



REPORT
OF THE
HONORARY COMMITTEE
FOR THE
MANAGEMENT OF THE ZOOLOGICAL GARDEN
FOR THE YEAR 1905-06. -1922

1905-1906.

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222 (B)

REPORT
 OF THE
 HONORARY COMMITTEE
 FOR THE
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 GARDEN
 FOR THE YEAR 1905-06.

THE Honorary Committee have the honour to submit their report for the year ending 31st March 1906, the contents of which include:—

- The Superintendent's Report upon the Menagerie.
- Monthly returns of Visitors and list of Donors.
- Abstract of Accounts of ordinary and extraordinary receipts and expenditure.

THE COMMITTEE.

1. Lieutenant-Colonel A. Alcock, C.I.E., F.R.S., resigned office of President on the 24th March 1906, and was succeeded by the Hon'ble Mr. R. W. Carlyle, C.I.E. During his connection with the Garden as a member, and latterly as President, Lieutenant-Colonel Alcock had always taken a

keen interest in its welfare and development. The following gentlemen resigned their membership prior to the departure from India :—

Mr. J. C. R. Johnston.

Sir Patrick Playfair, Kt.

Mr. G. O. Ranger.

The following new members were appointed during the year :—

Mr. W. K. Dods.

Dr. Nelson Annandale.

Colonel G. M. Porter, R.E.

THE GARDEN.

2. The most important event of the year was the visit of Her Royal Highness the Princess of Wales on the 10th January 1906. Her Excellency the Countess of Minto accompanied Her Royal Highness.

ESTABLISHMENT.

3. Rai B. B. Sanyal Bahadur, C.M.Z.S., was in charge of the Garden and Menagerie throughout the year.

As indicated in the last year's report, the Government of Bengal, on the application of the Committee, placed at the disposal of the Garden the services of Assistant Surgeon Pasupati Mitra, M.B., at the future Superintendent of the Garden. But the Government of India having refused to accord sanction to the transfer, Assistant Surgeon Pasupati Mitra reverted to his substantive appointment at the Medical College, Calcutta.

Babu B. L. Dutt, Assistant Superintendent, was retired in May 1905. His place as Assistant Superintendent remained vacant. Babu Somadev Ganguli was appointed accountant and clerk.

BUILDINGS.

No permanent improvement of a costly nature was undertaken during the year, but the following additions and alterations to existing structures were made :—

(1) The open air aviary outside the new Sarnomoyi House, which was designed to afford greater freedom and comfort to the birds, has justified the Committee's expectation in every way.

(2) To afford greater facilities of grazing and movement to the gradually increasing number of Sambur deer in the collection, the enclosure containing them was enlarged at a cost of Rs. 1,029.

(3) The covered enclosure for the temporary reception of aquatic birds was enlarged, advantage being taken of the operation to adapt the new portion in such a way as to render it suitable for exhibiting various species of Kingfishers also.

(4) Teak-wood flooring was provided for the remaining eight dens of the larger carnivorous animals at a cost of Rs. 2,600.

(5) Further progress towards the completion of the boundary wall was made during the year by erecting 200 ft. of wall on the north of the Garden.

The following is a list of annual repairs:—

“Reptile House” and its cages white-washed and repainted.

“Burdwan House” repaired, dens white-washed and iron work repainted.

“Ezra House” repaired and white-washed.

“Gubbay House” white-washed and doors repainted.

“Murshidabad House” and “Schwendler House” for birds repaired and repainted.

“Boundary Wall”—portion already existing color-washed after petty repairs.

Petty repairs of smaller houses, sheds and enclosure were attended to.

Attention was, as usual, devoted to the condition of the roads and footpaths which were maintained in a fair state of repair.

FINANCE.

5. The financial condition of the Garden was exceptionally good, the receipts from visitors having amounted to Rs. 31,224-4, which was better than the preceding year by no less than Rs. 7,056-4.

The accounts of income and expenditure are summarized in Appendix B.

THE PUBLIC.

6. The attendance of visitors was the greatest yet recorded, the turnstile records showing a total for the year of 422,282 persons admitted, a daily average of 1,157, as exhibited in Appendix C. In addition, a large number of children under 4 years of age, and school children attended

their teachers, were admitted free. On the day of the Agency Fair about 10,000 people, including complimentary ticket-holders, entered the Garden.

HAROLD BROWN,
Honorary Secretary.

R. W. CARLYLE,
President.

SUPERINTENDENT'S REPORT.

I HAVE the honour to submit the following report on the state of the Menagerie of the Garden.

The following comparative tables show how the various collections of animals in the Garden stood during the last four years:—

YEAR.		Mammals.	Birds.	Reptiles.
1902-03	...	504	810	246
1903-04	...	464	842	238
1904-05	...	450	855	266
1905-06	...	432	772	281

HIS ROYAL HIGHNESS THE PRINCE OF WALES'S COLLECTION.

The leading event of the year was the transportation and reception of the following animals belonging to His Royal Highness the Prince of Wales:—

1 Young rhinoceros.

1 Do. elephant.

1 Tiger.

2 Tiger cubs.

1 Cream coloured barking deer.

2 Musk deer.

3 Burhel sheep.

2 Tahr♂.

2 Leopards.	1 Tibetan dog.
2 Himalayan bears.	1 Four-horned antelope.
3 Sambur deer.	3 Spotted deer.
2 Swamp deer.	2 Hog deer.
2 Nilgais.	4 Slender weasels.
2 Uryals.	5 Indian antelope.
2 White barking deer.	Pheasants, partridges a thrushes.

Special arrangements had to be made for their lodgment in the Garden prior to their departure to the Zoological Society's Garden, London. The task of conveying such a large number of animals from Raxaul on the Nepal Frontier to Calcutta, especially as some of them were extremely liable to unfavourable weather conditions then prevailing, was by no means easy; but, owing to the facilities afforded by the Bengal and North-Western and Eastern Railway Companies, it was satisfactorily performed.

ACQUISITIONS.

The Government of Egypt having made a present of three young African lions to the Government of India, the latter in their turn presented them to this Garden. Writing about these lions, Captain S. S. Flower, Director of the Zoological Garden, Ghizeh, said that they were all wild bred young and very good tempered, and were of the celebrated Kordofan race which attains to a larger size than most races of African lions.

When sending the lions, at Lord Cromer's request, to the Government of India, Captain Flower took the oppor-

tunity of including in the consignment the following African animals for exhibition in this Garden :—

- | | | |
|---------------------|--|---------------------------|
| 1 Grivet monkey. | \| | 1 Pair Macaco lemurs. |
| 1 Hamadryad monkey. | \| | 1 Do. Ring-tailed lemurs. |
| 4 Ibera tortoises. | | |

Of the animals acquired by purchase, the following deserve notice :—

- 1 Hybrid kiang
- 2 Brown bears from Syria.
- 2 African lions.
- 3 Arabian gazelles, obtained through the good offices Messrs. Mackinnon, Mackenzie & Co., Calcutta.
- 1 Malayan Tapir.
- 2 Chapman's zebras.
- 2 Jaguars.
- 2 Pallas's cats.

The following animals were bred in the Menagerie :—

- | | | |
|---------------------|--|----------------------------|
| 4 Rhesus monkeys. | \| | 2 Banting. |
| 1 Common marmoset. | \| | 1 Great kangaroo. |
| 1 Mongoose lemur. | \| | 9 Spotted-bill ducks. |
| 1 Leopard. | \| | 3 Large-billed parrakeets. |
| 5 Spotted deer. | \| | 3 Button quails. |
| 4 Sambur deer. | \| | 3 Common mynas. |
| 1 Sika deer. | \| | 2 Crested pigeons. |
| 3 Indian Antelopes. | \| | 6 Red munias. |

EXCHANGES.

In acknowledgment of Captain Flower's courtesy and good offices, the following animals were sent to him for exhibition in the Ghizeh Garden :—

- | | | |
|---------------------|--|--------------------|
| 2 Entellus monkeys. | \| | 2 Nicobar pigeons. |
| 1 Adjutant. | \| | 2 Crowned pigeons. |

2 Black and white ibises.	1 Gold pheasant.
1 Scarlet ibis.	2 Burmese peafowls.
2 Mandarin ducks.	2 Saras cranes.

At the request of the Government of India a full-grown tiger was sent to the Zoological Garden at Pretoria.

A list of donors and their donations during the year 1905-06 is given in Appendix D.

LOSSES.

Of the losses by death, the following require special mention:--

One Lioness, one Waterbuck, one Bornean ape, two Clouded leopards, one Puma, one Swamp deer, one Brown-antlered deer, and one Argus pheasant, which was an old inhabitant of the garden. Unfortunately, however, the list is not exhaustive. There were other losses by death during the year, but most of them were due to causes for which the management of the garden could not be responsible (*vide* Pathological Department).

PATHOLOGICAL DEPARTMENT.

The garden continued to be as under-staffed as in previous years, and the work in this department was therefore carried on under difficulties, and on restricted lines.

A list of the more important animals examined is given below:—

(1) Dingo (*Canis dingo*).

Died a few hours after her evening meal.

General appearance ... Not emaciated.

Digestive system	...	Normal and healthy. Stomach full of undigested meal of meat.
Circulatory system	...	The right heart and the veins full of dark tarry blood, and the left heart contracted.
Respiratory system	...	The larynx, trachea, bronchi, and lungs full of frothy mucus.
Genito-urinary system...		The kidneys very deeply congested.
Nervous system	...	Brain deeply congested.
Cause of death	...	Asphyxia.

(2) Brow-antlered deer (*Cervus eldi*).—The animal (old) had been subject to diarrhœa for about ten months before death. A large number of flukes were found attached to the wall of the rumen in several colonies.

(3) Indian otter (*Lutra vulgaris*).—Died seven days after its arrival. No amount of coaxing induced it to eat anything during the seven days it lived in the Garden.

(4) Common Marmoset (*Haple jacchue*)—

General appearance	...	Fairly nourished.
Cause of death	...	Tuberculosis of the heart.

(5) Snow pigeon (*Columba leuconota*)—

General appearance	...	Fairly nourished.
Digestive system	...	Small intestines almost packed with round worms of different sizes.
Liver	...	Enlarged and fatty-looking.
Lungs	...	Full of caseating tubercles.

(6) Common Hill Partridge (*Abroricola torquela*)—

General appearance	...	Fairly nourished.
Heart	...	A tubercular nodule over the apex.
Small intestines	...	Full of tape-worms.
Cause of death	...	Inflammatory affection of the lungs, tubercle of heart, and worms in the intestine.

(7) Booted eagle, (*Hairætus pennatus*)—

General appearance	...	Fairly nourished.
Lungs	...	Full of shotty tubercular nodules (from the size of a pin-head to that of a pea).
Small intestines	...	A few small round worms.
Liver	...	Enlarged and deeply congested.

(8) Red-billed blue magpie, (*Urocissa occipitalis*)
(suddenly dropped down dead while sitting on a high perch)—

General condition	...	Fairly nourished.
Small intestines	...	Slightly congested, numerous fine tape-worms present.
Liver	...	Congested.
Heart	...	Inflammatory nodule at the apex.

(9) Peafowl (*Pavo cristatus*).—Shock and peritonitis resulting from ova rupturing into the peritoneal cavity.(10) Common cassowary (*Casuareus galeatus*)—This bird had never been very healthy since its acquisition by the Garden. Off and on it lay

drooping, necessitating feeding it with egg, milk and brandy.

General appearance	...	Rather emaciated.
Digestive system	...	Mesenteric veins all thrombosed.
Liver	...	Congested, and the veins thrombosed.
Circulatory system	...	Left heart empty, fairly contracted, the arteries empty. The vena cava, the pulmonary veins, and the right heart full of thrombosed blood.
Respiratory system	...	Pleura full of tubercles.
Cause of death	...	Tubercular pleurisy.

(11) Swamp deer (*Cervus duvensilli*).—Had fever and, later on, liquid stools. Very weak, remained standing dull and morose in some remote corner of the enclosure. Moved about when made to do so, but very unwillingly. Breathing hurried.)

General appearance	...	Fairly nourished.
Digestive system	...	The Oesophagus above the base of the heart and root of lung adherent to the surrounding tissues—the adhesions fairly firm.
Respiratory system	...	Trachea presented an abscess about the size of a duck's egg above the base of the heart. The lungs adherent to the pericardium. Adhesions fairly firm and old. Otherwise natural and healthy.

- Circulatory system ... Heart enlarged and hypertrophied. The internal surface of the pericardium adherent to the heart by means of coagulated lymph and fibrin. This deposit forms a thick coating (an inch thickness) all round the heart. At one place, midway between the base and apex, the pericardium presents a perforation which admits of the tip of a finger, and through which sticking out a nail (a packing nail) about 2 inches in length, the rest lying in the pericardium. The pericardium itself is also greatly thickened by the deposition of lymph.
- The liver and kidneys ... Deeply congested.
- Cause of death ... Traumatic pericarditis from constant irritation caused by the nail, which had evidently been swallowed by the animal, and afterwards made its way into the pericardial sac.

Traumatic pericarditis is not uncommon among ruminants. Cases due to similar causes have occurred in the previous history of the Garden. Their mode of feeding has much to do with the introduction of foreign bodies into their stomach. Once there, they have no difficulty, especially if sharp-pointed, in getting access into the thoracic cavity and lodgment in the pericardium.

(12) Sloth bear (*Melursus ursinus*).—Death rather sudden.

General condition ... Well nourished.
Cause of death ... Pulmonary congestion. (Heart stroke).

(13) Four-horned antelope (*Tetraceros quadricornis*).

Cause of death ... Intestinal obstruction brought on by volvulus.

(14) Chakar partridge (*Cacabis Chukar*).

Cause of death ... Intestinal obstruction caused by concretion.

(15) Siamang (*Hylobates syndatilus*).—Had been in poor health since its arrival.

Cause of death ... Chronic gastritis and indigestion.

(16) Indian Mouse deer (*Tragulus meminna*).

General condition ... Fairly well nourished.

Pleura... ... Studded with numerous milium tubercles and adherent loosely to several patches with the lungs.

Lungs ... Studded with small caseating tubercles.

Kidneys ... Congested.

Cause of death ... Tubercular pleurisy and pulmonary tuberculosis.

(17) Egyptian goose (*Chenalopez aegyptiacus*). A large irregularly elongated tumour found in the abdomen in the neighbourhood of oesophagus and gizzard, adherent to the liver. Lobulated and capsuled. Contained some friable brownish yellow stuff. Liver enlarged and adherent to the tumour; pale, fatty, and granular in consistency.

Cause of death ... Abdominal tumour and fatty degeneration of liver.

(18) Formosan parrot. (*Tanygnathus-macrorhynchus*)—

Heart	Slightly hypertrophied.
Arch of the aorta ...	Greatly thickened, hard, and rigid. Calibre extremely narrowed, barely admitting a knitting needle.

(19) White stork. (*Ciconia alba*)—

Cause of death ...	Tubercular pericarditis.
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(20) Clouded leopard. (*Felis nebulosa*)—

General condition ...	Fairly well nourished.
Liver	Much enlarged and indurated. Capsule thickened.
Gall-bladder	Full of bile, deeply congested.
Lungs	Greater part emphysematous, rest deeply congested.
Kidneys	Deeply congested, consistence pulpy.
Heart	Right side full of dark clots.
Cause of death ...	Chronic liver disease.

(21) Puma. (*Felis concolor*)—

History	Suffered off and on from bowel com- plaints during the ten months that it remained in the Garden.
Stomach	Rather small and contracted. Contained a ball of hair about the size of a lemon. Mucus membrane thickened, chronically inflamed, and covered with a layer of thick sticky mucus. A large number of small sized round worms found.
Duodenum	Mucus membrane thickened and en- larged. Full of small round worms.
Liver	Greatly enlarged, and tinged yellow, due to biliary obstruction.

Gall-bladder ...	...	Full of bile.
Spleen ...	...	Enlarged, more than double the normal size.
Heart ...	...	In the state of diastole; right side full of dark clots.
Pericardium ...	...	Contained 2 ounces of fluid.
Lungs ...	...	Oedematous.
Kidneys ...	...	Deeply congested.
Cause of death ...	...	Gastroduodenal catarrh, and biliary obstruction arising from catarrhal inflammation of the bile ducts.

(22) Hoolock. (*Hylobates hoolock*)—

Cause of death ... Acute dysentery.

(23) Indian Lynx (*Felis caracal*)—

Cause of death ... Pneumonia.

The *post-mortem* records, though imperfect, are instructive. They not only show the diversity of ailments from which the animals in captivity suffer, and to which they succumb, but point to directions in which further improvements and innovations might be conducive to the well-being of the animals.

The Superintendent's acknowledgments are due to Assistant Surgeon Pasupati Mitra, M.B., for the valuable help rendered by him in conducting the *post-mortem* examinations.

PROVISIONS.

The commissariat of the Garden, as its importance required, was carefully looked after. The new ranges of godowns and sheds, with their annexes, largely contributed towards the more efficient management of the department.

Minor structural improvements are still necessary, and it is hoped that they will be carried out before long.

