Whipsnade Zoological Park it has been found that the Lion Pit “is unsuitable for a breeding pair” (Whipsnade Zoological Park Guide, 1934). There, as well as at Leipzig, Berlin, New York and other large American zoos, the Lion is usually exhibited in the open-air enclosures in troops of half-a-dozen or more maned males. In some of these zoos the animals are trained and perform regularly. The maned males make a much more impressive exhibit, but breeding is, of course, sacrificed for effect. The difficulties experienced in establishing a troop with lionesses of different ages is probably also partly responsible for the practice of exhibiting males only.

The Cheetah has not yet bred in the open-air enclosure, but in view of the natural environment and the opportunity for seclusion, it is hoped that the animal will breed at some future time.

In May of the year 1940 three new enclosures for Barbary Sheep, Ribbokke and Mouflons were stocked. At a later date the Ribbokke were replaced by the Thar, a kind of wild goat from the Himalaya Mountains in India. Many of these three kinds of mam-
mals have been bred in the enclosures in the intervening years.

One of the new Bear Pits on the Zoo Extension was also completed in the year 1940 and a pair of Himalayan Bears was placed in it. In June of the year 1941 a second pit was completed and stocked with a pair of Black Bears. Later in the same year another pair of Black Bears was introduced into the same pit, and the third and last enclosure for bears was stocked with a Brown Bear in February of the year 1944.

Apart from the unfinished enclosure for monkeys, the whole of the slopes of the Daspoort Hills within the Northern Extension have now been laid out on the most modern lines. The Board resolved to commemorate the long and useful services rendered by the late Justice Carl Jeppe by naming the enclosures on the hillside the Carl Jeppe Terraces. A bronze tablet was erected in the year 1941.

Mrs. Eileen Orpen made a splendid gift to the Board of Trustees for the purpose of building a modern aviary. A spacious circular aviary with a concrete roof was designed by Mr. W. A. Macdonald of the Public Works Department, and this aviary was built on the Northern Extension out of Mrs. Orpen's gift. A collection of the
different colour varieties of the Budgerigar was transferred to this aviary in July of the year 1940, and the birds have bred so well that many surplus specimens have been sold from time to time. Mrs. Orpen is, of course, well known for her benefactions on behalf of the country’s wild life.

In addition to the enclosures referred to, the layout plan makes provision for enclosures for camels, llamas, springbucks, pigs, small antelopes, ostriches, emus, flamingoes, guinea-fowls and other kinds of animals.

It is intended to convert an old quarry about one hundred feet long into a pool for crocodiles and alligators. This pool will be provided with a long sand-bank, so that the animals may bask in the sun as they are wont to do in the natural state, particularly during the cold months of the year.

It is hoped, also, to provide a natural pond for water-birds by diverting the Apies River into a semi-circular channel through which it used to flow. In this manner a large island will be formed and this will be planted with suitable vegetation. The birds should breed well under such conditions. Access to this island will be by means of suitable bridges, so that the birds may be observed from the middle as well as from the sides. This waterfowl island will be placed in magnificent surroundings.

What is most urgently required in the new part of the Zoo is the completion of the Monkey Enclosure, an aviary for small birds and pheasants and new enclosures for pigs, jackals and wild dogs. When it will be possible to build these enclosures is not known. It depends entirely upon when funds will be made available by the Department of Education, Arts and Science. The prospects are not very encouraging when it is borne in mind that the Monkey Enclosure has been left unfinished since the year 1940.

A large rockery has been built on the Northern Extension and planted with indigenous plants, principally aloes, and at some future time it is hoped to be able to have a special section in the Zoo in which some of the protected species of wild plants are grown, so that young and old may become acquainted with these plants.

However unwelcome the economic depression with its peak in the year 1932 may have been in other spheres, there is no doubt that the National Zoological Gardens derived great benefit from the measures taken by the Government to relieve unemployment. Prior to that year no grant for capital expenditure had been received since the year 1910. In November of the year 1909 Dr. Gunning submitted a report to the Colonial Secretary asking for a special grant of £37,500 “in order to enable the Committee to bring the institution up to a standard worthy of the capital of South Africa”.

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At the Colonial Secretary's request the Committee's list of requirements was revised and the amount reduced. The outcome was that Dr. Gunning was informed by a letter dated 24th January, 1910, that "the Government has decided to provide the sum of £10,000 for the purpose of making improvements to the zoological gardens". This was the first special grant for capital expenditure since the Zoo's establishment in 1899, and it was used for making a number of important improvements in "Rus in Urbe", the old part of the Zoo.

So much difficulty has been experienced since the year 1940 to get funds to proceed with the layout of the Northern Extension, that it almost seems as if no further progress will be made until another economic depression overtakes the Union.
CHAPTER 5

VALUABLE ACQUISITIONS

There is probably no head of a zoological garden anywhere in the world, who does not cherish the hope that he will at some time be able to exhibit animals that have previously not been shown elsewhere. The steady reduction of wild life, even in the less civilized parts of the world, and the consistent efforts to protect rare species against complete extermination make it increasingly difficult to obtain the animals required by zoological gardens. The world will never know about the sheaves of letters that are written, and the frustrations and disappointments that have to be faced by those in charge of zoological gardens in their efforts to get new animals, particularly when funds are inadequate.

The desire to exhibit animals that have not previously been shown is not merely prompted by a wish to be first in the field. While this certainly has propaganda value for a zoo, the scientific aspect is more important. It is only when mammals can be kept in captivity that studies on such subjects as breeding, growth, physiology and dental succession can be attempted. In the case of birds and some other kinds of animals the breeding habits can often be studied out in nature. Our present-day knowledge about the gestation period, breeding habits, growth and structure of a wild animal so well known as the Lion is almost entirely the result of studies made in zoological gardens. In the case of the Lion, and also in that of other mammals, only insignificant contributions have hitherto been made to our knowledge of these subjects from observations made in nature. It is clear that this must be so, because of the practical difficulties encountered when such studies are attempted on mammals occurring in the free state.

In captivity, too, much information can be gained about the habits and behaviour of wild animals, and this not only supplements but also acts as a check on the studies made in nature.

Except in zoological circles, it is not generally realized that our edifice of knowledge about the animal life of the earth would have been very much less imposing, if zoologists all over the world had not studied animals in zoological gardens and laboratories. This does not, of course, apply to ecological studies, which, dealing as they do with animals as units of their natural environments, must be carried out in the natural environment in which the animals occur.
The most valuable additions to the national collection during my term of office are undoubtedly a pair of Zululand White or Square-lipped Rhinoceroses now in the Zoo. The possibility of obtaining these huge mammals was explored as far back as November of the year 1928. About that time there was a prospect that some Square-lipped Rhinoceroses would be transferred from the Umfolosi Game Reserve in Zululand to the Kruger National Park. Formerly this animal was abundant in the present Kruger Park area, but according to Kirby it disappeared from the Matamiri bush in the south-eastern part in the year 1896. It was the wish of the late Mr. Piet Grobler, at that time Minister of Lands, that the National Parks Board should try to re-establish the Square-lipped Rhinoceros in the Kruger Park. When he opened the first meeting of that board on 16th September, 1926, Mr. Grobler drew special attention to the case of the Square-lipped Rhinoceros; he thought that it would be a very good thing if this rare species could be brought to the Kruger National Park. At Mr. Grobler’s request Mr. Herbert Lang proceeded to Zululand and submitted a long report on the Zululand White Rhinoceros in May of the year 1928. This report also dealt with possible methods of capturing and transferring White Rhinos to the Kruger Park.

In August of the year 1933 another attempt was made through the Secretary for the Interior to obtain a young Square-lipped Rhinoceros for the National Zoological Gardens. Joint representations were made with the Director of the Transvaal Museum, Mr. C. J. Swierstra, and the help of Senator C. F. Clarkson, at that time Minister of Public Works and Posts and Telegraphs, was also solicited. Although this effort was also unsuccessful, the Provincial Secretary of Natal intimated that the request would be borne in mind if it should be possible at some future time to meet the needs of the Zoo. The matter was revived in the years 1936, 1938 and 1945. In the latter year the possibility of adding the so-called “corridor” to the Hluhluwe Game Reserve in Zululand was meeting with attention. At that time there were a number of Square-lipped Rhinos in this “corridor”, and some of them were accustomed to wander out to the west. The prospects of getting a specimen of the rare Square-lipped Rhinoceros now seemed to be more hopeful.

After these preliminary efforts had paved the way, success came unexpectedly and with dramatic suddenness.

On 26th July, 1946, the Honourable D. E. Mitchell, Administrator of Natal, telephoned me from Durban at 12.30 p.m. and stated that a baby female Square-lipped Rhinoceros had been obtained in Zululand. He generously offered the animal for the national collec-
Female White Rhinoceros “Dengezi” soon after her arrival at the Zoo. The animal has been blindfolded by the keeper, Mr. J. Grobler, for easier handling.

For the manner in which “Zuluana” was procured is related as follows by Mr. A. Adank, at that time the Senior Game Ranger in Zululand: “The belt of Crown Lands around the Umfolosi Game Reserve is from five to eight miles wide and is known as the ‘buffer zone’. Some time ago a few White Rhinos from the southern buffer zone wandered on to the farms on the south and caused some damage to fences. It was then decided to attempt to drive...
the Rhinos out of the southern buffer zone through the White Umfolosi River into the Umfolosi Game Reserve.

"Captain Potter, the Game Conservator of the Hluhluwe Game Reserve, placed five reliable game-guards at my disposal. With these, ten of my own game-guards and 70 labourers (native) from our bush-clearing works, our first day's drive on 23rd July, 1946, proved unsuccessful, as the Rhinos stampeded back as soon as they got near the river.

"On 24th July, 1946, the drive was repeated over the same area with the same natives, when we managed to chase a few (White Rhinos) through the river. While the drive was proceeding on the second day, one of my natives came and reported to me that a (White) Rhino cow, scared by the noise, had left its baby near the hyaena caves under the Sangoyana Hills. I sent him back immediately with instructions to guard it against the hyaenas, of which a pack of eight had been seen in the same vicinity during daytime about a week before.

"I reported the matter to Captain Potter, who anticipated that the mother would return, and if she did not, the question arose where milk was to be obtained, as everybody in that part of Zululand used tinned milk which was unobtainable for most of the time. I begged to be given the opportunity to try and rear it (i.e. the baby White Rhinoceros), and stated that I did not mind giving most of my salary for this purpose every month. Captain Potter granted permission on condition that if I found its mother had come back, I should let it go. I was happy that I was allowed to adopt this child and, asking Mr. T. Scheepers and Mr. K. de Haas to accompany me, I started the journey to Sangoyana with a three-ton lorry on which I had my camping equipment. We got to the Rhino an hour before sunset; it was a relief to find that the mother had not returned.

"I spread my tent to pad the lorry near the cab, then spread my mattress on the tent. We put the Rhino into a bag up to the neck to prevent her fighting to get up, then lifted her gently on to the bed where she fell asleep after the first mile and slept until we got to the camp of Messrs. Scheepers and de Haas, 15 miles from the Nagana Research Station. From there two natives were placed in charge of the Rhino, while I drove on, cruising down the hills and holding thumbs for petrol whenever we went uphill. The petrol lasted to within three miles from the Research Station. I paid a native five shillings to run for petrol, and Mr. Scheepers from the Research Station brought some. It took five minutes to prepare the room and put 'Zuluana' where Mr. de Waard found her (i.e. at the Nagana Research Station).
"As my car was at a garage for repairs, I got Mr. Scheepers to take me in his private car at one shilling a mile to find milk. We travelled 35 miles with no success and we were back at 11 p.m. We gave 'Zuluana' a little 'Klim' which Mr. Goosen could spare. She greedily sipped it out of a dish.

"I obtained permission to use my half-ton official lorry to go and see whether I could raise one of my own cows at Mkuzi with enough milk to rear the Rhino. At 11.30 p.m. I started for Mkuzi.

"It is very dry at Mkuzi, and I did not have a cow with sufficient milk. So I bought one for £20. At 2 p.m. (25th July, 1946) I had offloaded and milked the cow here (i.e. at the Nagana Research Station) and 'Zuluana', after only two feeds of 'Klim', got her first feed of cow's milk. The speedometer registered 190 miles."

It is clear from this interesting story that the acquisition of the baby White Rhinoceros by the National Zoological Gardens was the result of a series of fortunate events. As no specimen of this rhinoceros had previously found its way into a zoological garden anywhere in the world, the event was one of great importance, and the news was flashed around the world. In view of its importance from the zoological point of view, "Zuluana" was kept under close observation and a paper was later published in the Proceedings of the Zoological Society of London (Proc. Zool. Soc. London, Vol. 120, Part III, November, 1950).

The Board was now in possession of a young female Zululand White Rhinoceros and the next step was, of course, to try and get a mate for this animal. In September, 1947, I proceeded to Natal and had discussions with the Administrator, the Honourable D. E. Mitchell, and the Chairman of the Zululand Game Reserves and Parks Board, Mr. W. M. Power, in Pietermaritzburg. My visit was continued to the Umfolosi Game Reserve, where I saw 16 White Rhinoceroses in parties of two, three, three, four and four in one forenoon. But the prospects of getting a bull were not very encouraging. Nothing happened until 8th January, 1949, when success again came most unexpectedly. On that date Mr. W. W. Williams, Secretary of the Natal Parks, Game and Fish Preservation Board, telephoned me at 7.30 p.m. to convey the good news that a young White Rhinoceros bull was available in Zululand and should be sent for. He also spoke to Mr. S. A. Lombard, Provincial Secretary of Transvaal, who kindly offered assistance through the Conservator of Fauna and Flora, Dr. T. G. Nel. It was suggested by Mr. Lombard that the animal might be brought to Pretoria by air, but investigation showed that there were certain risks, and hence it was decided to send a lorry. Dr. Nel went to Zululand in this lorry accompanied by one of the Zoo's keepers,
Mr. J. Grobler, whose task it was to take care of the precious animal.