A great deal of vigilance is always required to be exercised in respect to the quality of food supplied for the animals, but to obtain them according to the requisite standard is not so easy as may be supposed. Considerable difficulty has for some time past been experienced in procuring wholesome beef and mutton at prices fixed many years ago. As, however, the difficulty is of complex origin, caused largely by the state of meat-supply in the local market, mere revision of prices will not remedy the evil. In the circumstances, it may be necessary before long to consider whether a well-equipped slaughter-house connected with the Garden will not be a desirable adjunct to its commissariat department.

The same difficulty has been experienced with respect to the milk-supply of the Garden. Trouble, worry, and failure in obtaining pure and fresh milk led the management to have recourse to the use of preserved milk, which, however, does not meet the requirements in every case.

The quantity and kind of provisions consumed during the year 1905-1906 are given below :—

				Mds.	sts.	ch.
Gram	...	...	...	819	23	8
Brøn	...	...	...	183	0	0
Paddy	...	...	...	213	31	8
Rice	...	...	...	176	14	12
Wheat	...	...	...	50	26	0
Kangney (millet)	...	...	...	2	0	14

			Mds.	srs.	ch.
Hempseed ...	...	...	0	39	0
Peas ...	...	...	9	6	0
Sutoo ...	...	...	99	34	4
Gur (raw sugar)	...	...	23	25	2
Oil-cake ...	...	...	22	30	0
Biscuits ...	...	...	3	13	14
Vegetables ...	...	...	34	37	8
Onions ...	...	...	3	22	6
Black salt ...	...	...	3	0	8
Table salt ...	...	...	3	9	2
Fish ...	...	...	41	2	12
Beef ...	...	...	809	15	0
Goat's flesh ...	...	...	75	7	8
Milk (fresh) ...	...	...	33	35	8
Sweet potato ...	...	...	10	4	0
Linseed ...	...	...	3	5	0
Oats ...	...	...	15	3	8
Indian corn ...	...	...	3	0	8
Canary-seeds ...	...	...	1,249 lbs.		
			Number.		
Milk (condensed) ...	...	...	1,069 tins.		
Goats ...	...	...	223		
Rabbits ...	...	...	147		
Fowls ...	...	...	1,630		
Smaller birds ...	...	...	523		
Snakes ...	...	...	126		
Rats ...	...	...	277		
Grasshoppers ...	...	...	17,940		
Eggs ...	...	...	5,550		
Papaya ...	...	...	1,641		
Hay ...	...	...	14,182 bundles.		
Bread ...	...	...	5,931 loaves.		

			Number.
Paddy-straw	...	...	63 kahans, 5 pauns, 4 gandas.
Plantains	...	...	101 kahans, 1 paun, 12 gandas.
Pigeons	...	...	176
Jack-fruit leaves	...	...	182 carts.
Sugar-cane	...	...	122 bundles.
Brinjals	...	...	2,044
Betel leaves	...	...	710
Green grass	...	...	70 baskets.
Cocoanut	...	...	120

The following table gives the chief items of expenditure under "Food of animals" for the year 1905-06:—

			Rs.	A.	P.
Beef	...	...	2,617	14	9
Mutton	...	...	1,100	9	6
Fowls	...	...	407	3	0
Goats	...	...	338	2	6
Ducks	...	...	122	1	9
Rabbits	...	...	189	9	0
Pigeons	...	...	35	10	0
Birds	...	...	32	7	3
Snakes	...	...	32	10	0
Live fish	...	...	325	9	9
Worms	...	...	60	14	6
Grasshoppers	...	...	36	0	0
Gram, wheat, rice, etc.	...	...	4,385	3	3
Indian-corn	...	...	78	8	9
Vegetables	...	...	90	11	3
Plantain	...	...	418	3	6
Paddy straw	...	...	322	0	0
Hay	...	...	148	3	0

			rs. A. P.
Condensed milk	...	...	380 4 9
Fresh milk	...	...	220 3 0
Bread	...	...	370 3 0
Biscuits	...	...	33 4 6
Suttoo	...	...	107 13 6
Leaves	...	...	127 10 0
Sugarcane	...	...	93 11 6
Miscellaneous food, such as, smaller fish, eggs, fruits, etc.	...	...	1,293 7 0
Total			13,368 3 0

GENERAL CONDITION OF THE ANIMALS.

The results of the few improvements introduced of late have been, on the whole, encouraging. With the exception of a few suspected cases of anthrax among the bovidæ there has been no outbreak of epidemics of any kind, and it is hoped that, with the gradual introduction of improved hygienic measures, their frequency and virulence will be greatly diminished. Of improvements affecting the health and comfort of animals, the construction of the open-air aviary connected with the Sarnomoyi house for birds has been the most important. In its large, lofty, and airy cages ornamented with green lawn and vegetation, birds of various species fly about as if in their wild state—pleasing to the visitors to look at, and enjoyable to the birds themselves. From what some of the species have already attempted in respect to their domestic economy, it is evident that they cannot but be comfortable in their new home.

Most of the older inhabitants of the garden, with a few exceptions, maintained excellent health. That improved housing has much to do with the health of the animals was abundantly proved by the fact that the condition of the smaller carnivorous animals markedly improved on their removal from the dark and ill-ventilated smaller carnivora house to an open shed, by no means an ideal place, except in respect to light and ventilation.

As usual, treatment and housing of sick animals have been diligently and carefully attended to. Subjoined is a list of some of the cases that have been successfully treated : —

Name of animal.	Disease.	Treatment and diet.	Result.
Tiger ...	Ulcer of the mouth and tongue.	Potassii chloras in drinking water ; borax and honey, touched with an improvised mop.	Recovery.
Great Indian Rhinoceros.	Opacity of the cornea (left eye).	Argenti nitras grs. ii Aque Distil : ʒi (Used as eye-drops.) Boric acid lotion (8 grs. to ʒi). (Used as eye-wash.)	Ditto.
Indian Lion ...	Dysentery ...	Pulv : Ipecac : grs xx ; twice daily, masked in meat.	Ditto.

Name of animal.	Disease.	Treatment and diet.	Result.
Puma ...	Lacerated wound of the left foot (mauled by its companion).	Syringed and washed with carbolic lotion; strong Phenyle lotion constantly sprinkled about the cage to keep off flies.	Recovery.
African Lion...	Blood dysentery	Pulv: Ipecac: ʒi, masked in meat. Goat as diet. Bicarbonate of soda in drinking water.	Ditto.
Wild Buffalo	Diarrhœa ...	Tinct: Kino Co: ʒii with 2 ounces of rum and gruel, twice daily. Crude opium ʒii Pulv: Cretæ prep: ʒiv with gruel, twice daily.	Ditto.
Black leopard	Claws growing into pad of the left foot, and setting up inflammation.	Growing end of the claws cut off; wound dressed with anti-septic dressing.	Ditto.
Brown Bear ...	Ulceration and inflammation of the right fore foot, brought on by injury inflicted by its companion.	Syringed and washed with carbolic lotion thrice daily; Phenyle lotion sprinkled in and about the cage to keep off flies.	Ditto.

Name of animal.	Disease.	Treatment and diet.	Result.
Indian Rhinoceros.	Obstinate constipation caused by the accumulation of foreign matters (packing paper) in the large intestine.	Castor oil and rock salt in large doses.	Recovery.
Clouded Leopard.	Paralysis ...	Nitrate of silver grs. ii, concealed in meat, morning and evening.	Ditto.

COLLECTION OF ANIMALS.

It is time to consider whether the collection of animals in the Garden cannot be further increased and made more representative of the Indian fauna. Southern India remains practically unexploited. None of the Semnopetheci from that sub-region have ever been exhibited in the Garden. No attempt has been made to obtain a specimen of the Slender Loris or a Spotted Cat. Such is also the case with respect to the rich Sub-Himalayan regions. Of Himalayan birds, the Garden has hitherto been satisfied with the occasional acquisitions of such specimens as casually find their way into the Calcutta market. Of ducks and geese, large numbers are, from time to time, obtained by presentation and purchase, but no serious attempts have yet been made to exhibit a representative collection of various kinds of smaller

waders which are so plentiful in India during the cold weather. While the present state of the collection can be well maintained as it has hitherto been done by the generosity of Government officials and private individuals, who have always helped the institution, and by occasional purchases in the local market, to expand it in the direction indicated above, employment of agencies at selected centres, such as, Darjeeling, Mussoorie, Trivandrum and other likely places, is absolutely necessary. As enquiries are from time to time received from the management of other Zoological Gardens in India, such as Lahore, Trivandrum, and Jaipur, about animals they wish to acquire, it may be suggested in this connection that the formation of an "Interprovincial Committee" with a view to furthering the common object of acquiring animals may be formed.

Respectfully submitted.

RAMBRAMHA SANYAL,

Supdt., Zoological Garden, Calcutta.

APPENDIX B.

I.—Comparative Statement of Receipts for 1904-05 and
1905-06.

	RECEIPTS FOR—					
	1904-05.			1905-06.		
	Rs.	A.	P.	Rs.	A.	P.
Opening balance	9,188	13	3	15,205	9	6
Interest	163	9	4	1,245	10	1
Donations and subscriptions	48	0	0	872	0	0
Entrance receipts	24,168	0	0	31,224	4	0
Rent	1,801	8	0	2,300	0	0
Carriages and palkis	577	8	0	663	8	0
Fishing ... ..	.....			241	0	0
Picnic	40	0	0	105	0	0
Rhino urine	57	0	0	1,275	0	0
Miscellaneous	3,884	4	7	4,122	2	0
Government contribution	20,000	0	0	20,000	0	0
Total	59,928	5	2	77,162	1	7
Add balance of the Government of India grant of 1 lakh of rupees. ... ..	..	..	..	5,209	10	1
Add receipts of 31st March 1905, which was deposited into the Treasury on 1st April 1905. ....	.....			76	3	0
Total ... ..	.....			82,447	14	8
Deduct receipts of 31st March 1906, which was deposited into the Treasury on the 1st April 1906. ....	.....			81	6	0
GRAND TOTAL ... ..	.....			82,366	8	8

APPENDIX C.

Summary of Visitors and Gate receipts during 1905-06.

Month.				Number of visitors.	Receipts.	
					Rs.	A.
April	1905	...	...	23,956	1,632	7
May	"	...	...	21,113	1,516	4
June	"	...	...	28,636	1,944	0
July	"	...	...	27,676	2,034	15
August	"	...	...	27,420	1,978	10
September	"	...	...	27,803	1,981	1
October	"	...	...	60,463	4,053	15
November	"	...	...	43,270	3,188	6
December	"	...	...	39,732	3,526	9
January	1906	...	...	49,186	3,615	14
February	"	...	...	38,071	3,013	6
March	"	...	...	35,056	2,738	13
Total				4,22,282	31,224	4

APPENDIX D.

The following is a list of donors and their donations during the year 1905-06 :—

Alcock, Mrs. A.	...	...	1 Hill myna.
Bryer, W. H., Esq.	...	...	1 Leopard.
Bull, H. M., Esq.	...	...	1 Ratel.
Bundfuss, H., Esq.	...	...	1 Indian otter.
Chandrasekher Singh	Deo, Chief		
of Udaipur	...	...	1 Tiger.
Chief Commissioner of Assam	...	...	2 Flying squirrels.
Chowdhury, Babu Rajani Kanta			1 Spotted deer.
Clarke, L. O., Esq.	...	...	1 Leopard.
Cleghorn, James, Esq.	...	...	1 Koel.
Corbett, J., Esq.	...	...	1 Gharial.
Dennet, J., Esq.	...	...	1 Paradoxure.
Ghoshal, Babu Jatindra Nath	...	...	2 Bengal foxes.
Ghose, Mr. L.	...	...	1 Spotted deer.
Gray, R., Esq.	...	...	1 Young crocodile.
Harvey, A. M., Esq.	...	...	1 Slow loris.
Harris, G., Esq.	...	...	2 Clouded leopards
Hickie, J., Esq.	...	...	1 Sloth bear cub.
James, J. C., Esq.	...	..	2 Sambur deer.
Longmore, G. H., Esq.	...	...	1 Bear cub.
Mackeson, Dr.	...	...	1 Bornean ape.
Magnus, T. A., Esq.	...	...	1 Ring tailed lemur.
Martin, G. D., Esq.	...	...	2 Sambur deer.
Morgan, Mrs. R. L.	...	...	1 Four-horned antelope.
Mukherji, Babu Gopal Chandra			1 Sambur deer.
Nawab Bahadur of Dacca	...	...	1 Himalayan bear.
Nugent, Miss	...	...	4 Crested bulbuls, 2 undu- lated grass parakeets.

Osmaston, B. B., Esq.	...	2 Andaman robber crabs, 1 owl, 1 Andaman barn owl, 2 Oceanic teals, 1 Snake-eating cobra.
Praed, Lt. G. A.	...	1 Himalayan bear.
Parker, H., Esq.	...	1 White stork.
Rennick, Major	...	1 Bear cub.
Roxby, Herbert, Esq.	...	2 Hoolock gibbons.
Roy, Babu Nalini Mohan	...	1 Swamp deer.
Sikkim, Maharaja of	...	2 Burhels.
Smythe, Dr.	...	1 Leopard cat.
Standbridge, Lt. W. I.	...	1 Himalayan bear.
Stapleton, H. E., Esq.	...	1 Tryonix.
Stevens, Mrs. A. M. B.	...	2 Himalayan bears.
Stoddart, G. F., Esq.	...	1 Sloth bear.
Sunder, D., Esq.	...	3 Pythons.
Thakur Udit Narain Singh Deo	...	2 Leopards.
Tippera, Maharaja of	...	2 Clouded leopards and 1 Fishing cat.
Urquhart, D., Esq.	...	1 Rhesus monkey.
Woolward, Captain J.	...	1 Ditto.
Zafar, M. Syed	...	2 Leopard cubs.

REPORT

OF THE

HONORARY COMMITTEE

FOR THE

MANAGEMENT OF THE ZOOLOGICAL GARDEN.



FOR THE YEAR 1906-07.



Calcutta:

THE BENGAL SECRETARIAT BOOK DEPOT.

1907.

1906-1907

REPORT
OF THE
HONORARY COMMITTEE
FOR THE
MANAGEMENT OF THE ZOOLOGICAL
GARDEN.

FOR THE YEAR 1906-07.

THE Honorary Committee have the honour to submit their report for the year ending 31st March 1907, the contents of which, as usual, include—

The Superintendent's Report upon the Menagerie.

Monthly returns of visitors and list of donors.

Abstract of accounts of ordinary and extraordinary receipts and expenditure.

THE COMMITTEE.

President :

The Hon'ble Mr. R. W. Carlyle, C.I.E.

Honorary Secretary :

Lieutenant-Colonel E. H. Brown, I.M.S., M.D., F.Z.S.,
F.R.C.S.

Members of the Committee.

His Highness Maharaja Sir Nripendra Narayan
Bhup Bahadur, G.C.I.E., C.B., of Cooch Behar.

Sir Herbert Hope Risley, I.C.S., C.S.I., K.C.I.E.
Surgeon-General G. Bomford, I.M.S., C.I.E.
R. D. Mehta, Esq., C.I.E.
Maharaj-Kumar Sir Pradyot Kumar Thakur, Kt.
A. E. Silk, Esq.
Rai Rambrahma Sanyal Bahadur, C.M.Z.S.
W. A. Dring, Esq.
R. G. Currie, Esq.
Major R. Bird, M.D., M.S., F.R.C.S., I.M.S. C.I.E.
P. L. Buckland, Esq.
W. K. Dods, Esq.
Dr. Nelson Annandale, B.A., D.Sc.
C. E. A. W. Oldham, Esq., I.C.S.
Colonel G. M. Porter, R.E.
Major D. M. Moir, I.M.S.
W. B. Gwyther, Esq.
R. P. Ashton, Esq.
The Hon'ble Mr. H. J. McIntosh.

Ex-officio Members :

The Commissioners of Divisions in Bengal.
The Executive Engineer of the Public Works
Department of the Division in which the
Garden is placed.
The Sanitary Commissioner with the Government of
Bengal.
The President of the Asiatic Society of Bengal.
The Director of Public Instruction, Bengal.
The Natural History Secretary of the Asiatic Society
of Bengal.

The Director of Land Records.

The Superintendent, Civil Veterinary Department,
Bengal.

The Professor of Comparative Anatomy and Zoology,
Medical College, Bengal.

The Superintendent of the Royal Botanic Garden,
Sibpur.

The Chairman of the Calcutta Corporation.

Messrs. W. B. Gwyther and R. P. Ashton resigned their membership of the Committee prior to their departure from India, but were re-appointed after their return.

Rai Krishna Chandra Banerjee Bahadur was appointed a member of the Committee during Mr. Gwyther's absence, but resigned on the latter's return.

The following new members were appointed during the year :—

Major D. M. Moir, M.D., I.M.S.

The Hon'ble Mr. H. J. McIntosh, I.C.S.

The names of the following gentlemen were removed from the list of members of the Committee as they were not expected to return to Calcutta :—

T A. Pope, Esq.

G. R. Gardiner, Esq.

THE GARDEN.

2. The visits of His Majesty the Amir of Kabul were the most important events of the year, and it is satisfactory

to note that he took more than a casual interest in going round the garden and seeing everything worth seeing.

ESTABLISHMENT.