The story of the capture of the bull as related by Mr. W. E. Foster, an officer of the Nagana Research Station, is as follows:

"On the 5th. inst. (i.e. 5 January, 1949), whilst I was in the Umfolosi Game Reserve, two of the game-guards reported to me that there was a dead White Rhino cow in the Mpafa Valley and that its calf (a male) was with it. I immediately proceeded to the spot with Mr. G. Cronje, Mr. Grabe and about 15 natives. On arrival the calf had disappeared in the thick bush. The game-guards reported that when they found it, it was chasing the vultures from the carcase of its mother. This was confirmed by the spoor. I formed the opinion that this calf was not old enough to fend for itself, and on my return to Masimba I told one of the game-guards that if they found the calf it was to be reported. I advised Captain Potter.

"The dead animal had a wound about 15 inches in length near its shoulder-blade and several ribs were found to be broken and several others badly bruised. I am convinced that the animal either died as the result of fighting, or that it had fallen into a near-by stony donga and had been able to drag itself to the place where it was found dead. There was no evidence of bullet or assegai wounds.

"On the morning of the 8th. the game-guards reported that the calf had been seen on the 6th. When this report was made, I arranged for a party in charge of Mr. Adank to proceed at once to try and catch it. The party consisted of Mr. Adank, Dr. R. du Toit (a veterinary officer from Onderstepoort), Mr. P. van Rooyen and about 15 natives. On arrival there they found the calf was still busy chasing off the vultures from its mother. Mr. Adank reported that they set a rope noose alongside of the carcase and that twice it fouled the noose; the third time it was caught and secured and brought to Masimba. I estimate its age as 12 months old. I reported its capture immediately to Captain Potter."

It has already been related how Mr. Adank went to a great deal of trouble to try and save the life of the baby White Rhino "Zuluana", and it was fortunate indeed that he was also available to capture "Folosi", as the bull was named at Captain Potter's suggestion.

Mr. Foster has spent many years in Zululand and is familiar with the habits of the Square-lipped Rhinoceros. On one occasion he found the skeleton of a cow sandwiched between two rocks and beside it was the skeleton of her calf. On such occasions the calf perishes with the mother if the little animal is not old enough to care for itself. Mr. Foster was determined that in the present case
“Folosi’s” skeleton should not bleach on the veld of the Mpafa valley.

Folosi was believed to be about a year old when captured and hence was much larger than Zuluana, which was only a day old when she was found in the veld. During the night of the 8 January, 1949, Folosi nearly escaped from the room in which he was being kept at Masimba. The entrance was closed with one and one-half inch planks, but he charged these and cracked some of them. Had it not been for the fact that a motor lorry had been pulled up against the wooden barrier, Folosi would probably have got away and perished in the veld.

Dr. Nel and Mr. Grobler reached Captain Potter at 3 p.m. on the 9 January, 1949. When they arrived at the Nagana Research Station somewhat later, they found that Folosi was wild and would have to be tamed before he could be transported to Pretoria. Mr. Grobler spent most of his time with the animal in the room. While Folosi was still loosely secured with ropes, Mr. Grobler succeeded in blindfolding him with the help of six others. Folosi now became much calmer, and Mr. Grobler fed him regularly and tried to tame him. If Folosi rushed at him, he was able to get out of the way by hauling himself up on a rope suspended from the roof. After a few days Folosi had calmed down to such an extent that the trip to Pretoria could be undertaken. He was placed in a strong crate built for the purpose, and the party reached the Zoo at 7 a.m. on the 16 January, 1949.

On account of the fact that Folosi and Zuluana were the first two Zululand White Rhinos to be exhibited in captivity, the Government undertook to build a special enclosure for these valuable animals. On the 1 March, 1949, the two rhinoceroses were transferred to this enclosure, and it is expected that they will breed in due course.

By an extraordinary stroke of good fortune, a third White Rhinoceros, a young female about a year old, was received from the Umfolosi Game Reserve on the 23 August, 1952. This animal has been named Dengezi.

On the island of Celebes and islands to the south thereof, there occurs the smallest kind of buffalo in the world. This animal is the Anoa, Dwarf or Pygmy Buffalo. Its nearest relative, the Tamarao or Tamarau, is slightly larger and is found on Mindoro, one of the Philippine Islands.

The Anoas in the National Zoological Gardens are descendants from two specimens that were acquired from the Fort de Kock Zoo in Sumatra by way of exchange in the year 1936. They are by no means common animals in zoological gardens. That the insti-
tution was able to get them at all was in no small measure due to the late Dr. H. A. Lorentz, the Netherlands Ambassador in S. Africa at that time. Before the war in the east, the Anoa was plentiful on the islands south of Celebes, especially on Kendari, but it is doubtful whether that is still the case.

The Anoa stands about 39 inches at the withers and has almost straight horns that are triangular at the base. A bull and a cow weighed in the National Zoological Gardens were found to turn the scale at 182 and 259 pounds respectively.

In the Union the Hippopotamus is abundant in the large rivers of the Kruger National Park. Beyond the boundaries of this Park it occurs in the Crocodile River, the Komati River, the Blyde River, the Letaba River, the Pafuri River and the Limpopo River. There are also a few specimens in the Loskop Dam. In Zululand it is found in the St. Lucia Game Reserve, the Richards Bay Game Reserve and the Ndumu Game Reserve. But in spite of this distribution, it is virtually impossible to get specimens for zoological gardens within the Union’s borders.

The first Hippopotamus exhibited at Pretoria was a gift from Lord Selborne, Governor of Transvaal. Sigapo, as this bull was called, reached the Zoo on the 1 November, 1907, when he was

Baby female Hippopotamus “Grietjie”.

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very young. He was a well-known inmate of the collection in which he lived until the 12 June, 1946, that is to say for almost 38½ years. Sigapo was presented to Lord Selborne by Chief Lewanika of Barotseland, and the former handed him over to the Zoo.

The pair of Hippos in the collection at present, namely Tertius and Grietjie, were unexpected additions.

In October of the year 1941 Mr. L. E. Vaughan of Malamba in Northern Rhodesia wrote to say that he had a young female Hippopotamus probably two months old on his farm. The manner in which he had come into possession of this animal was unusual.

Mr. Vaughan was on a hunting trip on the Upper Kafue River in N. Rhodesia at a place called Kaingu. He shot a large Hippo one evening and tied it to a tree in shallow water, as it was too late to skin it that evening.

The following morning he went to the spot with some natives in order to skin and cut up the animal. While this work was going on, some Hippos appeared in the river close by. Crocodiles were numerous in the vicinity, to which they had, no doubt, been attracted by the Hippo’s carcase. A young Hippo that was playing in the water close to the natives was suddenly seized by a large crocodile. As the water was fairly shallow at the spot, Mr. Vaughan waded out to the struggling animal. But he had no gun with him, and so he drove an assegai into the crocodile’s body. The latter immediately released the Hippo, which was grabbed by the tail by one of the natives. Mr. Vaughan tied his belt around the Hippo’s neck, and it was hauled to the river-bank. As the crocodile had injured the young animal badly, it was doubtful whether it would survive. The wounds were dressed on the spot, and Mr. Vaughan took Kaingu, as he named her, by motor to his farm about 170 miles away. She survived the journey and with careful nursing recovered from her wounds.

The Hippo was rechristened Grietjie and is now full grown, but a large scar left by the crocodile can still be seen on her right side about the middle of the body.

After her arrival at the Zoo, Grietjie used to spend the greater part of the day in a part of the Apies River under the care of a native. But when she became too big for this she was placed in an enclosure.

In October almost precisely six years later, that is to say on the 17 October, 1947, the following telegram was received in my office:—“Captured baby Hippopotamus. Are you interested? Cooper, Shabani”. As Sigapo had been destroyed about 16 months previously on account of age, I was anxious to obtain a mate for the growing Grietjie. Here was a welcome opportunity to get a bull.
The result of the negotiations with Mr. D. B. Cooper was that Tertius arrived at the Zoo on the 18 December, 1947. Mr. Cooper had named him "Cuthbert", but he was renamed "Tertius" after he had reached the Zoo.

Tertius was captured on Finale farm which lies on the Lundi River sixteen miles from Shabani in S. Rhodesia. The story of his capture on the 24 October, 1947, is related by Mr. Cooper as follows:—"For years the Hippopotamuses, which live four miles up the river, have caused great damage to crops by eating these and trampling them down with their huge feet. Last June, owing to the drought, they were making nightly raids, and each morning the vegetables looked as though a steam-roller had been over them. Eventually I got permission to shoot them, and one night at the end of June (1947) I shot one in the lands. A few days later my boss-boy told me that she had a baby which she had left in the river while making her raid, and that the baby was now living on the river-bank. As he was so small, I did not like the idea of shooting him, so I left him alone. He got so used to the natives working near him that he took to coming out to eat the vegetables in daylight.

"Soon he became a nuisance by eating off the heads of young
mealies, so, still not liking to shoot him, I decided to catch him. I had a pit dug at the top of the path by which he used to come into the lands and covered it with poles and earth. Two nights later he fell into it, but as it was not very deep, he did not hurt himself. But the sides were steep so that he could not get out. I put food into the pit, and although he did not like being caught, he ate the food. Next day with a rope around his body and one around his neck and with the help of eight natives we lifted him out and took him under his own steam to the vanette. He walked up a plank into the car, and I took him across the river into the pigsty. He walked down the plank into the sty, led by the rope around his neck. I had a pit dug behind the sties and filled it with water. By holding a mealie before his nose, he was led out of the sty into the water, like a donkey after a carrot. He was glad to get into the water and is quite tame. He knows his name and comes when he is called; he also walks back to the sty to sleep at night alone."

On the 3 August, 1949, Tertius was for the first time let into the enclosure occupied by Grietjie. This enclosure has a large bath and is the same one in which Sigapo lived for many years.

On the 21 July, 1937, the National Zoological Gardens unfortunately lost their first and only African Elephant, a cow by the name of Dora. She came from Gatooma in Southern Rhodesia and had been in the collection since the 11 October, 1913. The autopsy showed that the animal had died from strychnine poisoning. A reward of £25 was offered by the Board for information that would lead to a conviction, but no information was received. There was a possibility that strychnine had inadvertently been introduced into the grass used as bedding for the Zoo's animals, as the result of vermin poisoning on the farm from which the grass came. What actually happened in this case will never be known.

As there were no prospects of getting an African Elephant in the Union, it was necessary to seek a specimen further afield. There is a training-station for African Elephants at Gangala na Bodio in the northern Belgian Congo, and this seemed to be the most probable source of supply. Representations were made to Captain J. Nassel, Consul-General of Belgium in Johannesburg. The result was that the Governor-General of the Belgian Congo, at that time His Excellency Monsieur Pierre Ryckmans, generously presented a young African Elephant cow to the institution.

Keeper F. Schlüter was sent to take delivery of the animal at Stanleyville and to bring it to Pretoria. Apart from its great length—the distance by rail and water between Stanleyville and Pretoria exceeds 3,200 miles—the journey to Pretoria is not a straightforward
railway journey until one reaches Bukama in the southern Belgian Congo. Nazimbali, as the elephant had been named after the river near which it was captured, had to be transferred no less than six times between trains and river-steamers before reaching Bukama, and this part of the journey took three weeks. On the river stretches of the journey the animal was placed on one of two boats that were tied to the sides of the river-steamer and were intended for luggage. On account of dangerous sand-banks, the steamers usually sail only during the daytime and tie up at night. Wood is abundant in the dense tropical forests of the Belgian Congo, and hence both railway engines and river-steamers are fuelled with wood felled by natives.

At Bukama a special truck was waiting to take the elephant to Pretoria, and all along the route the animal attracted much attention, both from Europeans and non-Europeans.

After her arrival in Pretoria the elephant cow was renamed "Congolene". She is still the only African Elephant to be seen in any zoo in the Union.

As Congolene had been trained at Gangala na Bodio, it was intended to try and use her for giving rides to children. But unfortunately she got an umbilical hernia not long after she reached Pretoria as the result of which she could not be used for about two years. When she had recovered, it was no longer possible to carry out the plan.

Probably the first and only specimen of a Lesser Kudu that has ever reached S. Africa was a cow received at the Zoo on the 27 August, 1942. This animal was purchased from Mr. W. Atkinson, who brought it from Kismayu in Italian Somaliland. "Nancy", as he called her, was injured by a piece of a shell near Kismayu and sought refuge in a camp of a South African Engineering Company. Mr. Atkinson took charge of her and nursed her back to health. Unfortunately she did not live long in the Zoo. It was at first thought that "Nancy" was a female Mountain Inyala, but later it transpired that she was a Lesser Kudu.

The Lesser Kudu occurs in Abyssinia, Somaliland and parts of Kenya and Tanganyika.

Although Abyssinia is separated from S. Africa by a distance of about 3,000 miles as the crow flies, there are some remarkable resemblances between the faunas of the two countries. Thus the Kudu or Greater Kudu of S. Africa has its counterpart in the Lesser Kudu of Abyssinia. The Inyala of the Kruger Park and other parts of East Transvaal is represented in Abyssinia by the Mountain Inyala. The Abyssinian Hornbill is closely related to the Ground Hornbill of S. Africa, and among other kinds of birds that occur
both in Abyssinia and S. Africa are the Spurwinged Goose, the Secretary Bird, the Hooded Vulture, the White-backed Vulture and the Bateleur.

One of the most romantic stories in the conservation of the world’s wild life must surely be the manner in which Père David’s Deer has been saved from extinction. This deer comes from Northern China, where the last specimens were exterminated in the Imperial Hunting Park in Peking during the Boxer Rebellion in 1900. The species was saved from complete extermination by the efforts of the Dukes of Bedford in England. It is not known when the Emperor of China established the Peking herd or where the stock was obtained. Nor is it known when the animal disappeared in the wild state in China, but this possibly took place even before the Christian era (Proceedings of the Zoological Society of London, Vol. 121, Part II, 1951).