3. Rai R. B. Sanyal Bahadur, c.m.z.s., continued in charge of the Garden as Superintendent throughout the year.

Under orders of the Government of Bengal, conveyed in their letter No. 1158, dated 25th February 1907, Mr. Bejoy Krishna Basu, Veterinary Inspector, was appointed Assistant Superintendent of the Garden.

BUILDINGS.

4. With the exception of the extension of the boundary wall as far as the exit gate on the Belvedere Road, at a cost of Rs. 4,102, no permanent improvement of any importance was undertaken during the year.

The buildings used as habitations for animals are necessarily subject to more than ordinary wear and tear, requiring constant care and supervision in respect to their maintenance in a proper state of repair.

The following is a list of some of the more important repairs executed during the year :—

- (1) Burdwan House—Repaired, outside colourwashed, dens whitewashed, and iron works repainted.
- (2) Smaller Carnivora House—Repaired, colourwashed and repainted.

- (3) Murshidabad House—Repaired and repainted
- (4) Reptile House and its cages—Whitewashed repainted.
- (5) The Hermitage—Repaired, colourwashed repainted.
- (6) Buckland Enclosure—Repaired and repainted.
- (7) Peafowl Pavilion—New partition erected general repairs attended to.
- (8) Abdul Gani House, for bears—Iron work strengthened, whitewashed, and repainted.

Petty repairs of smaller houses, sheds and enclosures were attended to.

FINANCE.

5. It will appear from the following comparative statement of receipts from visitors that the financial condition of the Garden was even better than that of the previous year which was exceptionally good in this respect.

			Rs.	A.	P.
1904-05	...	...	24,168	0	0
1905-06	...	...	31,224	4	0
1906-07	...	...	33,474	4	0

The accounts of income and expenditure are summarised in Appendix A.

THE PUBLIC.

The attendance of visitors showed a very satisfactory increase during the year, the turnstile records indicating

total for the year of 457,891 persons admitted, a daily average of 1,254, as exhibited in Appendix B.

Comparative table of visitors during the last three years—

1904-05	...	...	...	346,254
1905-05	...	...	...	422,282
1906-07	...	...	...	467,891

In addition, a large number of children under four years of age and school children attended by their teachers were admitted free. On the day of the Fancy Fair about 11,050 people, including complimentary ticket-holders, entered the Garden. Special permission was granted to the inmates of the Reformatory School at Alipore to visit the Garden under proper escort.

E. HAROLD BROWN,
Honorary Secretary.

E. A. GAIT,
President.

SUPERINTENDENT'S REPORT.

I HAVE the honour to submit the following report on the state of the menagerie of the garden.

*The following comparative tables show how the various collections of animals in the garden stood during the last four years:—

			Mammals.	Birds.	Reptiles.
1903-04	...	...	464	842	238
1904-05	...	...	450	865	266
1905-06	...	...	432	772	281
1906-07	...	...	473	741	307

ACQUISITIONS.

The collection of Birds of Paradise was enriched by the acquisition, by purchase, of two Twelve-wired Birds of Paradise, which were new to the collection.

Among other acquisitions the following deserve notice:—

- 1 Tiger (presented by Mahant Dalmir Puri of Budhowli in Gaya District).
- 2 Reticulated Pythons (obtained by purchase).
- 1 Musk Deer (presented by His Excellency the Prime Minister of Nepal).
- 1 Black Leopard (purchased).
- 1 Andaman Robber Crab (presented by Mr. A. J. Parkar).
- 1 Proboscis Monkey (purchased).
- 1 Greater Bird of Paradise (purchased).
- 1 Lesser Bird of Paradise (purchased).
- 1 Orang Outang (purchased).
- 1 Brow Antlered Deer (purchased).

A consignment of African, American and English mammals and birds was obtained through the good offices of Mr. R. I. Pocock, the well-known Superintendent of the Zoological Society's Gardens, London.

A list of donors and their donations during the year 1906-07 is given in Appendix D.

The following animals were bred in the Menagerie:—

- | | |
|---------------------|-------------------------------|
| 3 Rhesus Monkeys. | 1 Rufous necked Wallaby. |
| 6 Coypu rats. | 5 Spotted bill Ducks. |
| 4 Spotted Deer. | 1 Large billed Parrakeet. |
| 3 Sambur Deer. | 4 Common Mynas. |
| 1 Hog Deer. | 1 Crested Pigeon. |
| 2 Indian Antelopes. | 3 Red Munias. |
| 1 Banting. | 2 Undulated grass Parrakeets. |

A large number of birds of different species breed in the Garden every year in a wild state and the following is a list of those which bred during the year 1906-07:—

- (1) Indian House Crow—*Corvus splendens* (Viell).

The nesting of the species is often discouraged, and comparatively few of them nest in the garden now.

- (2) Indian Tree-Pie—*Dendrocitta rufa* (Scop).

Nest found on a sweet Babul Tree (*Inga Dulce*).

- (3) Jungle Babbler—*Crateropus conurus* (Linn).

- (4) Bengal red-whiskered Bulbul—*Otocompsa emeria* (Linn).

- (5) Black Drongo—*Dicrurus ater* (Herm).

No nest has ever been found in the Garden, but the birds have often been observed to carry grass and other materials during the breeding season.

- (6) Indian Tailor-Bird—*Orthotomus sutorius* (Forst).

- (7) Indian black-headed Oriole—*Oriolus melanoccephalus* (Linn).

- (8) Pied Starling—*Sturnopastor contra* (Linn).

- (9) Magpie Robin—*Copsychus saularis* (Linn).

Generally selects a mango tree for nesting.

- (10) House Sparrow—*Passer domesticus* (Linn).

- (11) Red-backed Woodpecker—*brachypternus aurantius* (Strickl).

- (12) Crimson-breasted Barbet—*Xanthotema hematocephala* (Shelley).

- (13) Common Kingfisher—*Alcedo bengalensis* (Gm).

- (14) White-breasted Kingfisher—*Halcyon smyrnensis* (Linn).

- (15) Indian Koel—*Eudynamis honorati* (Walden).

- (16) Barn Owl—*Strix flammia* (Linn).

- (17) Spotted Owlet—*Athene brama* (Blyth).

- (18) Common Pariah Kite—*Milvus govinda* (Sykes).
 (19) Spotted Doves—*Turtur suratensis* (Blyth).
 (20) White-breasted Water-hen—*Amaurornis phaniscurus*
 (Salvd).
 (21) Little Cormorant—*Phalacrocorax javanicus* (Horsf).
 (22) Indian Snake bird—*Plotus melanogaster* (Gm).
 (23) Night Heron—*Nycticorax griseus* (Blyth).

LOSSES.

It is greatly to be deplored that the Indian Lion presented by His Excellency the Viceroy (Lord Curzon) in April 1902 had to be destroyed. Although quite a young animal it was found on its arrival to have been suffering from liver and bowel complaints, and was very unsteady in its movements. Indeed its symptoms generally were strongly suggestive of disease of the spinal cord. Everything that could possibly be done to improve its health and mitigate its sufferings was tried, but the animal never showed any sign of improvement. On the contrary, as it grew in size its unsteady ataxic gait evidently became more and more painful to the animal, rendering it necessary to put an end to its miseries. A list of other losses is given under the Pathological Department.

PATHOLOGICAL DEPARTMENT.

During the latter part of the year the work in this department was carried on under less difficulties, though still on restricted lines than in previous years, owing to the appointment of a competent Assistant Superintendent and the ready and generous help rendered in such matter by the Principal of the Veterinary College at Belgachia.

A list of the more important cases examined is given below :—

✓ (1) Indian Lion—

Digestive system—Normal, except that the sphincter of the rectum showed all the characteristic appearances of piles.

Respiratory system—Tubercular nodules in the lungs.

Liver—Enlarged and deeply congested. Other internal organs normal. Paralysis probably due to tuberculous deposits in the nervous system.

✓ (2) Common Indian Otter—

Cause of death—Acute pulmonary congestion.

✓ (3) Himalayan Kalij Pheasant—

Heart—Inflammatory nodule at the apex.

Liver—Full of calculous deposits and calculi in the biliary duct. It was greatly enlarged and deeply congested.

Cause of death—Biliary obstruction.

✓ (4) Indian Peafowl—Severe inflammation of the left lung.

Kidneys—Congested.

Cause of death—Pneumonia.

(5) Nicobar Pigeon—

Cause of death—Pulmonary congestion.

Spotted deer—

Respiratory system—Thoracic cavity full of fluid. Half oz. fluid found in the pericardial sac.

Lungs—Slightly congested and pleura adherent to the lungs.

Digestive system—Three ounces of fluid found in the abdominal cavity.

Liver—Normal.

Stomach—Full of undigested food.

Uterus—Chronic inflammation with muco pureulent discharge.
Vagina ulcerated.

Cause of death—Exhaustion and blood poisoning brought on by premature parturition.

(7) Spotted Cavy—

Lungs—Slightly congested. Spleen enlarged and brittle.
Stomach and intestines normal. Several round worms found in the intestines.

(8) Proboscis monkey—

Respiratory system—Right side of the thoracic cavity full of straw colour, clear fluid.

Lungs—Right lungs hepatized.

Liver—Enlarged.

Cause of death—Pneumonia.

(9) Sloth bear—

Cause of death—Dysentery.

(10) Mandarin Duck—

New arrival—General condition extremely poor. Stomach full of undigested food.

Cause of death—Engorged stomach pressing on the respiratory system induced asphyxia.

(11) Spotted Deer—(Born in the Garden). Found dead. Mark of injuries on the neck and head, Probably the animal got itself entangled in the fencing and died. Internal organs normal except part of the brain which was congested; this was evidently due to injury.

(12) Leopard Cat—

Cause of death—Acute hepatitis.

(13) Malayan Bear—

Cause of death—Chronic dysentery.

(14) Chakur Partridge—

Cause of death—Abscess and ulceration of the liver.

(15) Wood Duck—

Found dead—Condition very good.

Liver—Congested and enlarged.

(16) Indian Antelope—

Lungs—Left lung hepatised.

Uterus—Chronic inflammation of the uterus, which contained about 2 ounces muco purulent discharge.

Cause of death—Metritis and secondary inflammation of the lungs.

(17) Wombat—

The animal was in apparent good condition so far as its general appearance and appetite indicated. Bladder very much enlarged and full of pus. There were several ulcerated patches on its wall, which was thickened.

Cause of death—Chronic cystitis.

(18) Leopard—

Cause of death—Pleuro pneumonia.

(19) Fox (English)—

Cause of death—Pneumonia.

(20) Chacma Baboon—

The animal was ill for several months.

Inversion of the vagina. Several ulcers had formed on the exposed part and the inflammation had extended into the uterus.

Heart and Lungs—Anemic.

Liver—Enlarged. Deep colour. Gall bladder full of bile.

Uterus—Acute inflammation.

Vagina—Several ulcers and inflammation.

Cause of death—Metritis.

(21) Sloth Bear—

Cause of death—Acute dysentery.

(22) Dusky—leaf Monkey—

An old inmate of the Garden, having lived for about 22 years.

Of late it became subject to epileptic fits.

Heart—Dilated (hypertrophied).

Lungs—Deeply congested.

Liver—Enlarged and here and there full of calculus deposits.

Kidneys—Enlarged.

(23) Hog Deer —

External appearances—Body fairly nourished.

Muscles—Normal.

Mouth—

Pharynx—

Œsophagus—

Larynx—

Trachea—

} Apparently healthy.

Pleural Cavity—Contained a slight amount of effusion.

Lungs—Slightly congested and emphysematous in parts.

Pericardial Cavity—Contained no effusion.

Heart—Slightly paler than normal.

Peritoneal Cavity—Contained a considerable amount of sero-sanguineous effusion.

Liver—Slightly indurated.

Spleen—Practically normal.

Kidneys—Congested, especially the medullary portion.

Stomach—Showed no special pathological changes.

Small Intestines—Deeply congested and inflamed in parts.

Large Intestines—Peritoneum showed signs of inflammation and adherent to the abdominal cavity.

Pelvic Organs—

Generative Organs— } Normal.

PROVISIONS.

The Commissariat of the garden received careful attention. Since the revision of rates in favour of the butcher there has been less difficulty in procuring beef of a better quality. But there is still room for improvement. The root of the evil, however, lies elsewhere, and will remain untouched so long as the condition of things which now obtains in the local market in respect to its meat supply is not improved. As the question is of much wider importance than the well-being of a few animals in the Zoological Garden, it is hoped that the authorities of the market will move in the matter, and appoint as a first step towards the improvement in the direction indicated above, a Veterinary Inspector to examine the cattle before they are slaughtered in the Suburban Slaughter-house.

The difficulty of procuring fresh and wholesome milk remained the same as before, and large quantities of preserved milk were therefore used.

The prevailing high prices of food grains were chiefly responsible for the enhanced cost of feeding during the year.

Comparative statement of prices per maund of principal food-grains during the last three years:—

		1904-05.	1905-06.	1906-07.
		Rs. A.	Rs. A.	Rs. A.
Gram	...	2 12	3 2	3 6
Rice	...	4 0	4 2	5 4
Paddy	...	2 0	2 2	2 14

The quantity and kind of provision consumed during the year 1906-07 are given below :—

			Mds.	sr.	ch.
Gram	...	...	830	22	0
Bran	...	...	206	24	0
Paddy	...	...	240	33	0
Rice	...	...	143	16	0
Wheat	...	...	57	14	0
Kangney	...	...	1	27	12
Hempseed	...	...	1	2	10
Peas	...	...	6	4	0
Suttoo	...	...	88	7	5
Gur (raw sugar)	...	...	18	37	0
Oilcake	...	...	27	27	8
Biscuits	...	...	9	0	8
Vegetables	...	...	38	23	4
Onions	...	...	4	8	8
Black salt	...	...	3	20	0
Table salt	...	...	6	26	4
Fish	...	...	34	9	14
Beef	...	...	1,096	6	0
Goat's flesh	...	...	31	0	6
Milk (fresh)	...	...	17	36	8
Linseed	...	...	9	10	0
Oats	...	...	59	28	0
Indian corn	...	...	27	13	0
Flour	...	...	39	20	0
Worms	...	...	2	23	8
Mashkelai	...	...	4	12	0
			Number.		
Milk (condensed)	...	...	1,813	tins.	
Goats	...	...	207		

			Number.
Rabbits	...	...	39
Fowls	...	...	1,001
Smaller birds	...	...	886
Grasshoppers	...	...	18,250
Eggs	...	...	5,662
Papaya	...	...	1,788
Hay	...	...	15,200 bundles
Bread	...	...	5,047 loaves
Paddy-straw	...	...	61 kahans
Plantains	...	...	62 kahans, 11 paun, 19 gds.
Pigeons	...	...	50
Jack fruit leaves	...	...	186½ carts.
Sugarcane	...	...	47 bundles.
Green grass	...	..	484 baskets.
Ducks	...	...	282

The following table gives the chief items of expenditure under "Food of animals" for the year 1906-07:—

			Rs.	A.	P.
Beef	...	...	3,463	11	0
Mutton	...	...	429	1	9
Fowls	...	...	241	8	0
Goats	...	...	322	1	0
Ducks	...	...	195	2	0
Rabbits	...	...	58	6	6
Pigeons	...	...	11	7	0
Birds	...	...	63	8	0
Live fish	...	...	253	2	0
Worms	...	...	32	5	8
Grasshoppers	...	...	36	0	0
Gram, ^{and} rice, etc.	...	...	5,665	2	0

			Rs.	A.	P.
Indian corn	...	...	108	13	0
Plantain	...	...	265	9	6
Paddy-straw	...	...	541	4	0
Hay	...	...	133	4	6
Condensed milk	...	...	623	6	9
Fresh milk	...	...	103	11	3
Bread	...	...	315	8	0
Biscuits	...	...	97	4	0
Suttoo	...	...	105	9	3
Leaves	...	...	162	0	0
Sugarcane	...	...	58	5	6
Miscellaneous food, such as, smaller fish, eggs, fruits, etc.	...	...	1,543	0	9
Total	...	...	14,834	3	3

GENERAL CONDITION OF THE ANIMALS.

In spite of the losses recorded, the general condition of the animals, specially of the older inhabitants of the Garden, continued good. In the new open-air aviaries in connection with the "Sornamoyi House," the birds exhibited great activity in nesting, but owing to the unavoidable presence of a few hornbills the result was not as successful as could be desired.

The isolation sheds built some three years ago afforded considerable facilities in keeping the new arrivals, which in many cases carry all sorts of infection, separate from the

rest of the collection for some time after their acquisition, and also rendered it possible to isolate the suspected cases for treatment and observation.

The treatment of sick animals was attended to with diligence and care, and, as the following statement will show, in many cases, with excellent result:—

Name of animal.	Disease.	Treatment and diet.*	Result.
Spotted deer	Injury ...	Washed, stitched and dressed.	Recovery.
Sloth bear ...	Dysentery ...	Castor oil ʒ ii with Tr. opii 15 ms. followed by Vin. ipecac ʒ ms. Tr. opii 15 ms. in bael fruit shurbut.	Ditto.
Anoa ...	Off feed ...	5 ozs of linseed oil. Pulv. gentian 3 grs. " ginger 15 grs. Black salt ʒ ii with food, (6 days.)	Ditto.
Gayal ...	Diarrhoea ...	Diet changed. ... Pulv. Gentian ʒ i. " Nux Vomica 20 grs. Ginger 20 grs. Black salt 3 oz. Bicarbonate of soda ʒ ii with food (8 days.)	Ditto.