Père David’s Deer is named after its discoverer, a Catholic priest who became head of a French school in Peking. Later he travelled extensively in China and did much collecting for the Muséum d’Histoire Naturelle in Paris.

It was in the year 1865 that Père Jean Pierre Armand David first saw
specimens of the deer that bears his name. The Imperial Hunting Park situated two miles south of Peking was surrounded by a high wall, and no Europeans were allowed to enter it. When Père David was taking a walk one day outside the wall, he climbed on to a heap of sand so that he could get on to the wall and see what was inside the park. He saw a herd of the new deer and later obtained three specimens which he sent to A. Milne-Edwards at the Museum of Natural History in Paris. It was on these specimens that Milne-Edwards described the new species of deer as *Elaphurus davidianus*.

The Duke of Bedford became interested in the preservation of this animal, and at the end of the nineteenth century he received a pair from the Zoological Gardens of Paris. These bred in a paddock and were afterwards released in the deer park at Woburn. At a later date the Duke obtained another sixteen specimens mostly from the Zoological Gardens of Paris, Berlin and Antwerp, and by 1914 he had a herd of 88 head. In 1948 it had increased to 255.

A pair of Père David’s Deer is said to have been exhibited in a “zoo” in Peking in the year 1917, but they had died by 1921.

Today we have the remarkable fact that while Père David’s Deer is extinct in its home-land, China, it has been saved from complete extermination in England.

On the 28 February, 1951, the National Zoological Gardens received three Père David’s Deer from the Zoological Gardens of London in exchange for other animals. These are the first and only specimens of their kind hitherto exhibited in S. Africa.

Perhaps the most interesting point about the structure of this deer is the large size of its hoofs and accessory hoofs. They resemble the hoofs of the Sitatunga, which occurs in the swamps of the Okavango and Chobe River in the Bechuanaland Protectorate. The four hoofs on each foot of the Sitatunga form a large and broad shoe that prevents the animal from sinking too deeply into the swampy substratum over which it moves in its habitat. In the National Zoological Gardens it has been found necessary to keep a portion of the Père David Deer’s enclosure somewhat damp. The animals seldom leave this moist part of their enclosure, and in the summer they often lie in the large bath provided for them. If they spend any time on a hard surface, they suffer discomfort due to irritation of the hoofs from contact with the hard ground. They then hold the hoofs in an almost vertical position and have a laboured gait.
CHAPTER 6

EXCHANGES

It is a common practice throughout the world for zoological gardens to obtain some of their requirements, particularly of exotic animals, by means of exchanges. This method has always been, and still is, the cheapest and most satisfactory manner of getting exotic animals. Such exchanges are made on a basis of mutual trust, and if difficulties do arise, they are generally more easily settled between the directors of zoological gardens than between animal traders and zoo directors.

When the list of animals to be exchanged has been agreed upon, the sender undertakes to deliver his animals at the recipient’s nearest port. But it is a tedious matter to effect an exchange of wild animals, and many months usually elapse before they can be sent. Apart from delays in getting the necessary permits, shipping is expensive nowadays, and it is not always easy to get space on ships. As a rule the permits cannot be obtained until the vessel’s name can be furnished. Transportation by air is the ideal method of sending wild animals, but it is still so expensive that only consignments of small or young animals are at present sent in this manner.

Among the permits required under present circumstances is a permit from the Department of Imports and Exports. Sometimes it seems as if the officials in that department are reluctant to believe that no foreign currency is required for the exchange of wild animals. But as the sender in each case delivers his specimens at the receiver’s nearest port, it should be perfectly obvious that no foreign currency is involved.

If a consignment consists of only a few animals, it is not as a rule necessary for a special attendant to accompany them. In such cases arrangements are made with the butcher on board ship to care for the animals. He is provided with full details for their care and feeding, and if the latter are not flesh-eaters, sufficient food for the voyage is sent along with them. But in the case of carnivorous animals the necessary meat must be supplied by the ship’s butcher. In the case of large or valuable consignments or delicate animals that justify the additional outlay, it is customary to send a keeper along with them.

To obtain wild animals by purchase from dealers is expensive. In the case of the National Zoological Gardens it has only been possible on rare occasions to buy animals from foreign sources.

The following are a few recent quotations for animals from Kenya delivered at Mombasa:—
African Elephant calves, per pair  £1,260 to £1,780.
Black Rhino calves , , , ,  £1,080 to £1,680.
Hippopotamus (adult) , , , ,  £1,260 to £1,680.
Giraffe (6 to 10 feet) , , , ,  £340 to £400.
Kudu , , , , , , , ,  £280 to £340.
Sable Antelope , , , , , , , ,  £300 to £360.
Roan Antelope , , , , , , , ,  £300 to £360.
Lion , , , , , , , ,  £160 to £500.
Chimpanzee , , , , , , , ,  £300 to £500.

In the year 1948 the prices for some of the above animals from the same source were as follows:—
African Elephant calves, per pair  £1,500 to £2,000.
Black Rhinoceros calves, per pair £1,200 to £3,000.
Hippopotamus adults, per pair  £4,000.

During the 42 years 1909-1951, the average expenditure incurred by the management of the National Zoological Gardens on the purchase of animals amounted to slightly less than £500 per annum. It is clear, therefore, that if this national institution had to depend upon such sources of supplies as those indicated, it would be virtually impossible to stock the collection.

The National Zoological Gardens have seldom had sufficient funds to purchase exotic animals for the collection. It has been necessary, therefore, to arrange exchanges with zoological gardens in other parts of the world and to encourage breeding as much as possible. Attempts have constantly been made, also, to obtain animals as gifts, and no little success has been achieved. As described previously, the first pair of Zululand White Rhinos ever exhibited in captivity was obtained as a gift from the people of Natal.

In September of the year 1929 the Committee of Management of the Zoo agreed to undertake the following exchange of animals with the Director of the Singapore Zoo:—

2 Pairs Transvaal Zebras
1 Pair Blue Wildebeeste
1 Pair Bushbucks
4 Chacma Baboons
4 Vervet Monkeys
6 Rock Rabbits
4 Stanley Cranes
8 Spurwinged Geese
6 Egyptian Geese
4 Crowned Guineafowls
8 Swainson's Francolins

in exchange for

2 Tigresses
3 Black Leopards
2 Grizzled Grey Tree Kangaroos
2 Cassowaries
4 Argus Pheasants
3 Crested Fireback Pheasants
10 Nicobar Pigeons
2 Greater Birds of Paradise
5 Red-crested Wood Partridges
Orang-Utan "Nat" on a Shetland pony.

There were also two young male Orang-Utans in the consignment, but they were acquired by purchase. Prior to the year 1929 only one Orang-Utan seems to have been exhibited in the Zoo. There was so much interest in these two animals when they arrived that the editor of the Pretoria News organised a competition for naming them. The prize of half-a-guinea was won by Mr. A. D. Blackwell, who submitted the names of "Sap" and "Nat". Sap lived about three months, but Nat grew into a fine specimen and lived about 10½ years in the collection. He died from acute appendicitis and shortly before death weighed no less than 370 pounds. Nat was a familiar inmate of the Zoo, where he spent several years on the lawns under the care of a native. A special tricycle was built for him, and although he never learned to pedal this cycle, he used to sit on the saddle and guide the handles. In this manner he was taken from place to place. When the tricycle ran downhill, the native often stood on the rear axle behind Nat.

The three Black Leopards or Black Panthers in the consignment should have been one male and two females. There was a male in the Zoo at the time, and hence the sexes of the new specimens were to be such as to give the institution two pairs. But when the three animals reached Pretoria, it was found that all were males. As the
sender insisted that he had sent the required animals, it was necessary for the Zoo’s veterinary surgeon, the late Captain F. C. Simpson, to certify the sexes after examination under an anaesthetic.

As the result of this mistake, the Director of the Singapore Zoo eventually sent a young female Black Leopard, but unfortunately this animal escaped from its cage a week after it had reached the Zoo and had to be destroyed. The story will be told later.

In July of the year 1930 the following animals were received on an exchange basis:—1 Pair Wapitis, one Black Bear, two Canadian Porcupines, 2 Virginia (Common) Opossums, 2 Azara’s Agutis, 2 Striped Gophers and 1 Woodchuck. This was a small but interesting consignment of animals. The pair of Wapitis lived for a considerable period but produced only two calves. It is interesting to note that the name “Wapiti” generally used by zoologists is the name given to this kind of deer by the Shawnee Indians.1

Apart from the Elk or Moose, the Wapiti is the largest kind of deer found in North America. The adult bull is a magnificent animal with antlers measuring up to 6½ feet or more along the outside curve. As in all other kinds of deer except the Reindeer, antlers are present only in the male.

The Virginia Opossum is an intriguing pouches mammal found

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1 Photo by R. Bigalke.

A White Bushbuck ram formerly in the collection.
in N. America. It differs in its dentition and habits from the arboreal opossums (phalangers) found in Australia.

The Virginia Opossum's breeding habits will always be of great interest to naturalists. Like most other kinds of marsupials, this animal has a pouch on the lower side of the female's body and in this the young are carried and nourished for some time after birth. The animal has a very short gestation period, only eleven days, and when the six to twelve or even more babies are born, they are blind and without hair; they are so tiny that sixteen will go into an ordinary teaspoon. The babies crawl along the mother's abdomen to the pouch, and when they have entered it each becomes attached to a tiny teat and remains there for some weeks. The young animals grow rapidly and later they become detached from the teats. Now they leave the pouch but return to it for shelter. At the age of about three months they are old enough to look after themselves.

The premature stage at which marsupials are born to be nursed for some time in the mother's incubator-pouch will always intrigue the student of zoology. In spite of this hazardous type of reproduction, the kangaroos and their kin have been as successful as a group in the Australian region as other kinds of mammals have been elsewhere.

In April of the year 1931 the following animals were received from the Victoria Gardens in Bombay:—One pair of Striped Hyaenas, two pairs of Spotted Deer and one Sambar Deer. In exchange for these the following South African animals were sent from Pretoria:—one pair of Blue Wildebeeste, one Waterbuck bull and one pair of Ostriches. Although this was an exchange on a small scale, it took a long time to complete largely on account of the formalities with regard to the ostriches.

Prior to the First World War, there was a flourishing ostrich feather industry in the Southern Cape Province, particularly in the areas around Oudtshoorn, Montagu and Robertson in the Little Karroo. Good breeding birds were at that time sold for amounts varying from £200 per pair upwards. In order to protect this industry, the exportation of live ostriches was prohibited. To be able to send a pair of birds to the Victoria Gardens in Bombay, it was necessary, therefore, to have the birds caponised, and this was done at the Veterinary Research Laboratory at Onderstepoort. But as the operation is best done on an adult hen after the breeding-season, there was considerable delay in getting the birds ready for export.

This incident is a good example of the futility of antiquated laws. Although the ostrich feather industry virtually disappeared from South Africa years ago, Law No. 10 of 1907 of the Cape of Good Hope and the Natal Law No. 29 of 1907 prohibiting the exportation
of ostriches have not yet been repealed.

Exchanges have also been undertaken with other parts of the Orient than India and the Malay States. In March of the year 1934 the following specimens were received from the Zoological Garden of Fort de Kock in Sumatra:—1 pair Malayan Bears, 1 pair Javan Swine, 3 Hanumans, 1 Dusky Langur, 4 Three-coloured Squirrels and 4 Argus Pheasants. The following were sent from Pretoria in exchange:—1 pair Lions, 1 pair Transvaal Zebras, 2 pairs Chacma Baboons, 2 pairs Vervet Monkeys, 1 pair South African Porcupines and 1 pair Black-backed Jackals.

At a later date another small exchange of animals was arranged between the Zoological Garden of Fort de Kock and the National Zoological Gardens. The specimens were sent from Pretoria in July of the year 1941, but unfortunately the war in the East intervened, with the result that the Fort de Kock animals have not yet been received. During the Japanese occupation of Sumatra and the subsequent political upheaval, the collection of wild animals in Fort de Kock virtually disappeared. But it is still hoped that the successors to the former Netherlands administration will honour the agreement.

When the war spread, the practice of exchanging animals with foreign zoological gardens had to be discontinued. Not only was there the risk of loss in transit, but shipping was unobtainable.

In the year 1947 an exchange of animals was undertaken with the Taronga Zoological Park Trust in Sydney. The following animals were received:—3 Dama Wallabies, 2 Large-spotted Native Cats, 1 Viverrine Native Cat, 3 Brush-tailed Opossums, 3 Echidnas, 2 Wombats, 2 Tasmanian Devils, 3 Satin Bower-Birds, 3 Brush Turkeys, 4 Cape Barren Geese, 4 Crested Pigeons, 4 Bronze-winged Pigeons, 4 Pennant's Parrakeets, 2 Black-billed Spoonbills and 5 Blue-tongued Lizards.

In the same year Mr. (now Sir Edward) E. J. Hallstrom, Vice-Chairman of the Taronga Zoological Park Trust, generously presented a pair of Dingoes and a valuable collection of parrots, cockatoos, parrakeets and finches to the National Zoological Gardens. Sir Edward Hallstrom is a generous patron of the Taronga Zoological Park Trust and has presented many animals and also buildings to that institution.