Name of animal.	Disease.	Treatment and diet.	Result.
Sloth bear ...	Dysentery ...	Pulv. Ipecac 3 grs with bael fruit shurbut. Tinct. Kino Co. ʒ ii with arrowroot.	Recovery.
Spotted deer	Simple fracture near fore leg.	After placing the bone in a position card-board splint and plaster of paris bandage applied. 5 ozs. linseed oil given with Tinct. opii ʒ grs.	Ditto.
Lion ...	Fever ...	Liq. Amon. Acetat ʒ x. Spt. Ether Nitras ʒ i. Rum ʒ ii in drinking water. Goat given.	Ditto.
Spotted deer	Injury 4 inches clean cut wound under the thigh.	Stitched and dressed	Ditto.
Leopard ...	Fever ...	Pot. Nitr. and rum in drinking water.	Ditto.
Nicobar pigeon	Rheumatism ...	Application of heat ... Pot. Carb 2 grs. Pulv. Gentian 2 grs. Soda Salicylate 1 gr.	Ditto.
Longtailed monkey.	Injury ...	Injured finger amputated and dressed antiseptically.	Ditto.
Leopara ...	Dysentery ...	Dover's powder 15 grs. concealed in meat flesh thrice daily.	Ditto.

Name of animal.	Disease.	Treatment and diet.	Result.
Borneo ape ...	Pneumonia ...	Liq. Amon Acetat ʒ ii. Spt. Ether Nitras 15 ms. Pot. Chloras 8 grs. Water ʒ i every three hours.	Recovery.
Lion ...	Off feed (feverish).	Diet changed. Live food given. Rum and Pot. niter in drinking water.	Ditto.
Nicobar pigeon	Rheumatism ..	Removed to a warm place. Soda Salicylate 1 gr. Pot. Carb 1 grs. Ext. Gentian ½ gr. 2 pills twice a day.	Ditto.
Sloth bear ...	Injury to the eye, causing opacity of the cornea.	Atropin sulph. 1 gr. Zinc Sulph. 3 grs. Boracic acid 4 grs. to an ounce of water; applied several times a day.	Ditto.
Hanuman ...	Diarrhoea ...	Acid Sulph. Dil. 20 ms. (vegetable bitters). Pulv. Nux Vomica 4 grs. Pulv. Gentian 20 grs. „ Ginger 10 grs. with food twice a day.	Ditto.
Indian antelope	Sprain ...	Cotton wool bandage and stimulating liniment applied.	Ditto.

COLLECTION OF ANIMALS.

Since the submission of the last report serious attempts have been made to exploit Darjeeling and its neighbourhood for Himalayan animals, specially birds. With the permission of the authorities of the Botanic Garden there, a small cage has been built for the reception of specimens as they come. Mr. F. E. Moller, Vice-Chairman, Darjeeling Municipality, who has kindly agreed to help the Garden in this connection, has engaged shikaris and caretakers to collect specimens and have them looked after. It is hoped that the experiment will prove successful. The experiment if properly conducted may yield satisfactory results in the future, enabling the Calcutta Garden to supply Himalayan specimens to other Gardens of the world.

Arrangements were also made, with the help of the Commissioner of Orissa, the Magistrate of Puri, and the Raja Bahadur of Parikud to exploit the Chilka Lake for aquatic birds, and in spite of the lateness of the season when the operation was begun, the result was, on the whole, not unsatisfactory.

RAMBRAMHA SANYAL,
Supdt, Zoological Garden, Calcutta.

APPENDIX A.

I.—Comparative Statement of Receipts for 1905-06 and 1906-07.

	RECEIPTS FOR—			
	1905-06.		1906-07.	
	Rs.	A.	P.	Rs. A. P.
Opening Balance	15,205	9	6	24,135 4 9
Interest	1,245	10	1	163 3 4
Donations and Subscriptions	872	0	0	252 0 0
Entrance Receipts	31,224	4	0	33,474 4 0
Rent	2,300	0	0	2,100 0 0
Carriages and palkis	563	8	0	620 0 0
Fishing	241	0	0	9 0 0
Picnic	105	0	0	119 0 0
Rhino Urine	1,276	0	0	1,229 8 0
Miscellaneous	4,129	2	0	2,278 8 8
Government Contribution	20,000	0	0	20,000 0 0
Total	77,162	1	7	84,380 12 9
<i>Add</i> —Receipts of 31st March 1906, which were deposited into the Treasury on 1st April 1906. ....	.....			81 6 0
<i>Deduct</i> —Receipts from 28th to 31st March 1907, which were deposited on 3rd April 1907. ....	.....			84,462 2 9 514 8 0
GRAND TOTAL ... ..	.....			83,947 10 9

II—Comparative Statement of Expenditure for 1905-06 and 1906-07.

	EXPENDITURE FOR—			
	1905-06.		1906-07.	
	Rs.	A.	P.	Rs. A. P.
Establishment	12,679	14	4	13,517 10 7
Food of Animals	13,368	3	0	14,834 3 3
Purchase of Animals	7,926	14	5	10,643 0 0
Transport of Animals	1,632	8	6	534 14 0
Miscellaneous Contingencies	3,638	12	9	3,555 15 9
Repair of Roads	1,134	1	9	1,174 10 9
Repair of Buildings	5,073	13	3	4,888 5 0
Original Construction	8,653	7	3	6,262 8 0
General Construction	682	13	2	1,139 1 3
Garden Construction	3,458	13	6	3,558 11 0
Tools and Plant	1	14	0	.....
Total	58,231	3	11	60,108 15 7
Closing Balance	24,135	4	9	23,838 11 2
GRAND TOTAL	82,366	7	0	83,947 10 9

APPENDIX B.

Summary of Visitors and Gate Receipts during 1906-07.

Month and year.				Number of visitors.	Receipts.
					Rs. A.
April	1906	...	...	23,517	1,875 1
May	"	...	...	21,172	1,497 9
June	"	...	...	33,697	2,306 6
July	"	...	...	26,006	1,953 13
August	"	...	...	27,504	1,937 1
September	"	...	...	52,107	3,556 1
October	"	...	...	38,046	2,605 4
November	"	...	...	41,571	3,149 0
December	"	...	...	51,423	4,191 6
January	1907	...	...	68,910	6,133 9
February	"	...	...	41,588	2,622 12
March	"	...	...	32,340	2,646 7
Total				457,891	33,474 4
Daily average				1,254	0

APPENDIX C.

A

- Annandale, Dr N. ... 15 Testudo horsefielders.
 Ambler, Mr. H. G. ... 1 Leopard.

B

- Besh, Mr. A. H. ... 1 Ring dove.
 Banerji, K. C., Rai Bahadur 1 Spotted deer.
 Bose, Babu Pryanath ... 2 Pythons.
 Feherend, Mr. E. C. ... 1 Young gharial.
 Breakey, Mr W. ... 1 Leopard cat.

C

- Chowdhury, Babu Rajani 1 Swamp deer.
 Kanto.
 Cooke, Mr. F. J., i.c.s. 1 Wolf cub.
 Chatterji, Babu Nibaran Ch. 1 Spotted deer.
 Carapiet, Mr. G. ... 1 Sloth bear cub.
 Cuming, Mr. A. H., i.c.s. ... 1 Leopard.
 Cotton, Mr. H. G. ... 1 Himalayan bear.
 Cockell, Mr. W F. ... 2 Pairs green pigeons, 1 Indian
 partridge, 2 Bengal pittas.
 Cameron, Cecil, Esq. ... 1 Indian antelope.
 Casson, Mr. J. ... 1 Leopard.

D

- Dutt, Babu Dwarkanath ... 1 Black buck.

F

- Fernandez, Miss ... 1 Civet cat.

G

- Golam Muhammad, Prince ... 1 Black buck.
 Grant, Mr. L. H. ... 1 Indian antelope.
 Ganguli, Babu Bhagabati 1 Peafow.
 Charan.

H

- Holden, Capt. H. H. ... 1 Ornamental snake.
 Harris, Mrs. ... 1 Cardinal, 1 Zostrop, 3
 Muniss.
 Hamilton, Mrs. ... 1 Leopard.

K

- Karlapat, Zamindar of ... 1 Sambur deer.

L

- Longley, Mr. Fred. L. ... 12 Guinea Pigs. *

M

- Maharaja of Joypur ... 6 Antelope.
 Mukherji, Babu Neel Comal 2 Slow Loris.
 Mackenzie, Mr. M. ... 1 Viper-like—tree snake.
 Matley, Mr. B. L. ... *1 Sloth bear.
 MacMohan, Mr. R. ... 1 Hog deer.
 Manager, Bonai Estate ... 1 Indian mouse deer.
 MacRea, Mr. R. S. F. ... 1 Himalayan bear.
 Madhu Prosad, Babu ... 1 Nilgai.
 Mathwes, Mr. H. & Smith, 1 Python.
 Mr. J. L.

N

- Nicolle, Francis F., Esq. ... 1 Borneo ape.
 Nepal, H. E. The Prime 1 Musk deer.
 Minister.

O

- Oakes, Mr. M. L. ... 2 Four-horned antelopes, 2
 Pythons, 3 Sloth bears, 2
 Wolf cubs, 16 ducks and
 geese.
 O'Donnell, Mr. O. ... 2 Grey-lag geese, 3 Bar-headed
 geese.
 Oates, Mr. A. W. ... 1 Green monkey.

P

- Parker, Mr. A. G. ... 1 Andaman robber crab.
 Puri, Mohanth Dalmeer of Budhowli. ... 1 Tiger.

R

- Ross, Dr. Dennison ... 2 Female barking deer, 1 male Sambur deer.
 Rennel, Mr. J. ... 1 Turtle.
 Ramsay, Mg. Cobden, r.c.s. ... 4 Langur monkeys, 1 Nilgai, 1 Sambur deer, 2 Spotted deer, 2 Rhesus monkeys, 3 Civet cats, 1 duck and 2 Peafowls.
 Rossiter, Mr. H D. ... 2 Leopard cats.

S

- Sinha, Mr. P. C. ... 2 Black buck.
 Sunder, Mr. D. ... 3 Pythons.
 Shahabzada M. Latif Khan ... 1 Python, 2 Spotted lizards, 1 Bhimraj, 2 Bulbuls.
 Smith, Major M. V. C., c.i.b. 1 Mungoose.
 Stevens, Mr. E. A. ... 2 Grey geese, 1 Red-crested pochard and white rats.
 Steward, Mr. Frank ... 1 Russel viper.

T

- Tiefermann, Mr. F. ... 5 Owls.

W

- Wilson, Mr. H. ... 1 Rhesus monkey.
 Weston, Mr. Val. ... 3 Cobras.
 Weir, Mr. A. ... 1 Spotted deer, 1 Black buck.

1907-1908

REPORT
OF THE
HONORARY COMMITTEE
FOR THE
MANAGEMENT OF THE ZOOLOGICAL GARDEN.

FOR THE YEAR 1907-8

222 (B)



Calcutta:
THE BENGAL SECRETARIAT BOOK DEPOT.

1908.

REPORT
OF THE
HONORARY COMMITTEE
FOR THE
MANAGEMENT OF THE ZOOLOGICAL
GARDEN.

FOR THE YEAR 1907-08.

THE Honorary Committee have the honour to submit their report for the year ending 31st March 1908, the contents of which, as usual, include—

The Superintendent's Report upon the Menagerie.

Monthly returns of visitors and list of donors.

Abstract of accounts of ordinary and extraordinary receipts and expenditure.

THE COMMITTEE.

President :

The Hon'ble Mr. E. A. Gait, C.I.E.

Honorary Secretary :

Lieutenant-Colonel E. H. Brown, I.M.S., M.D., F.Z.S.,
F.R.C.S. (from 1st April 1907 to 17th November
1907).

Lieutenant-Colonel G. R. M. Green, I.M.S., M.D.,
F.R.C.S. (from 18th November 1907 to 31st
March 1908).

Members of the Committee.

His Highness Maharaja Sir Nripendra Narayan Bhup
Bahadur, G.C.I.E., C.B., of Cooch Behar.

Sir Herbert Hope Risley, I.C.S., C.S.I., K.C.I.E.

Surgeon-General G. Bomford, I.M.S., C.I.E.

R. D. Mehta, Esq., C.I.E.

Maharaja Sir Pradyot Kumar Thakur, Kt.

A. E. Silk, Esq.

Rai Rambrahma Sanyal Bahadur, C.M.Z.S.

W. A. Dring, Esq.

R. G. Currie, Esq.

Major R. Bird, M.D., M.S., F.R.C.S., I.M.S., C.I.E.

P. L. Buckland, Esq.

W. K. Dods, Esq.

Dr. Nelson Annandale, B.A., D.Sc.

Colonel G. M. Porter, R.E.

W. B. Gwyther, Esq.

R. P. Ashton, Esq.

The Hon'ble Mr. H. J. McIntosh.

The Hon'ble Ihtisham-ul-Mulk, Rais-ud-Daula, Amir-
ul-Umara, Nawab Asif Kadr Saiyid Wasif Ali
Mirza, Khan Bahadur, Mahabat Jang, Nawab
Bahadur of Murshidabad.

J. G. Dean, Esq.

W. R. Gourlay, Esq., I.C.S.

Ex-officio Members.

The Commissioners of Divisions in Bengal.

The Executive Engineer of the Public Works Depart-
ment of the Division in which the Garden is
placed.

The Sanitary Commissioner with Government of Bengal.

The Director of Public Instruction, Bengal.

The Natural History Secretary of the Asiatic Society of Bengal.

The Director of Land Records.

The Superintendent, Civil Veterinary Department, Bengal.

The Professor of Comparative Anatomy and Zoology Medical College, Bengal.

The Superintendent of the Royal Botanic Garden Sibpur.

The Chairman of the Calcutta Corporation.

Messrs. W. B. Gwyther and C. E. A. W. Oldham resigned their membership of the Committee.

The following new members were appointed during the year:—

W. R. Gourlay, Esq., I.C.S.

The Hon'ble Ihtisham-ul-Mulk, Rais-ud-Daula, Amir-ul-Umara, Nawab Asif Kadr Saiyid Wasif Ali Mirza, Khan Bahadur, Mahabat Jang, Nawab Bahadur of Murshidabad.

J. G. Dean, Esq.

THE GARDEN.

2. No event of any importance happened during the year.

ESTABLISHMENT.

3. Rai R. B. Sanyal Bahadur, c.m.z.s., continued in charge of the Garden as Superintendent throughout the year, and Mr. Bijay Krishna Bose as Assistant Superintendent.

BUILDINGS.

4. The following structural improvements were effected during the year :—

(a) The paddocks for the ruminants which had been arranged in a continuous line were divided into groups without destroying their outward look of continuity. This re-arrangement was deemed necessary to provide, as far as possible, against the risk of any infectious malady, in the event of its attacking one animal, or one set of animals, spreading on either side.

In connection with this re-arrangement a shed with three separate and well appointed stalls was built.

(b) When repairing the porcupine shed advantage was taken of the opportunity to enlarge and remodel it in such a way as to afford the animals facilities for indulging themselves in their natural habit of burrowing underground and digging up roots for feeding.

(c) The old snake pit which had lost its attraction and popularity since the construction of the Reptile house was converted into a pool for the

exhibition of the crocodiles and alligator which had hitherto been kept in the basin of the Reptile house.

- (d) The pond inside the enclosure now occupied by the wild buffalo having silted up was re-excavated and the silt used for raising some of the low-lying grounds. Advantage was taken of this opportunity to divide it with iron fencing into two unequal halves in such way as to admit of the bantings living in the contiguous enclosure also enjoying a bath.
- (e) The most important improvement carried out during the year was the remodelling of the "Gubbay House" for monkeys. Spacious outdoor cages have been built, and those inside re-arranged.

The following is a list of some of the more important repairs executed during the year :—

- (1) Burdwan House—Repaired, outside colourwashed, dens whitewashed, and iron works repainted.
- (2) Smaller Carnivora House—Repaired, colourwashed and repainted.
- (3) Murshidabad House—Repaired and repainted.
- (4) Reptile House and its cages—Whitewashed and repainted.
- (5) Rodent House—Repaired, colourwashed and repainted.
- (6) Buckland Enclosure—Repaired and repainted.
- (7) Sarnamoyi House—Thoroughly repaired and colourwashed.

(8) Refreshment Pavilion—Repaired and repainted.

(9) Library—Whitewashed and painted.

Petty repairs of smaller houses, sheds and enclosures were attended to.

FINANCE.

5. It will appear from the following comparative statement of receipts from visitors that the financial condition of the Garden was even better than that of the previous year, which was exceptionally good in this respect :—

				Rs.	A.
1905-06	...	...	...	31,224	4
1906-07	...	...	...	33,474	4
1907-08	...	...	...	37,731	15

The accounts of income and expenditure are summarised in Appendix A.

THE PUBLIC.

The attendance of visitors was more than ever satisfactory during the year, the turnstile records indicating a total for the year of 504,397 persons admitted, a daily average of 1,375 as exhibited in Appendix B.

Comparative table of visitors during the last three years—

1905-06	...	...	...	422,283
1906-07	...	...	...	457,891
1907-08	...	...	...	504,397

In addition, a large number of children under four years of age and school children attended by their teachers were admitted free. On the day of the Fancy Fair about 11,200

people, including complimentary ticket-holders, entered the Garden. Special permission was granted to the inmates of the Reformatory School at Alipur to visit the Garden under proper escort.

B. CHATTERTON,
Honorary Secretary.

E. A. GAIT,
President.

SUPERINTENDENT'S REPORT.

I HAVE the honour to submit the following report on the progress of the Menagerie of the Garden.

The following comparative tables show how the various collections of animals in the Garden stood during the last four years:—

			Mammals.	Birds.	R. ptiles.
1904-05	...	...	450	855	266
1905-06	...	...	432	772	281
1906-07	...	...	413	741	307
1907-08	...	...	401	795	310

ACQUISITIONS.

The mammalian collection of the Garden was enriched by the acquisition, by purchase, of one Hippopotamus, one pair of white-tailed Gnus and one Beatrix Antelope, which were new to the collection.

Among other acquisitions the following deserve notice:—

- 1 Tiger (presented by the Maharaja Bahadur of Datia).
- 1 Tiger (presented by the Chief of Hindol).
- 1 Brow Anteleroed Deer (presented by the Maharaja of Manipur).

- 1 Black Leopard (presented by Mr. P. O. L. Chowdhury).
- 1 Pair Gayals (purchased).
- 1 Pair Ostriches (purchased).
- 3 Cat Bears (purchased).
- 1 Wild Ass from Sind (purchased).
- 1 Tibetan Lynx (purchased).

The following animals were obtained through the good offices of Mr. M. Loebell, of Singapore, who has very kindly offered to procure specimens of Malayan fauna for the Garden as opportunities occur:—

- | | |
|----------------------|-----------------------|
| 1 Muntjac. | 2 Pig-tailed Monkeys. |
| 1 Mouse Deer (Java). | 1 Slow Loris. |
| 3 Grey Gibbons. | 1 King Squirrel. |

A list of donors and their donations during the year 1907-08 is given in Appendix D.

The following animals were bred in the Menagerie:—

- | | |
|--------------------|-------------------------------|
| 5 Lions. | 1 Great Kangaroo. |
| 2 Rhesus Monkeys. | 9 Spotted Bill Ducks. |
| 4 Spotted Deer. | 3 Common Mynas. |
| 4 Sambur Deer. | 1 Crested Pigeon. |
| 1 Hog Deer. | 5 Red Munias. |
| 1 Indian Antelope. | 2 Undulated Grass Parrakeets. |
| 2 Bantings. | 1 Common Pigeon. |
| 1 Swamp Deer. | 4 Button Quails. |

29 Pythons.

The following is a list of birds that bred in the Garden in a wild state:—

- (1) Indian House Crow—*Corvus splendens* (Viell).
- (2) Indian Tree Pie—*Dendrocitta rufa* (Scop).

Nests found on sweet babul (*Inga Dulce*) and mango trees—

- (3) Jungle Babbler—*Crateropus conurus* (Linn).
- (4) Bengal red-whiskered Bulbul—*Otocompsa emeria* (Linn).
- (5) Black Drongo—*Dicrurus atar* (Hem.).

No nest has ever been found in the Garden, but the birds have often been observed to carry grass and other materials during the breeding season.

- (6) Indian Tailor-Bird—*Orthotomus sutorius* (Forst).
- (7) Indian Black-headed Oriole—*Oriolus melanoco phalus* (Linn).
- (8) Pied Starling—*Sturnopastor contra* (Linn).
- (9) Magpie Robin—*Copsychus saularis* (Linn).

Generally selects Mango and Kadam (*Nanclia kadam*) trees for nesting—

- (10) House Sparrow—*Passer domesticus* (Linn).
- (11) Red-backed Woodpecker—*Brachypternus aurantius* (Strickl).
- (12) Crimson-breasted Barbet—*Xantholama hematocephala* (Shelbey).
- (13) Common Kingfisher—*Alcedo bengalensis* (tm).
- (14) White-breasted Kingfisher—*Halcyon smyrnesis* (Linn).
- (15) Indian Koel—*Eudynamis honoratta* (Walden).
- (16) Barn Owl—*Strix flammia* (Linn).
- (17) Spotted Owlet—*Athene brama* (Blyth).
- (18) Common Pariah Kite—*Milvus govinda* (Sykes).
- (19) Spotted Dove—*Turtur suratensis* (Blyth).
- (20) Indian Blue Rock Pigeon—*Columba intermedia*.
- (21) White-breasted Water-hen—*Amaurornis phaniurus* (Salvd).
- (22) Little Cormorant—*Phalacrocorax javanicus* (Horsf).
- (23) Indian Snake Bird—*Plotus melanogaster* (Gm).
- (24) Night Heron—*Nycticorax griseus* (Blyth).

There were fewer nests of the Indian House Crows, and the number of House Sparrows also diminished. Most of the Kingfishers (*Alcedo bengalensis* and *Halcyon smyrnensis*) which bred freely in a wild state disappeared after the storm and inundation of June 1907. On the other hand the Indian Black-headed Orioles were more than ever in evidence. The Owls are undesirable birds so far as the breeding of other species is concerned, but they are tolerated for the useful services they render in keeping down rats and mice. There was marked diminution in the number of White-breasted Water-hen. This may be accounted for by the increase in the number of wild Mungoses, which destroy their eggs.

The characteristics of the *bird chummary* on the island, which has been a feature of the Garden for many years, have changed of late. The number of Night Herons and Cormorants, especially the latter, has considerably diminished, whereas that of the Snake-birds has increased.

LOSSES.

Of the losses by death the following deserve special notice :—

- 1 Anoa Calf, 1 Tapir, 1 Gayal, 1 Chacma Baboon,, 2 Grey Gibbons,
- 1 Brown Bear (Syrian), 1 Jaguar, 1 Tigress, 1 African Lion,
- 1 Marten (which was an old inhabitant of the Garden), 1 Cat Bear.

A list of other losses will be found under the Pathological Department.

PATHOLOGICAL DEPARTMENT.

The work in this department was carried, as usual, on restricted lines by the Assistant Superintendent and with the generous help rendered by the Principal of the Veterinary College at Belgachia. It is time to consider whether it would not be desirable to preserve some of the interesting pathological specimens which are now thrown away.

A list of the more important cases examined is given below:—

(1) Lammergeyer—

The bird was off feed and very dull for about two days before death.

Post-mortem examination showed severe inflammation of the lungs which were adherent to the thoracic cavity. Pericardial sac contained about $\frac{1}{2}$ oz. of clear fluid.

Cause of death—Pneumonia.

(2) Mandarin Duck—

Inflammation of both the lungs and congestion of the liver.

Cause of death—Pneumonia.

(3) Raven—

During a storm the bird was knocked against one of the iron supports of its cage and seriously hurt.

Cause of death—Secondary inflammation of the left lung caused by the injury.

(4) Indian Squirrel—

Animal was off feed for about two days and suffered from difficult breathing.

Thoracic cavity—Contained $\frac{1}{2}$ oz. fluid, right lung hard, and plura loosely adherent to the thoracic wall.

Liver—Full of small abscesses.

Kidneys Congested.

Other organs—Normal.

Immediate cause of death—Pneumonia.

(5) Tigress—

The animal which was unusually tame and responsive appeared to be very restless on the afternoon of the 2nd November 1907, played with its food, but ate nothing. These symptoms were followed by difficult breathing and utter prostration about midnight the same date. Death occurred on the 4th November.

Respiratory system—16 oz. of fluid in the thoracic cavity.

Lungs—Grey hepatization of lungs, on the right side the plura adherent to the thoracic wall.

Heart—Normal.

Liver—Very much enlarged.

Kidneys—Enlarged and slightly congested.

Cause of death—Pneumonia.

(6) Weeper Copuchin—

The animal suffered from cold, to which pneumonia supervened.

Well marked hepatization of the left lung.

The thoracic cavity contained two oz. of fluid, and a fibrous growth of considerable size.

Heart—Somewhat enlarged.

Stomach—Empty, except a little thick milky mucus.

Intestines—Contained 18 round worms.

Kidneys—Enlarged and congested.

Cause of death—Pneumonia.

(7) Grey Gibbon—

General health good, body well nourished.

Lungs—Acute inflammation of both the lungs.

Liver—Enlarged.

Kidney—Enlarged and deeply congested.

Cause of death—Pneumonia.

(8) Cat Bear (*Ailurus fulgens*)—

Suffered from dullness and loss of appetite for a couple of days, and then distinct symptoms of inflammation of the lungs set in, and continued for about six days. Although the animal remained without food for nearly eight days the body appeared to be well nourished.

Lungs—In different stages of hepatization.

Stomach—Empty.

Liver—Enlarged and slightly congested.

Spleen—Unusually enlarged.

Cause of death—Pneumonia.

(9) Andaman Parrot—

There were no feathers on the body and it got cold and was off feed for some time.

Lungs—Different stages of hepatization.

Intestines—Chronic inflammation and the mucus membrane thickened.

Cause of death—Pneumonia.

(10) Sloth Bear—

Suffered from dullness and loss of appetite for about six days before death.

There was severe inflammation of the pericardium. Several tuberculous nodules on the right side of the lungs and hæmorrhagic spots on both.

Liver—Enlarged and flabby.

Kidneys—Enlarged.

Cause of death—Tuberculous pericarditis.

(11) Grey Gibbon—

Lungs, which were adherent to the plura, were studded with tuberculous deposits.

Liver—Enlarged.

Kidneys—Congested.

Cause of death—Tuberculous pluro-pneumonia.

2) Spotted Deer—

The animal enjoyed excellent health till about nine months ago, when it had an attack of acute diarrhoea. Since then it went on deteriorating in health, and in spite of extra diet and care became emaciated. Latterly general anasarca supervened.

Abdominal cavity contained 20 oz. of fluid. Several tuberculous nodules on the mesenteric glands. Other internal organs were pale.

Liver—Enlarged.

Kidneys—Slightly congested.

Intestines—Several small tuberculous nodules on the intestinal wall.

Cause of death—Tabes mesenterica.

3) Hanuman. (*Semnopithecus entellus*)—

Inflammation and ulceration of the intestines. Mucous membrane of the cœcum gangrenous and partly perforated.

Liver—Enlarged.

Spleen—Enlarged.

Lungs—Pigmented.

Cause of death—Acute dysentery.

4) Himalayan Bear—

The mucous membrane of the colon gangrenous and other parts of the intestinal wall thickened with patches of ulceration here and there.

Liver—Enlarged.

Other organs extremely anæmic.

Cause of death—Acute dysentery.

5) Jaguar—

The condition of the animal was good till about four days prior to death.

Lungs—Congested.

Stomach—Contained remnants of partially digested food mixed with thick mucus.

Deodenum—Highly congested and inflamed.

Liver—Highly congested and enlarged.

Kidneys—Congested

Cause of death—Acute hepatitis.

(16) Indian Gazelle—

ry /
t
On arrival the animal was found to be very dull and its coat staring. Its appetite was however good. It died about a fortnight after its arrival.

Liver—Greatly enlarged and full of calculi, gall bladder practically empty and the biliary duct choked.

Cause of death—Biliary obstruction.

(17) Wood Duck—

Heart—Slightly enlarged.

Lungs—Congested.

a /
Liver—Greatly enlarged and deeply congested. A number of small calculi of different sizes present in the substance of the liver.

Cause of death—Congestion of the liver.

(18) American Wild Cat -

(It was being treated for abdominal dropsy.)

Liver—Greatly enlarged and hard. 10 oz. of fluid was also found in the abdominal cavity.

Heart—Pale.

-10
Kidneys—Congested.

Cause of death—Anasarca brought on by chronic inflammation of the liver.

(19) Uryal—

12
Death—Sudden.

Lungs—Congested.

Heart—Right ventricle full of dark clot.

Stomach—Full of half-digested food.

Liver—Congested.

Cause of death—Heat apoplexy.

Uryal—

Post-mortem examination showed all the symptoms of heat apoplexy.

Lion—

id to have been fifteen months when acquired. About six weeks after its arrival it developed distinct symptoms of rheumatism which, however, yielded to treatment. After an interval of about five months it again suffered from rheumatism, which was followed by paralysis.

ere was a general atrophy of the internal organs.

he spinal chord red and injected, specially the lumber portion, and its covering thickened. The canal contained about half an ounce of reddish fluid.

ause of death—Rheumatic inflammation of the spinal chord.

Indian Antelope—

he animal died eight days after calving.

horacic cavity—Contained about half oz. fluid.

ings and heart—Normal.

omach—Full of half-digested food. A number of round worms found in the large intestine.

ver—Normal.

terus—Diffused inflammation and patches of gangrinous ulcers found.

ause of death—Metritis.

Barking Deer—

as wounded by its companion in the abdomen and died three days after.

evere inflammation of peritoneum caused by the injury.

ause of death—Peritonitis.

Jaguar—

ad been suffering from ulceration of the gums brought on by caries of the lower jaw.

ntestines—Inflamed.

Lungs—Diffuse inflammation with ecchymoses spots.

Cause of death—Septic poisoning.

(25) Weeper Capuchin—

During the past eighteen years that it had been living in the Garden, it always maintained excellent health. About a fortnight before its death, it was noticed that the animal had lost its usual liveliness and was dull and morose. Death was very sudden.

Lungs—Deeply congested.

Heart—Gelatinous degeneration of right ventricle, which contained a large quantity of dark-coloured blood.

Liver—Slightly congested and enlarged.

Spleen—Enlarged.

Cause of death—Failure of heart.

PROVISIONS.

The cost of feeding the animals had gone on increasing owing to the continued high prices of the principal food-grains. During the latter part of the year, the grain contractor failed to supply the necessary ingredients of food at the stipulated rates, rendering it necessary for the management of the Garden to obtain them at the prevailing market prices, which were considerably higher than the rates tendered for by the supplier. Subjoined is a comparative statement of prices per maund of principal food-grains during the last four years:—

	1904-05.	1905-06.	1906-07.	1907-08.
	Rs. A.	Rs. A.	Rs. A.	Rs. A.
Gram ...	2 12	3 2	3 6	3 11
Bran ...	1 12	1 14	2 4	2 10
Paddy ..	2 0	2 2	1 14	3 3
Rice ...	4 0	4 2	5 4	5 15
Wheat	3 7	3 13	4 9	5 2

As food for wild animals quaker oats and Ideal milk might be considered expensive delicacies, but the young Hippopotamus having acquired a taste for porridge prepared with them during the long voyage from Hamburg to Caloutta lasting over fifty-seven days, and having refused on arrival to be tempted with less costly but equally wholesome diet, it was allowed to have its own way as regards its bill of fare.

Twenty-one cast horses received from Messrs. Milton and Company, Dr. S. Hart (Jr.) and Dr. Turnbull and other generous friends of the Garden for quiet disposal, materially contributed towards the reduction in the cost of feeding the carnivorous animals.

The quantity and kind of provision consumed during the year 1907-08 are given below:—

				Mds. sr. ch.
Gram	...	...	...	946 16 0
Bran	...	...	...	292 0 0
Paddy	...	...	...	247 30 0
Rice	...	...	...	136 13 0
Wheat	...	...	...	73 25 8
Canary	...	...	...	1,678 lbs.
				Mds. sr. ch.
Pea	...	...	...	7 17 0
Kangney	...	...	...	1 6 14
Hempseed	...	...	...	1 6 8
Vegetables	...	...	...	78 39 0
Indian-corn	...	...	...	30 38 0
Flour	...	...	...	32 20 0
Mashkelai	...	...	...	20 4 0
Linseed	...	...	...	18 0 0

			Mds.	sr.	ch.
Gur	18	23 0
Shattoo	87	29 10
Mutton	15	17 6
Beef	992	12 0
Oilcake	101	35 0
Milk (fresh)	55	39 4
Biscuits	18	12 0
Sugar	3	25 4
Fish	23	24 10
Worms	9	23 0
Paddy-straw	651	0 0
Oats	94	12 8
Black salt	1	20 0
Table salt	15	12 8
Onions	4	5 14
Ghee	0	13 4
Green grass	94	0 0
Potatoes	18	5 0
				No.	
Sugarcane	173½	bundles.
Ducks	204	
Bread	4,956	
Plantain	54	kahaps 7 paun 1 gd.
Eggs	6,616	
Fruits	2,168	
Powl	671	
Hay	13,490	bundles.
Grasshoppers	18,350	
Leaves (Jack fruit)	183	carts.
Goats	320	
Condensed and Ideal Milk	1,161	tins.
Quaker Oats	114	tins.