With the exception of the Dingo, bats and a number of kinds of rodents, the placental mammals are absent from Australia. The marsupials or pouch-bearing mammals are the predominating group of mammals in Australia. But they have developed on divergent lines, with the result that among them we find adaptations that are found among the different orders of placental mammals in
other continents. A few examples will make this clear. The flesh-eating dogs and cats among the placental mammals have their counterparts in the Marsupial Wolf, the Tasmanian Devil and the Dasyures of Australia and neighbouring islands. The Marsupial Mole of Australia has its counterpart in the Common Mole of Europe and the Golden Moles of South Africa, and the Flying Phalangers of various parts of Australia are represented among the placental mammals by the Flying-Squirrels. In the marsupial group of mammals there is a great divergence of adaptations, a divergence that manifests itself in the placental mammals in the different orders.

It is on account of the great interest of the mammals of Australia that most heads of zoological gardens like to have some of these animals on exhibition.
CHAPTER 7

SUCCESSFUL BREEDING

Every head of a zoological garden likes to breed as many animals as possible in the collection entrusted to his care. There are several reasons for this. In the first place, successful breeding simplifies the problem of keeping a zoological garden stocked with animals. It provides specimens for exchanges with other zoos and is also a source of income from the sales of surplus specimens. Equally important is the fact that when the animals breed well, the head knows that he has established suitable environments for his animals. Successful breeding also has publicity value.

From the scientific aspect the breeding of wild animals in zoological gardens furnishes opportunities for making observations that cannot be made elsewhere, and hence contributes towards the advancement of knowledge. Although the list of animals that have not yet bred in zoological gardens is becoming shorter from year to year, there are still many kinds that have not been bred.

I have not been able to find any record of the breeding of the Cheetah in captivity. According to Wilhelm the gestation period is about 90 days, but he does not indicate how his information is arrived at. If the Cheetah should breed in the National Zoological Gardens at any time, it is hoped that there will be an opportunity to determine the gestation period.

It is not known at what age the Zululand White Rhinoceros (C. simum simum) begins to breed. Although Kenneth states that the average gestation period of C. simum is 548 days and the maximum 578 days, the former figure is merely an estimate of 18 months made by Lang. If the Zululand White Rhinoceroses in the National Zoological Gardens should breed at any time, an attempt will be made to determine the gestation period. As the one cow’s age is known to within a day, it will then also be possible to indicate the age at which she began to breed.

Sometimes there are opportunities for making unusual observations in zoological gardens. Such an opportunity presented itself to the Zoo’s Foreman, Mr. T. Combrink, on the 20th April, 1951.

Kangaroos breed fairly well in the National Zoological Gardens, but on account of their remarkable breeding habits it is very seldom possible to determine the actual date of birth. That a female has a baby can nearly always be seen only when the baby has grown to

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A Hartmann's Zebra mare with her foal.

such an extent that it weighs down the mother's pouch, so that the protrusion is easily seen as it hangs down from the mother's abdomen.

On the date referred to, Mr. Combrink had the good fortune to pass the kangaroo enclosure just after a baby Black-faced Kangaroo had been born. He would not have been aware of this, however, if the baby had not fallen on to the ground before it had found its way into the mother's pouch. The baby measured about an inch in length; it was pink in colour and without hair on the body. Its fore-limbs were much more strongly developed than the hind-limbs, the five digits being visible and also the sharp claw on each digit. In the case of the hind-limbs the tridactylyus structure was clearly visible under a lens.

As the baby had fallen off the mother's body, an attempt was made to help it into the pouch. The mother was caught and placed on her back. A strip of her fur behind the entrance to the pouch was moistened with water and the baby placed on this strip while the mother was kept flat on her back on the ground. The baby made active movements with the fore-limbs but did not progress towards the mouth of the pouch. The mother was then raised into a kind of
sitting position similar to that described for female kangaroos when bringing forth their young. Thereupon the baby turned round until its head faced the opening of the pouch, but although it continued to make movements with the fore-limbs, it failed to find its way to the opening of the pouch. It was then placed near the opening and still made movements. When it was at the rim of the pouch the latter made several constricting movements and the baby disappeared from view in the long hair at the entrance of the pouch.

The mother's pouch was now opened, and it was found to contain one pair of teats on the left side and another pair on the right side, all four being near the bottom end of the pouch. One of the two teats on the left side, the outer one, was about two inches long and milk appeared when it was pressed. It is probable that this teat was still being sucked by the young kangaroo that the same mother had brought forth about seven or more months previously. The other three teats were small and measured about one-quarter of an inch or a little more in length. The baby still moved its fore-limbs, but as it was by this time probably too weak to become attached, it was handed to Dr. B. Lundholm of the Transvaal Museum.

After birth it is of vital importance that the tiny kangaroo should find its way into the mother's pouch as soon as possible. If it does not succeed in doing this, it will perish. The relatively greater development of the fore-limbs at birth is an adaptation to their function at this stage. It is their task to enable the baby to find its way into the mother's pouch, and for this reason they are capable of relatively active movement in spite of the small size of the baby. The latter reminds one of a very young foetus, and one cannot help feeling that instead of having been born it should still have been enveloped by the protective organs of the mother. But its subsequent development takes place in the protective pouch on the mother's abdomen.

During the past quarter of a century much success has been achieved in breeding mammals in the National Zoological Gardens. It is not necessary to give a complete list of the kinds, but it may be mentioned that twenty-three species of S. African antelopes and the African Buffalo have been bred. Some kinds have, of course, bred more frequently than others.

The only strictly S. African kinds of antelopes, that is to say kinds limited to the Union in their distribution, that do not seem to have been bred are the Roan Antelope, Livingstone's Antelope, the Oribi and the Grysbok.

The Oribi is one of the kinds that is rapidly disappearing from the Union, and we have found it so difficult to get this animal that only one pair has been in the collection during the past 25 years. Equally difficult to get is the Roan Antelope and Livingstone's Antelope.
If sufficient specimens of these antelopes could be obtained, there is little doubt that they would breed.

Among other ungulates various kinds of deer have also bred in the Zoo. The species concerned are the Sambar Deer, the Hog Deer, the Red Deer, the Wapiti, the Fallow Deer, the Barking Deer, and somewhat earlier in the Zoo’s history the Spotted Deer.

The first Giraffe born in the Zoo saw the light of day on the 8 February, 1948. This was a male, but unfortunately it did not survive. It was born in the paddock in the early morning just after a shower of rain and died of acute congestion of the lungs on the following day. At death it weighed 132½ pounds.

Giraffes are by no means easy to get in the Union, and the reason why this species had not bred sooner in the national collection is that a suitable pair was not available. At times there was only one specimen in the collection, and for a long time there was a great disparity in the ages of the pair on exhibition.

As stated earlier, the first Hippopotamus in the Zoo’s collection was a bull, Sigapo. He lived in the Zoo from 1 November, 1907 until the 12 June, 1946. The first cow, Grietjie, was received on
the 14 February, 1942. Although Grietjie was big enough to be placed with Sigapo before he was destroyed on account of infirmity, it was felt that he had been alone for so many years that it would be risky to put the cow in the same enclosure. Sigapo was, moreover, so old that it was unlikely that he would still breed.