The following table gives the chief items of expenditure under "Food of animals" for the year 1907-08 :—

			Rs.	A.	P.
Beef	...	...	4,268	1	0
Mutton	...	...	251	5	9
Fowls	...	...	113	3	0
Goats	...	...	698	14	0
Ducks	...	...	173	12	6
Fish	...	...	148	6	9
Worms	...	...	117	8	0
Grasshoppers	...	...	36	0	0
Grant, Wheat, rice, etc.	...	...	6,494	6	0
Cattle-food	...	...	622	9	9
Indian-corn	...	...	154	2	0
Flour	...	...	180	15	0
Plantain	...	...	233	0	6
Paddy-straw	...	...	851	0	0
Hay	...	...	95	0	0
Green grass	...	...	103	7	6
Condensed milk	...	...	371	15	6
Fresh milk	...	...	328	6	8
Bread	...	...	313	8	0
Biscuits	...	...	182	10	0
Suttoo	...	...	110	12	0
Leaves	...	...	174	2	0
Sugarcane	...	...	155	6	0
Oats	...	...	292	5	6
Miscellaneous food, such as smaller fish, eggs, fruits, etc.	...	...	1,499	15	9
			<hr/>		
	Total		17,870	11	9
			<hr/>		

GENERAL CONDITION OF THE ANIMALS.

On the whole the health of the animals might be considered to have been satisfactory. Cases of illness and death are unavoidable in a collection of animals, specially in a tropical climate, but fortunately there was nothing unusual in them. There was no outbreak of epidemics of any kind worth noticing. On the other hand the birth of five lion cubs might be regarded as a fair indication of the excellent character of the health maintained by the larger carnivorous animals generally. The birth-rate among the cervidæ and bovidæ was also satisfactory. Since the construction of the larger outdoor cages in connexion with the aviaries, death-rate among the birds has sensibly diminished, and birth-rate increased. There is, however, scope for further improvement in this direction. The housing arrangement of the smaller carnivorous animals still continue to be defective. The treatment of sick animals was, as usual, attended to with diligence and care. In this connexion the want of a small but properly equipped hospital is keenly felt.

The following is a statement of cases successfully treated:—

Name of animal.	Disease.	Treatment and diet.	Result.
Hanuman ... (S. entellus).	Diarrhoea ...	Acid Sulph Dil. 6 ms. Spt. Amon. Aro. 10 ms. Tinct. Ginger 10 ms. Aqua menthae $\frac{3}{i}$ followed by Tinct. Nux Vom. 2 ms. Spt. Amon. Aro. 10 ms. Amon Chloride 5 grs. Aqua $\frac{3}{i}$ twice a day.	Cured and discharged.
Tapir ...	Ditto ...	Diet changed. Tinct. Kino Comp. $\frac{3}{p}$. Chalk Mix. $\frac{3}{i}$. Aqua menthae $\frac{3}{x}$ twice a day.	Recovery.
Sloth Bear ...	Ditto ...	Diet changed. Castor oil $\frac{3}{ii}$. Tinct. opii $\frac{3}{i}$.	Ditto.
Spotted Deer	Ditto ...	Linseed oil $\frac{3}{viii}$. Tinct. opii $\frac{3}{ii}$, followed by Tinct. Kino Comp. $\frac{3}{i}$. Spt. Chloroform $\frac{3}{p}$. Tinct. Ginger $\frac{3}{i}$. Prepared chalk $\frac{3}{i}$. Aqua menthae $\frac{3}{x}$, followed by Tonic powder.	Ditto.
Tapir ...	Ditto ...	Diet changed. Tinct. Kino Co. $\frac{3}{ii}$. Spt. Chloroform $\frac{3}{iv}$. Spt. Amon Aro. $\frac{3}{iv}$. Aqua menthae $\frac{3}{x}$, twice a day.	Ditto.

Name of animal.	Disease.	Treatment and diet.	Result.
Hanuman ... (S entellus)	Pneumonia ...	Liq. Ammon Acetat ʒi. Sp. Ether Nit. 10 ms. Tinct. Belladonna 10 ms. Potash chlor ʒ grs. Aqua Camphor, ʒi, one dose every 4 hours. Soap liniment applied to the chest and the animal placed in a comfortable and airy cage. Later on Pot. Iodide ʒ grs. Pot. Nitrate ʒ grs. Tinct. gentian 10 ms. Spt. Amon Aro. 10 ms. Thrice a day.	Recovery.
Orang-outang	Severe cold ...	A dose of stimulant followed by Eucalyp- tus honey 30 ms. twice a day After two days Syrup of Hypophosphite of Lime given thrice a day	Ditto.
Green Monkey	Bronch-pneu- monia.	Liq. Amon Acetat ʒ Potash chlor. 6 grs. Tinct. Camph Co. 15 ms. Spt. Ether Nitro 15 ms. every 4 hours. After fomentation soap liniment applied. Vegetable tonic continued for some time.	Ditto.

inf
gt
af

2/88

2/-
-/-

Name of animal.	Disease.	Treatment and diet.	Result.
Sloth Bear ...	Acute dysentery	Dover's powder, 15 grs. dose thrice a day and bacl fruit sarbat.	Recovery.
Himalayan Bear.	Sub-acute dysentery (completely off feed).	Dover's powder 20 grs. with honey, thrice a day.	Ditto.
Ditto ...	Dysentery ...	Castor oil $\frac{3}{i}$. Liq Potash 10 ms. Tinct. Card. Co. 15 ms. Tinct. Ginger 20 ms. Tinct. Opii 10 ms. Aqua menthæ $\frac{3}{ii}$. Bacl fruit sarbat given. Next day 15 ms. of chlorodyne given.	Ditto.
Indian Wild Dog.	Ditto ...	Vin. Ipecac. $\frac{3}{j}$. Tinct. Opii 15 ms. Tinct. Card Co. 15 ms in drinking water. Diet changed.	Ditto. 3/ss/
Tiger ..	Ditto ...	Dover's powder. 30 grs. with masked meat. Diet changed.	Ditto. inf-
Barking Dear	Tympanitis ...	Linsced oil $\frac{3}{viii}$ Tinct. Opii $\frac{3}{ii}$, followed by Ammon Carb $\frac{3}{j}$. Spt. Ether Sulph. $\frac{3}{j}$. Tinct. Asafœtidæ $\frac{3}{i}$. Tinct. Ginger $\frac{3}{i}$. Aqua Chloroform $\frac{3}{xii}$.	Ditto. ss/- ss/-

Name of animal.	Disease	Treatment and diet.	Result.
<i>t/-</i> Gafal ..	Distrochia ...	Stimulant with extract Ergot Liquid ʒ iii.	Recovery <i>t/-</i>
Hippopotamus	Diarrhœa ...	Soda Bicarb. with milk and lime-water for two days.	Ditto.
<i>t/-</i> Ditto ...	Bronchitis ..	Tinct. Camph. Co. ʒ ii. Spt. Ether Nitro. ʒ v. Aqua Chloroform ʒ v. To be taken with warm water twice a day. Rum in drinking water	Ditto. <i>ss/ n/</i>
<i>o/-</i> Spotted Deer	Injury on the abdomen exposing the peritonium and the intestines.	Exposed parts reduced after antiseptic wash. Applied six sutures in the abdominal muscles and nœue on the external skin Dressed with iodoform and bandaged. Tinct. Opii ʒ ii. Spt. Ammon Aro. ʒ v. Spt Ether Nitro ʒ iv. Aqua ʒ viii.	Ditto. <i>o/-</i>

COLLECTON OF ANIMALS.

The death of Mr. William Rutledge, the old and well-known dealer of wild animals in Calcutta, is much to be deplored in connexion with the collection of animals for the Garden. His experience and enterprise enabled him to obtain specimens from all parts of the world, particularly of the oriental region, and supply them to the Garden a

able prices. Of late his business was not as prosperous as it had been during the time when the Menagerie of His late Majesty the King of Oudh flourished at Garden Road, but he continued as a dealer of wild animals till the day of his life.

The management of the Garden was much indebted to Mr. Loebell, of the Singapur Oil Mills, for his kindly help in obtaining a number of valuable animals from the Malayan Archipelago.

In spite of depressing circumstances, the small aviary at the Royal Botanic Garden, Darjeeling, for the rearing of birds, was maintained, and attempts to exploit Darjeeling and its neighbourhood for small mammals and birds were continued. Mr. Moller, Vice-Chairman, Darjeeling Municipality, who kindly looks after the aviary, complained that the want of a keeper trained to look after the rearing and care of the newly-captured specimens militated against the success of the experiment, and suggested that a keeper might be sent from the Calcutta Garden. The suggestion is worth considering.

The obvious need of the Garden in respect to the collection of animals is a trained collector.

STORM OF JUNE 1907.

Considerable damages were done to the Garden by the storm of June 1907. A number of old trees were uprooted, others had their branches torn off and were permanently injured. Shrubberies and borders were torn and smothered by the falling trees and branches, rendering it necessary

in many cases to replant them. A portion of the wild fowl house—an iron and wire structure—was completely wrecked and some other buildings suffered more or less seriously. The birds living in large flight cages and open enclosures had a very bad time of it during the two days the storm lasted, and casualties among them were not inconsiderable. Of the birds that breed in the Garden in a wild state the Barbets and Kingfishers suffered the most. Two of the nesting trees of the former were blown down, and the nesting holes of the *H. smyrnensis* drowned by the overflowing of the banks of the tanks.

ARDHYADAYA YOGA FESTIVAL.

As far as attendance is concerned, the Ardhyadaya Yoga festival might be considered an event of the year, as it contributed largely towards bringing up the total of the year to the figure of 504,397, which was greater than even that of 1906-07. To relieve the congestion of the people wanting admission crowding at the ordinary entrance gate, the emergency gate, with two extra turnstiles, were kept open during the two principal days of the festival. Special and efficient sanitary arrangements were made for the comfort and convenience of visitors, and the acknowledgment of the management of the Garden is due to the Corporation and their officers for ready help in this connexion. The turnstiles registered the admission of over 53,000 visitors during the festival. They were mostly Hindu pilgrims from Eastern Bengal and Assam, Jessore and Khulna, with a sprinkling of those from the districts of

Midnapore and 24-Parganas. The "Zoo" was as much a place of pilgrimage to them, specially to the women, who formed 75 per cent. of the crowd, as the sacred shrine at Kalighat, or the river Ganges. It might be interesting to note in this connexion that while the tiger afforded them the greatest attraction, the lion was not much appreciated. Perhaps it did not come up to their notion of that animal. Among other animals that appealed to their imagination were the orang-outang, hoolock gibbon, mandrill, zebra and huanace, the spitting habit of the latter affording them the greatest amusement. The antediluvian characters of the Tapir and Hippopotamus mystified these simple minded folks, while the Ostrich was an object of veneration to the women pilgrims who took it to be the modern representative of *gaduda*, the mythical bird of the same name. It might be said on the whole that the crowd of pilgrims enjoyed their visit to the Garden immensely.

RAMBRAMHA SANYAL,

Supdt., Zoological Garden, Calcutta.

APPENDIX A.

I.—Comparative Statement of Receipts for 1906-07 and 1907-08.

	RECEIPTS FOR—					
	1906-07.			1907-08.		
	Rs.	A.	P.	Rs.	A.	P.
Opening balance	24,135	4	9	23,838	11	2
Interest	163	3	4	163	3	4
Donations and subscriptions	252	0	0	285	0	0
Entrance receipts	33,474	4	0	37,731	15	0
Rent	2,100	0	0	2,640	0	0
Carriages and palkis, &c.	620	0	0	690	0	0
Fishing	9	0	0	6	0	0
Picnic	119	0	0	139	0	0
Rhino urine	1,229	8	0	1,392	0	0
Miscellaneous	2,278	8	8	5,120	0	0
Government contribution	20,000	0	0	20,000	0	0
Total	84,380	12	9	92,005	13	6
<i>Add</i> —Receipts from 28th to 31st March 1907, which were included in the financial year 1907-08.	.....			514	8	0
<i>Deduct</i> —Receipts of 31st March 1908, which were included in the financial year 1908-09.	.....			92,520	5	6
				80	12	0
GRAND TOTAL	.....			92,439	9	6

*II.—Comparative Statement of Expenditure for 1906-07
and 1907-08.*

	EXPENDITURE FOR —					
	1906-07.			1907-08.		
	Rs.	A.	P.	Rs.	A.	P.
Establishment	13,517	10	7	13,082	1	4
Food of animals	14,834	3	3	17,870	11	9
Purchase of animals	10,643	0	0	10,615	11	0
Transport of animals	524	14	0	980	10	3
Miscellaneous contingencies	3,555	15	9	4,382	1	5
Repair of roads	1,174	10	9	500	10	3
Repair of buildings	4,888	5	0	4,246	9	6
Original construction	6,262	8	0	15,752	5	11
General construction	1,139	1	3	.....	
Garden construction	3,558	11	0	2,769	13	6
Tools and plant ... ..	.....			350	0	0
Total	60,108	15	7	70,550	10	11
Closing balance	23,838	11	2	21,888	14	7
GRAND TOTAL	83,947	10	9	92,439	9	6

APPENDIX B.

Summary of Visitors and Gate Receipts during 1907-08.

Month and year.		Number of visitors.	Receipts.
			Rs. A.
April	1907	25,784	1,969 3
May	"	23,729	1,832 9
June	"	33,419	2,451 14
July	"	34,919	2,589 10
August	"	30,801	2,215 14
September	"	34,862	2,541 4
October	"	61,220	4,189 10
November	"	46,974	3,580 15
December	"	42,872	3,661 5
January	1908	53,356	4,003 2
February	"	81,264	5,789 5
March	"	34,597	2,907 4
Total		504,397	37,731 15
Daily average ... ..		.....	1,378 0

APPENDIX C.

A

Alexander, Miss	...	1 Barking Deer.
Ambler, Mr. H. G.	...	1 Bear, 1 Ratel.
Ainslee, Mr. E. F.	...	1 Fishing Cat.

B

Bodding, Rev. P. O.	...	1 Leopard cub.
Barua, Raja Bahadur Pro- bhat Chandra.	...	1 Bear cub.
Burkill, Mr. I. H.	...	3 Red-billed blue Magpie, 2 Barn Owls, 1 Common Bushchat.
Bescolo, Mr. F. A.	...	1 Crocodile.
Byrne, Mr. O. A.	...	1 Fishing Cat.
Binn, Capt. D. H.	...	1 Hog Badger.

C

Chaudhuri, Mr. J. N.	...	2 Himalayan Bear.
Chaudhuri, Mr. P. C. L.	...	1 Black Leopard.
Christie, Mr. W. M.	...	2 Java Monkeys.

D

Day, Mr. S. S.	...	1 Bear Cub.
Durant, Mr. W. E.	...	40 Waterfowls of sorts.
Datia, H. H. The Maharaja Bahadur of.	...	1 Tigress.
Deb, Raja Bahadur Binoy Krishna.	...	2 Spotted Deer, 1 Goat.
Dempster, Mr. G.	...	1 Slow Loris, 1 Python.

G

- Ganguli, Mr. G. D. ... 2 Wolves.
 Gardiner, Mr. W. F. ... 3 Snake-eating Cobras, 2 Cobras,
 1 Striped Coluber.
 Gage, Capt. A. E. ... 1 Common Dove, 2 Chakar, 5
 Nicobar Pigeons, 2 Munias,
 2 Andaman Mynas, 2 Black-
 headed Mynas, 1 White-
 breasted Water-hen.
 Gidhour, H. H. The Maha- 2 Leopard cubs.
 raja Bahadur of.
 Gasper, Mr. E. S. ... 1 Guinea Pig.

H

- Hannagan, Mr. ... 1 Jackal.
 Hindol, Chief of ... 1 Tiger.
 Haughten, Mr. W. R. ... 1 Spotted Deer.
 Hardinge, Mr. T. E. ... 2 Tiger Cats.

J

- Jones, Mr. H. E. ... 1 Lion-tailed Macaque.

K

- Khulna, Magistrate of ... 1 Leopard.

L

- Longdale, Revd. ... 1 Tiger Spider.
 Law, Babu Brindaban 1 Spotted deer.
 Chandra.

M

- Mukherjee, Babu Satcowri 1 Leopard, 1 Hyena.
 Mackeith, Mr. W. A. ... 2 Leopard Cats.
 Marshall, Mr. J. D. ... 1 Leopard Cub.
 Muddiman, Mr. A. P. ... 2 Leopard Cubs.
 Mylne, Mr. W. S. ... 8 Peafowls.
 Manipur, H. H. The Maha- 1 Brown Anteloped Deer.
 raja of.

N

Norman, Mr. C. A. ... 2 Indian Roller.

P

Pedler, Dr. H. ... 1 Spotted Deer.

Pierce, Mr. A. ... 1 Lizzard.

Petley, Capt. E. W., R.N., 1 Koel.

C.I.E.

R

Raja of Boad ... 1 Nilgai.

Robertson, Capt. J. W. ... 5 Hermit Crabs.

Rix, Mr. H. S., I.C.S. ... 1 Wolf.

S

Sunder, Mr. D. ... 5 Python, 1 Shell Drake.

Sheriff, Mr. J. P. ... 1 Himalayan Bear.

Smith, Mr. H. ... 1 Common Marmoset.

Singh, Raja Banwari Lal ... 1 Python.

Shakespear, Miss Grace ... 1 Clawless Otter.

Snelus, Mr. J. E. ... 1 Sloth Bear.

Sahebzada Md. Behroz Shah 1 Cobra, 1 Spotted Lizzard, 2
Owls.

Smidt, Mr. H. ... 1 Bear.

V

Vizianagram, H. H. The Maharaja of. 1 Manis.

W

Woodward, Surgeon-Major J. 1 Leopard Cat.

Watson, Mrs. ... 2 Chakar Partridges.

Watson, Mr. L. ... 4) Indian Red Muniahs, 2 Java Sparrow, and 2 Quails.

Wood, Mr. ... 1 Hanuman.

Weston, Mr. W. Val ... 1 Python.

1908-09

REPORT
OF THE
HONORARY COMMITTEE
FOR THE
MANAGEMENT OF THE ZOOLOGICAL GARDEN
1908-09.



CALCUTTA:
BENGAL SECRETARIAT PRESS.

1909.

REPORT
OF THE
HONORARY COMMITTEE
FOR THE
MANAGEMENT OF THE ZOOLOGICAL
GARDEN,
1908-09.

THE Honorary Committee have the honour to submit their report for the year ending 31st March 1909, the contents of which, as usual, include—

The Superintendent's report upon the menagerie:

Monthly returns of visitors and list of donors:

An abstract of accounts of ordinary and extraordinary receipts and expenditure.

1. THE COMMITTEE.

President :

The Hon'ble Mr. E. A. Gait, C.I.E., (from 1st April to 3rd June 1908).

The Hon'ble Mr. F. W. Duke, (from 4th June 1908 to 31st March 1909).

Vice-President :

A. E. Silk, Esq., (from 5th May 1908 to 17th November 1908).

W. K. Dods, Esq., (from 18th November 1908 to 31st March 1909).

Honorary Secretary and Treasurer :

Major B. C. Chatterton, M.D., I.M.S., F.R.C.S.E. (from 1st April to 13th October 1908).

Lieut.-Colonel E. H. Brown, M.D., I.M.S., D.P.H., F.Z.S., F.R.C.S.E. (from 14th October 1908 to 31st March 1909).

Superintendent :

Rai R. B. Sanyal, Bahadur, C.M.Z.S., (from 1st April 1908 to 13th October 1908).

Mr. Bijay Krishna Basu, (from 16th October 1908 to 31st March 1909).

Assistant Superintendent :

Babu Somadev Ganguli, (from 16th November 1908 to 31st March 1909).

Members of the Committee :

H. H. Sir Nripendra Narayan Bhup Bahadur, G.C.I.E., C.B., Maharaja of Cooch Behar.

Sir Herbert Hope Risley, I.C.S., C.S.I., C.I.E., K.C.I.E.

Surgn.-Genl. G. Bomford, C.I.E., I.M.S.

Roostumjee Dhunjeebhoy Mehta, Esq., C.I.E.

Maharaja Sir Pradyot Kumar Tagore, Kt.

William Arthur Dring, Esq.

Major R. Bird, M.D., C.I.E., M.S., F.R.C.S., I.M.S.

Philip Lindsay Buckland, Esq.

Dr. Nelson Annandale, B.A., D.Sc., C.M.Z.S.

W. R. Gourlay, Esq., I.C.S.

Colonel G. M. Porter, R.E.

Ralph Percy Ashton, Esq.

H. J. McIntosh, Esq., I.C.S.

The Hon'ble Ihtisham-ul-Mulk, Rais-ud-Daula, Amir-ul-Umara, Nawab Asif Kadr Saiyid Wasif Ali Mirza, Khan Bahadur, Mahabat Jang, Nawab Bahadur of Murshidabad.

John George Dean, Esq.

Lieut.-Colonel Charles Robert Mortimer Green, I.M.S.,
M.D., F.R.C.S.

David Ezra, Esq.

Major Leonard Rogers, M.D., I.M.S.

Ex-officio Members :

The Commissioners of Divisions in Bengal.

The Executive Engineer of the Public Works Department of the Division in which the garden is placed.

The Sanitary Commissioner with the Government of Bengal.

The President of the Asiatic Society of Bengal.

The Director of Public Instruction, Bengal.

The Natural History Secretary of the Asiatic Society of Bengal.

The Director of Land Records.

The Superintendent, Civil Veterinary Department, Bengal.

The Professor of Comparative Anatomy and Zoology, Medical College, Bengal.

The Superintendent of the Royal Botanic Garden, Sibpur.

The Chairman of the Calcutta Corporation.

The Principal - of the Bengal Veterinary College, Calcutta.

Appointment—

The following new members were appointed during the year :—

Major Leonard Rogers, M.D., I.M.S.

Lieut.-Colonel C. R. M. Green, M.D., I.M.S.

David Ezra, Esq.,

Resignation—

The Hon'ble Mr. E. A. Gait, C.I.E., resigned the office of President of the Committee during the year.

Mr. A. E. Silk resigned the office of Vice-President prior to his departure for England.

Major B. C. Chatterton, M.D., I.M.S., F.R.C.S.E., resigned the office of Honorary Secretary and Treasurer during the year.

Obituaries—

Mr. A. E. Silk.

Rai R. B. Sanyal, Bahadur.

2. STAFF AND ESTABLISHMENT.

Many changes took place in the course of the year.

The staff suffered a severe loss by the death, on the 13th October 1908, of Rai Rambrahma Sanyal Bahadur, C.M.Z.S., the Superintendent of the garden. At a meeting of the Committee of management held on 24th October 1908, the following resolution was placed on record :—

“The Committee wish to place on record their deep regret at the death of Rai Rambrahma Sanyal, Bahadur, Superintendent of the garden. During the long period of 33 years in which he was in charge of the gardens, he displayed the greatest zeal and energy in their interest; his scientific attainments and his unequalled knowledge of the treatment of wild animals in captivity, in addition to the great knowledge of gardening, enabled him to bring the gardens to their present satisfactory state, and by his death the Zoological Gardens have sustained a most serious loss.”

Mr. Bijay Krishna Basu, the Assistant Superintendent of the garden, acted as Superintendent from 13th October 1908, and Babu Somadev Ganguli, as Assistant Superintendent.

The following is a list of the ordinary staff of the garden at the end of 1908-1909 :—

1 Superintendent	10 Darwans.
1 Assistant Superintendent.	3 Bhisties.
1 Accountant.	1 Carpenter.
1 Overseer.	1 Cook.
1 Store-keeper and Typist.	3 Sweepers.
1 Gate Clerk.	1 Chaprasi.
1 Head-keeper.	2 Cartmen.
20 Keepers.	1 Syce.
	1 Seytheman.

Besides these, there were a number of labourers engaged temporarily by the garden.

3. BUILDINGS.

No structural improvements of any importance were undertaken except the following :—

- (a) Extension of the boundary wall.—Further progress towards the completion of the boundary wall was made during the year by erecting 635 feet of wall from the Kidderpur gate up to the Rhinoceros Enclosure.
- (b) The reconstruction of the Smaller Duck House.—The Smaller Duck House, an iron and wire structure, which had been completely wrecked by the storm of June 1907, was reconstructed.
- (c) The erection of the Exit turnstile.—An improved self-acting exit turnstile was erected near the Orphangunge Road for the convenience of the visitors who desire to avail themselves of the tram service.

The following is a list of some of the more important repairs executed during the year :—

- (1) Burdwan House—Repaired and repainted; the recreation enclosure thoroughly repainted.

- (2) Smaller Carnivora House—Repaired and colour-washed.
- (3) Murshidabad House—Repaired and repainted.
- (4) Reptile House and its cages—White-washed and repainted.
- (5) Rodent House—Repaired, colour-washed, and repainted.
- (6) Buckland Enclosure—Repaired and repainted.
- (7) Sarnomoyi House—Repaired and colour-washed.
- (8) Gubbay House—Painted inside and outside, and many repairs done to the cages.
- (9) Entrance Lodge and the Office—Thoroughly repaired and repainted.
- (10) Hermitage—(The residence of the Honorary Secretary)—Quinquennial repairs were made at a cost of Rs. 2,102.
- (11) Durbhanga House—Repaired and repainted.
- (12) Refreshment Pavilion—Repaired and repainted.
- (13) Library—White-washed and painted.

Petty repairs of smaller houses, sheds and enclosures were attended to; the iron fencing of the paddocks was coal-tarred; the spacious lawn in front of the Sarnomoyi House aviary was re-turfed; and roads and paths were thoroughly repaired and drained.

4. FINANCE.

The financial condition of the garden was not so good as that of the previous year, which had been exceptionally good on account of the *Ardhodaya Yoga* festival, when more than 53,000 visitors were registered at the turnstiles. The following is a comparative statement of receipts from visitors:—

Year.	Receipts.	
	Rs.	As.
1906-07
1907-08
1908-09

The accounts of income and expenditure are summarised in Appendix A.

5. THE PUBLIC.

That the public continue to appreciate the garden is evidenced by the attendance of visitors during the year, which was, with the exception of the previous year, a record. In the latter year the *Ardhodaya Yoga* festival brought into town thousands of pilgrims from the rural districts of Eastern Bengal and Assam, United Provinces and Oudh. The turnstile records indicated a total for the year of 471,305 persons admitted, a daily average of 1,296 as exhibited in Appendix B. The greatest number of visitors for a single day was 8,834.

Comparative table of visitors during the last three years:—

Year.				Visitors.
1906-07	...	...	...	457,891
1907-08	...	...	...	504,397
1908-09	...	...	...	471,305

In addition, a large number of children under four years of age, and 1,963 school children, attended by their teachers, were admitted free. On the day of the Fancy Fair about 12,500 people, including complimentary ticket-holders, entered the garden.

CONCLUSION.

The thanks of the Committee are due to the ladies and gentlemen who enriched the collection of the garden by their donations, a list of which is given in Appendix C. Thanks are also due to several ladies and gentlemen who kindly offered to present animals to the garden, but as

these were already well represented, they could not be accepted owing to want of accommodation.

The management of the garden has been most satisfactory, Mr. B. Basu, the new Superintendent, having proved himself an able administrator, and most successful in the treatment of sick animals, and in the suppression of threatened epidemics, and a very capable gardener. He has kept the collection of animals up to a high standard, has been markedly successful in breeding, and has been very keen and energetic in all the multifarious duties connected with the garden.

Further, he has kept down the expenses in every department and has effected a good deal of savings thereby.

The new Assistant Superintendent, Mr. S. Ganguli, has also worked very well and has proved himself capable and energetic; I think he will be a very useful officer in time.

E. HAROLD BROWN,
Honorary Secretary.

F. W. DUKE,
President.

SUPERINTENDENT'S REPORT.

I HAVE the honour to submit the following report on the existing condition and the progress of the manegerie of the garden.

The following comparative table shows how the various collections of animals in the garden stood during the last four years:—

YEAR.	Mammals.	Birds.	Reptiles.
1905-06	... 432	772	281
1906-07	... 413	741	307
1907-08	... 401	795	310
1908-09	... 417	803	312

1. ACQUISITIONS.

Among other acquisitions the following deserve notice :—

- 1 pair Wild Asses (purchased).
- 1 pair Albino Jackals (purchased).
- 1 Black Jackal (presented by A. T. Gregory, Esq.).
- 1 Albino Monkey (*Macacus Rhesus*) presented by G. G. Hills, Esq.)
- 1 pair Australian Cassowaries (presented by the Nawab Bahadur of Murshidabad).
- 1 Clouded Leopard (purchased).
- 3 Great Siberian Cranes (purchased).

The following animals were obtained from Singapur through the good offices of Mr. M. Loebell :—

- 2 Orang-utans, 1 large White-handed Gibbon, 1 large Borneo Squirrel, 1 Proboscis Monkey, 1 Lesser Bird of Paradise and a number of other animals and birds.

Mr. F. E. Möller, Vice-Chairman, Darjeeling Municipality, kindly procured and sent the following animals during the year :—

- 3 Cat Bears, 2 Common Doves, 2 Bulbuls and 1 White-browed Gibbon.

A list of donors and their donations during the year is given in Appendix C.

BIRTHS.

The following is a list of the most important instances of births in captivity during the year 1908-09.

- Mammals*.— 3 Lions, 1 Malayan Tapir, 2 Burmese Pig-tailed Monkeys, 1 Anubis Baboon, 2 Bantings, 1 Anoa, 1 Manchurian Deer, 1 Hanuman, 1 Great Kangaroo, 2 Wallabies, 1 Nilgai, 1 Brow-antlered Deer, 1 Swamp Deer, 1 Mouse Deer, 4 Spotted Deer, 1 Japanese Deer, 3 Sambur Deer, 2 Rhesus Monkeys, 1 Indian Antelope, 1 Green Guenon, 1 Leopard Cat.

Birds.—2 Scarlet Ibises, 2 Black Ibises, 1 Spoon-bill, 1 Purple Coot, 1 Spotted-billed Duck, 1 Muscovy Duck, 2 Crested Pigeons, 1 Bronze-winged Pigeon, 2 Victoria Crowned Pigeons, 4 Grass Parrakeets, 2 Bulbuls, 2 Jungle Fowls.
Reptiles.—6 Golden Water Lizards, 50 Russell's Vipers, 23 Pythons.

The garden has been a favourite breeding ground for a large number of birds of different species in a wild state. The following is a list of those birds that bred during the year in their wild state.

- (1) Indian House Crow—*Corvus splendens* (Vieff).
- (2) Indian Tree-pie—*Dendrocitta rufa* (Scop).
- (3) House Sparrow—*Passer domesticus* (Linn).
- (4) Bengal Red-whiskered Bulbul—*Otocompsa emeria* (Linn).
- (5) Common Kingfisher—*Alcedo bengalensis* (Gmel).
- (6) White-breasted Kingfisher—*Halcyon smyrnensis* (Linn).
- (7) Common Pariah Kite—*Milvus gobinda* (Sykes).
- (8) Pied Myna—*Sturnopastor contra* (Linn).
- (9) Common Myna—*Acridotheres tristis* (Linn).

The following birds bred freely in a wild state in the *Bird Chummary* on the island of the big lake:—

- (1) Little Cormorant—*Phalacrocorax javanicus* (Horsf).
- (2) Indian Snake-bird—*Plotus melanogaster* (Gm).
- (3) Night Heron—*Nycticorax griseus* (Blyth).
- (4) White Egret—*Herodias alba* (Linn).

The White-breasted Water-hen (*Erythra phanicura*) which used to breed freely in a wild state, has gradually disappeared.

DEATHS.

The total number of deaths during the year was 113, 33 less than the preceding year. The death rate is greatly influenced by the condition in which the new arrivals are received. Of the total number that died during the year nearly one-half were cases of animals that died within a

few days of their arrival in the garden. Of the loss by death the following deserve special notice:—

- 1 Hairy Kangaroo, 2 Marmosets, 1 Coypu Rat, 1 White-tailed Gnu, 2 Orang-utans (new purchase), 1 Proboscis Monkey (a new purchase), 1 Female Ostrich, 1 Nilgai (after parturition), 1 Anubis Baboon (after parturition), 1 Lesser Bird of Paradise, 1 Black Jackal, 1 Clouded Leopard (a new purchase).

A list of other losses will be found under the pathological department.

PATHOLOGICAL DEPARTMENT.

The work in this department was carried on, as usual, with the ready and generous help rendered in every important matter by Colonel F. Raymond, F.R.C.V.S., Principal, Bengal Veterinary College.

The following is a list of some of the important autopsies made during the year:—

1. Sloth Bear—

The animal suffered from dysentery and succumbed to it.

Post-mortem appearance.

Intestines—Very bad, specially the colon and lower part of the ileum; a large quantity of dark decomposing material mixed with blood found in the intestines; ulcers in various stages, some of them on the way to healing, others open and discharging also found. Mucous membrane thickened, and the wall irregularly drawn up.

Liver—Congested, gall bladder, full of thick bile.

Kidneys—Highly congested.

Cause of death—Dysentery.

2. Spotted Deer—

The animal was never in good condition, and was kept in the Isolation Ward.

Post-mortem appearance.

Lungs—A large number of nodules found in the lungs, some of them adherent to the thoracic wall.

Liver—Enlarged, very small tubercular deposits found on the substance of the liver.

Spleen—Enlarged to some extent.

Kidneys—Congested; capsules stripped easily.

Other internal viscera—Anæmic.

Cause of death—Tuberculosis.

3. Anubis Baboon—

The animal showed symptoms of metro-peritonitis on the 5th day after difficult parturition.

Post-mortem appearance.

Vagina—Mucous membranes and the labia were of dirty green hue; mucous membrane swollen in patches and covered with diphtheritic patches.

Uterus—The cavity contained 3 oz. of offensive chocolate-coloured fluid, a few pieces of fetal membrane found in the cavity; uterus not properly contracted and subinvolved, and the wall thickened and inflamed.

Abdominal cavity—Contained about four ozs. of fluid, part of the parietal peritonium and that covering the uterus inflamed.

Digestive system—Undigested food and thick mucus found in the stomach.

Kidneys—Congested.

Other organs—Nothing very abnormal found.

Cause of death—Metro-peritonitis.

4. Hornbill—

Found dead in the cage in the morning.

Post-mortem appearance.

Heart—Presented a tubercular nodule over the apex.

Lungs—Apices showed patches of deep congestion.

Digestive system—Small intestines full of round worms.

Spleen—Highly congested.

Liver—Showed marked signs of fatty degeneration.