The young bull, Tertius, and the cow Grietjie had their first baby on the 1 December, 1951, but unfortunately it died the same day. The baby entered the water a few hours after birth in the sleeping quarters and swam actively, but as it did not find its way on to the mother’s back, most of the water was let out of the pond. All went well until the cow accidentally rested her huge head on the baby and suffocated it. This baby was probably the first one bred in captivity in S. Africa. It weighed 89 pounds about six hours after birth.

Among zebras two kinds, namely the Transvaal Zebra and Hartmann’s Zebra have bred regularly in the Zoo.

Success has also been achieved with the breeding of pigs. The kinds that have bred in the Zoo are the Wild Boar of Europe, the Collared Peccary of S. America, the Javan Swine, the Warthog and the Bushpig.

Lemurs and monkeys of various kinds have also bred in the collection. Among them are the Brown Lemur, the Black Lemur, the Ring-tailed Lemur, the Silky Marmoset, the Common Marmoset, the Bengal Macaque, the Bonnet Macaque, the True Langur, and a few other kinds.

Several kinds of rodents breed regularly in the Zoo. Among them are the S.A. Porcupine, the Beaver-Rat or Coypu, the Patagonian Cavy, the Aguti, the Ground-Squirrel, the Grey-footed Squirrel and others.

Among Carnivora the breeding of the Lion (Leo leo) has been very successful since the year 1942. During twenty years extending over the period February, 1930, to January, 1951, sixty-seven litters comprising 198 Lion cubs were bred in the National Zoological Gardens. The number of cubs per litter varied from one to five, but most of the litters, namely 21, consisted of four cubs. This is a nice adaptation to the four teats of the lioness. It is possible, of course, for a lioness to have more than five cubs in a litter, and a few litters of six have been bred in the Zoological Gardens of London, Leipzig and Dublin and probably also elsewhere. One case of seven cubs has been recorded in the Zoological Gardens of Dublin, but as the lioness died after the birth of the fourth cub, the remaining three cubs were not recorded.

During the period February, 1951, to May, 1952, another twelve litters comprising 34 lion cubs were born in the Zoo in Pretoria.

In order to provide seclusion for nursing mothers among flesh-
eaters, it is sometimes necessary to shut them off from the public for some time. When such occasions arise in Pretoria, it is the practice to close the cages by means of wooden screens. In the new part of the Zoo, where the public has no access to the cages underneath the road, no special measures are necessary to provide seclusion for lionesses.

The problem of indifferent mothers has to be faced at times among lions, tigers and other large carnivores. When this happens, or the mothers do not have sufficient milk, it is necessary to resort to foster-mothers or to feeding the young by means of feeding-bottles. Large dogs are generally used as foster-mothers.

The Cape Hunting Dog is a prolific animal of which a number of litters have been bred in the National Zoological Gardens. The number of pups in a litter has been found to vary from two to twelve. Experience in Pretoria has shown that the females are easily disturbed by the presence of human beings, with the result that the pups are carried about in order to find secluded spots. For purposes of breeding the best results are obtained when a pair of Cape Hunting Dogs can be isolated in an enclosure with a suitable hole in the ground. When the pups are about three months old, they can be removed from the parents and reared with little difficulty.

Other carnivorous animals that have bred in the Zoo during the past quarter of a century are the Sumatran Tiger, the Leopard, the Puma, the Civet Cat, the Dingo, the Black-backed Jackal, the Malayan Bear, the Raccoon and a few smaller kinds.

Although there is a large collection of birds in the National Zoological Gardens, breeding has not been as successful as in the case of mammals. This is largely due to a serious lack of accommodation, with the result that too many different kinds of birds have to be kept together. This is not conducive to breeding. During the quarter of a century with which this book deals, only one new aviary was built, and that was a gift from Mrs. Eileen Orpen, the well-known benefactress of wild life in S. Africa. This aviary was built for Budgerigars, and they have bred so well in it that many hundreds have been sold from time to time.

But even though the breeding of birds has not been as successful as that of mammals, interesting observations could be made.

There are few birds in S. Africa with more interesting breeding habits than the hornbills, sometimes incorrectly called toucans. The smaller kinds of hornbills make their nests in hollow trees and have the habit of imprisoning the females, which remain inside the nest until the young are fledged.

In the year 1935 two hollow tree-stumps were placed on the ground in a cage containing Yellow-billed and S.A. Grey Horn-
bills. It was hoped that some of the birds would nest in these artificial nests. In September of the following year a pair of Yellow-billed Hornbills took possession of one stump, and although the hen was imprisoned in the usual manner, the breeding attempt was unsuccessful.

When a female Yellow-billed Hornbill has entered the cavity selected for the nest, the entrance is plastered up, but a narrow vertical slit is left open through which the male feeds his imprisoned mate. The flat side of the large bill is used as a trowelling implement. Some of the plastering material is taken in the beak and applied to one side of the entrance hole. It is then firmly fixed in position by means of rapid sideways movements of the bill. The material used for the purpose is a mixture of earth, food remnants and possibly also excreta and becomes very hard when dry.

When Yellow-billed Hornbills were exhibited in the Zoo’s Large Flight Aviary some years later and the artificial nests were fastened in trees, the birds bred successfully on several occasions.

In the year 1931 an opportunity presented itself of studying the breeding of the Cape Dikkop, and a description was published in the journal *The Ostrich*.

Like its relative the White Stork the White-bellied Stork is a migrant to South Africa. It comes to the Union in summer from North Africa and may often be seen in the veld in the company of White Storks.

Normally the White-bellied Stork breeds in N. Africa soon after its return thither. In January of the year 1948 this bird bred in the National Zoological Gardens, and this seems to be the first record of its breeding in S. Africa.

Among the kinds of wild birds that have bred in the Zoo the following may be mentioned:—the Emu, the Crowned Crane, the Sacred Ibis, the Black Swan, the Canadian Goose, the Red-knobbed Coot, and the Southern Black-backed Gull. In addition various kinds of pheasants, doves, waxbills and weavers have bred from time to time.

There are not many reptiles in the Zoo at present owing to the lack of suitable accommodation, but among these there has also been some breeding.

In the year 1930 the Governor of Mozambique presented a Nile Crocodile to the Zoo. Soon after its arrival this animal laid 48 eggs. In its natural habitat the Nile Crocodile has the habit of digging a large hole in a sand-bank. When the female has laid her eggs in this nest, she covers them up with sand or soil and leaves their incubation to the sun. In the present case some of the eggs were placed in a box of sand and left in the sun, but none hatched out.
Two kinds of South African tortoises have bred in the National Zoological Gardens on a number of occasions, namely the Leopard Tortoise and the South African Water-tortoise.

The Leopard Tortoise lays round eggs about the size of a ping-pong ball. They are covered with a hard shell made of carbonate of lime.

When a female Leopard Tortoise wants to lay eggs, she digs a hole in the ground rather laboriously with the hind-limbs; the ground is softened with urine during this process. As it is laid, each egg is moved to the side of the hole with one hind-limb. When twelve to eighteen eggs have been laid in tiers, she scrapes the soil back into the hole and stamps it down with the hind-limbs. Several clutches may be laid in one season, and the eggs take up to twelve months or more to hatch.