Cause of death—Fatty degeneration of the liver.

5. Indian Wolf—

The animal was suffering from chronic mange for a long time; the general condition was emaciated and rickety.

Post-mortem appearance.

Digestive system—Small intestines were pale and showed slight catarrh of the mucous membrane; liver greatly enlarged and softened.

Kidney—Enlarged and slightly congested.

Respiratory system—Lungs very deeply congested.

Circulatory system—Heart looked very pale and flabby.

Cause of death—Debility brought on by chronic mange.

6. Hoolock Gibbon—

This animal died in the early acute stage of the disease.

Post-mortem appearance.

Lungs—Both lungs were in a condition of acute inflammatory hyperæmia, the bases of the lungs were of a dirty red colour and not elastic, pieces sinking in water. On section, redish serum oozed out.

Heart—Right ventricle full of coagulated blood.

Intestines—Contained several round worms.

Liver—Enlarged and highly congested.

Kidneys—Congested.

Cause of death—Pneumonia.

7. Leopard—

The animal was found sick only two days before its death.

Post-mortem appearance.

Heart and pericardium—2 ounces of fluid in the pericardial sac.

Lungs—Edematous.

Stomach—Contracted, the mucous membrane thickened and inflamed and covered with a thick sticky mucous; and contained a few round worms.

Small intestines—Mucous membrane thickened with patches of chronic inflammation; several round worms found.

Liver—Greatly enlarged and highly pigmented.

Gall bladder—Full of bile; bile-duct thickened.

Spleen—Greatly enlarged.

Kidneys—Much congested.

Cause of death—Gastro-deodonal catarrh.

8. Spotted Deer—

The animal was apparently in good health up to the time of death.

Post-mortem appearance.

Abdominal cavity—Large amount of coagulated blood and serum found in the cavity. A careful examination of the viscera showed rupture of the spleen.

The organ hard and enlarged.

Liver—Enlarged and highly pigmented; other internal viscera normal.

Cause of death—Rupture of the spleen.

9. Leopard—

The animal was sick for about 15 days. It was a capricious eater and became very irritable. The symptoms were aggravated two days before death.

Post-mortem appearance.

Heart—Very pale in colour.

Stomach—Contained a quantity of undigested food.

Intestines—Normal, except a few scattered inflamed patches.

Liver—Enlarged.

Gall bladder—Full of bile.

Left kidney—Highly inflamed and blue coloured patches found.

Bladder—Inflamed and mucous membrane thickened; contained thick brown-coloured urine.

Cause of death—Chronic Nephritis followed by Cystitis.

PROVISION.

The following table shows the kind and quantity of provisions consumed during the year:—

				Mds. srs.
Gram	...	...	...	879 10
Bran	...	...	...	343 30
Paddy	...	...	...	231 10
Rice	...	...	...	131 30
Wheat	...	...	...	73 36
Canary seed	...	...	...	1,621 lbs.
				Mds. sr. ch.
Peas	...	...	...	9 8 0
Kangney	...	...	...	1 7 8
Hempseed	...	...	...	1 7 8
Vegetables	...	...	...	90 15 8
Indian corn	...	...	...	35 30 0
Flour	...	...	...	34 10 0
Mashkelai	...	...	...	13 5 0
Linseed	...	...	...	15 12 0

			Mds.	s.	CH.
Gur (coarse sugar)	...	...	16	3	0
Shattoo	...	...	91	6	0
Mutton	...	...	31	10	0
Beef	...	...	959	23	0
Oilcake	...	...	232	38	0
Milk	...	...	119	13	8
Biscuits	...	...	55	23	0
Sugar	...	...	2	23	0
Fish	...	...	18	17	12
Worms	...	...	14	18	0
Paddystraw	...	...	1,441	0	0
Oats	...	...	118	35	0
Black salt	...	...	0	32	8
Table salt	...	...	18	26	0
Onions	...	...	3	21	0
Ghee	...	...	0	18	12
Green grass	...	...	170	20	0
Potatoes	...	...	99	16	0
Bazra	...	...	17	37	0
			Number.		
Sugarcane	...	...	48	bundles.	
Ducks	...	...	197		
Bread	...	...	6,932½		
Plantains	...	...	56	kahans 5 pauns	
				10 gds.	
Eggs	...	...	5,075		
Fruits (Papaya)	...	...	1,824		
Fowls	...	...	409		
Hay	...	...	21,200	bundles.	
Grasshoppers	...	...	18,240		
Leaves (jack fruit)	...	...	183½	cart loads.	
Goats	...	...	143		
Condensed milk	...	...	24	tins.	
Quaker oats	...	...	135	,,	
Nutrient...	...	...	12	gallons.	

Besides the above, a large amount of tomatoes, peas, beans, sweet potatoes, cabbages, turnips, carrots, beet, salads, etc., was grown in the vegetable garden, which was made in the year under review out of a tract of land lying waste

Begunbari, opposite the garden. The experiment has been a success, as at a minimum expense, nearly the whole of the stable supply, except potatoes, was maintained during the year.

Great difficulty had been experienced in past years with respect to the milk supply of the garden. It was simply impossible to obtain pure and fresh milk, and the management was obliged to have recourse to the use of tinned milk, which, however, did not meet the requirements in every case. At last the difficulty was solved by starting a dairy farm and the management was saved from the trouble, worry, and expense in obtaining fresh milk.

The following table gives the chief items of expenditure under "Food of animals" for the year 1908-09.

	Rs.	A.	P.
Beef	4,344	10	0
Mutton	138	11	0
Live fish	114	6	9
Worms	154	6	6
Plantain	250	15	0
Fresh milk	126	4	9
Bread	435	1	0
Gram, wheat, rice, etc.,	7,582	11	0
Oats	761	5	9
Quaker oats, etc.	89	0	0
Cattle food	724	12	3
Grasshoppers	36	0	0
Shattoo	111	4	0
Leaves	183	8	0
Goat	321	12	0
Duck	98	8	0
Paddystraw	1,269	8	0
Hay	210	0	0
Fowl	127	13	0
Miscellaneous food, such as, smaller fish, eggs, fruits, sugarcane, etc.	2,577	14	6
Total	19,658	7	6

GENERAL CONDITION OF THE ANIMALS.

The general health of the animals during the year under report was satisfactory, and the death rate may be considered to be normal. The larger carnivorous animals maintained excellent health as was evidenced by the birth of several lion cubs during the year. The birth rate amongst the birds also proved that they were comfortable in their new surroundings. The insanitary and defective housing arrangement of the smaller carnivora, on the other hand, was responsible for the mortality amongst the delicate felines. In this connexion, the want of a big outdoor enclosure is keenly felt.

There were some cases of disease, however, which on account of their frequency, deserve special mention :—

Dysentery.—Of the cases which were treated during the year, by far the most frequent and fatal were those of dysentery which prevailed amongst the bears, specially the sloth bears which suffered most. Notwithstanding our special care and attention we could not prevent the recurrence of the malady. The chief difficulty arose in supplying their natural diet, and regulating it so as to meet the altered condition. Unfortunately, most of the animals refused to take food or medicine at the early stage of the disease; and forcible administration of nourishment and medicines hastened their death.

Pneumonia.—A good many cases of pneumonia occurred during the year which were all successfully treated; but a few cases occurred, amongst the primates, in complication with tuberculosis, which proved fatal.

Rickets.—Two cases of *rickets* occurred among the lion cubs born in the garden. The cause of the disease is the deficiency of lime and phosphorus in the food. The condition of the animals was improved by the constant supply of

lime in the drinking water, and by administering calcium hypophosphite and cod-liver oil to the animals with the food.

Epidemic disease—Two outbreaks of the foot and mouth disease and several sporadic cases of hæmorrhagic septicæmia occurred amongst the ruminants. On both occasions the maladies started from the new Antelope House, which is situated in quarters in immediate proximity to the Kidderpur Orphanage grounds which are used as pasture lands. This portion of the garden having no boundary wall is exposed to all sorts of contagious and infectious diseases from outside.

Every possible precaution as regards isolation, frequent and effectual disinfection, etc., was early put into effect and the diseases were successfully stamped out within a fortnight.

The following is a statement of cases successfully treated :—

Name of animal.	Disease.	Treatment and diet.	Result.
Green Guenon	Pneumonia ... The disease was detected at an early stage of the attack.	Hot. bag & soap liniment applied to the chest. Later on— Liq. Amon. Acetat. ʒi. Ammon Carb grs. ii. Spt. Æther Nit. Ms. viii. Aqua Camphor ad. ʒss. Four times a day. Bowel was moved by enema. Followed by Vin. Ipecac ms. v. Pot. Chlor. grs. iii. Spt. Ammon. Aro. Spt. Æther Nit. a a. ms. viii. Tinct. Gentian ms. xv. Aqua ʒi. One dose every 4 hours.	Recovery.

Name of animal.	Disease.	Treatment and diet.	Result.
Bonnet Monkey	Pneumonia ... There was difficult breathing and the animal was prostrate.	Hot fomentation applied to the chest several times during the day, and soap liniment during the night. The chest was protected by cotton wool bandage. Vin. Ipecac ms. vi. Tinct. Camp. Com. ms. xv. Spt. Æther Nit. ms. x. Spt. Ammon. Aro. ms. viii. Aqua ʒi. One dose every 4 hours. Vegetable tonic prescribed.	Condition improved. Recovery.
Indian Antelope	Rheumatism ...	The animal was removed to a warm place and stimulating liniment applied to the parts affected. Mag. Sulph. ʒviii. Spt. Æther Nit, ʒiii. Aqua. ʒx. Followed by— Soda Salicylate grs. xx. Pulv. Gentian ʒi. thrice a day.	The animal showed marked improvement on the 6th day and completely recovered on the 11th day.
Victoria Crown Pigeon.	Rheumatism ... The bird had an attack of rheumatism last year also. Its condition was so bad this year that it could not fly even to its retiring room.	Removed to a warm cage. Soda Salicylate gr. i. Pulv. Fen. grs. iii. Extract Gentian gr. ½. M. ft. two pills twice a day.	Better on the 3rd day and recovered in a week.
Spotted Deer	While taking the food the animal took some hard substance which choked it.	Linseed oil given and manipulated externally. Probang was passed into the throat and the obstruction was removed gradually. A dose of stimulant was given afterwards.	Recovery.

Name of animal.	Disease.	Treatment and diet.	Result.
Lion ...	Constipation ... The animal was off feed.	4 grs. Calomel given and a live kid given on the next day.	Recovery.
Gayal ...	Chronic diarrhæa. (The animal had obstinate diarrhæa and could not digest grain food).	Diet changed and bamboo leaves given. Linseed oil ʒxx. Tinct. Opii, ʒi. Followed by— Pulv. Gentian ʒii. ʰ Pulv. Fen. ʒss. Pulv. Ginger grs. xx. Pulv. Nox. Vom. grs. xx. Ammon Chlor. ʒss. Twice a day.	The animal improved a good deal within a month and was able to digest grain food.
Bear ...	Dysentery ...	Castor oil ʒi. Tr. Opii ms. xv. Honey ʒii. Next day. Dover's Powder 20 grs. thrice a day, and bail fruit sarbet given.	Complete recovery on the 5th day.
Wild Ass. ...	Enteritis ... The animal was very uneasy and colicky symptoms appeared.	Linseed oil ʒxv ... Tr. Opii ʒi ... Given at once. Enema given 3 times; hot fomentation to the abdomen relieved the animal a good deal. Tr. Belladonna ʒiii. Tr. Opii ʒi. Spt. Æther Nitro ʒp. Spt. Chloroform ʒii. Aqua ʒxx. The dose repeated after 4 hours.	The condition improved. The next morning looked brighter, had a drink of warm gruel and gradually improved.
Hippopotamus	The animal was off feed and looked very dull.	A dose of stimulant given and the bowels were moved by enema.	Recovery.

Name of animal.	Disease.	Treatment and diet.	Result.
Lioness ...	<p>Mechanical obstruction in the throat.</p> <p>The animal was in perfect health but all of a sudden became very uneasy and was completely off feed and had a tendency to vomit. A piece of meat was taken but could not swallow.</p>	<p>After properly securing the animal, its mouth was examined. A piece of walking stick measuring 4' x $\frac{1}{2}$" was found firmly lodged in the throat. It was removed by a hook specially made for the purpose.</p>	Recovery.
Indian Rhinoceros.	<p>Partial obstruction of the bowels.</p>	<p>Linseed oil 40$\frac{1}{2}$. Tinct Opii $\frac{3}{4}$ii. The dose was repeated three times. Afterwards 60 grs. of Calomel in 2 doses given. $\frac{1}{2}$ gr. strychnine given at night. 30 ms. croton oil with 40 oz. of castor oil given in 2 doses. 1$\frac{1}{2}$ grs. of physostigmine given in two hypodermic injections. Soap enema given occasionally from the very beginning. The strength of the animal was maintained by milk and eggs mixed with brandy. Diet changed. Green vegetables, cabbage, leaves, oranges, plantain, sugarcane, etc., given to entice its appetite.</p>	<p>No effect.</p> <p>Ditto.</p> <p>Bowels moved on the 8th day of the disease and the animal was very weak.</p> <p>Complete recovery.</p>

COLLECTION OF ANIMALS.

It is high time to make serious attempts to increase the collection of animals and to make it more representative of the Indian fauna. During the thirty-three years and four months that the garden has been in existence, no organised and systematic attempts have been made in this direction. South India, the Himalayan and Sub-Himalayan regions, which are rich recruiting grounds for animals, remain practically unexploited, though feeble attempts have been made of late to exploit Darjeeling and its neighbourhood for animals, and Lake Chilka for aquatic birds.

The Committee have never since 1878 ceased to appeal to the officials and non-officials, noblemen and others for help in getting Indian animals for the garden; and it must be gratefully acknowledged that whenever an opportunity occurred they helped the garden in the past, and will no doubt do so in the future. Besides, occasional purchases might be made in the local market, but this is deteriorating day by day for want of respectable animal dealers, and by the prevalence of foreign dealers who are always prepared to pay high prices for any new specimen that may come in. Surely, for the purpose of keeping up the collection in a state of efficiency, such sources of recruitment are uncertain, precarious and valueless.

The following methods may be considered for acquiring animals for the garden :—

Employment of agencies at selected centres, such as Darjeeling, Mussorie, Trivandrum, Debrughar, Raxaul, Dibrugarh, and Singapore.

Appointment of *shikaris* and care-takers to collect animals in different places.

Sending out responsible officers from time to time to different places.

B. BASU,

Offg. Superintendent, Zoological Garden, Calcutta.

APPENDIX A.

I.—Comparative Statement of Receipts for 1907-1908
and 1908-1909.

	RECEIPTS FOR—					
	1907-1908.			1908-1909.		
	Rs.	A.	P.	Rs.	A.	P.
Opening balance	23,858	11	2	21,888	14	7
Interest	163	3	4	163	3	4
Donations and subscriptions	285	0	0	388	0	0
Entrance receipts	37,731	15	0	35,929	12	0
Rent	2,640	0	0	1,890	0	0
Carriage and palkies	690	0	0	675	8	0
Fishing	6	0	0	233	0	0
Picnic	139	0	0	133	0	0
Rhino urine	1,392	0	0	1,277	0	0
Miscellaneous	5,120	0	0	2,369	12	5
Government contribution	20,000	0	0	20,000	0	0
Total	92,005	13	6	84,948	2	4
Add—Receipts of 28th to 31st March 1907, which were included in 1907-1908	514	8	0	...		
Add—Receipts of 31st March 1908 which were included in 1908-1909.	92,520	5	6	80	12	0
Deduct—Receipts of 31st March 1908 which were included in 1908-1908.	80	12	0	85,028	14	4
Deduct—Receipts of 31st March 1909 which were included in 1909-1910.	...			49	0	0
GRAND TOTAL	92,439	9	6	84,979	14	4

I.—Comparative Statement of Expenditure for 1907-1908
and 1908-1909.

	EXPENDITURE FOR—	
	1907-1908.	1908-1909.
	Rs. A. P.	Rs. A. P.
Establishment	12,082 1 4	8,817 14 2
Food of animals	17,870 11 9	19,658 7 6
Purchase of animals	10,615 11 0	26,968 0 3
Transport of animals	980 10 3	421 12 9
Miscellaneous contingencies	4,382 1 5	5,015 8 2
Repairs of roads	500 10 3	1,827 3 8
Repairs of buildings	4,246 9 6	6,054 12 0
Original construction	15,752 5 11	6,344 13 9
Garden construction	2,769 13 6	3,642 15 9
Tools and plants	350 0 0	9 0 0
Total Rs.	70,550 10 11	77,960 7 10
Closing balance	21,888 14 7	7,019 6 6
GRAND TOTAL	92,439 9 6	84,979 14 4

APPENDIX B.

*Summary of Visitors and Gate Receipts during the year
1908-1909.*

Month and year.				Number of visitors.	Receipts.
					Rs. A.
April	1908	...	...	25,645	1,933 8
May	"	...	...	25,747	2,071 8
June	"	...	...	35,832	2,617 11
July	"	...	...	31,001	2,417 6
August	"	...	...	33,927	2,519 2
September	"	...	...	38,002	2,730 0
October	"	...	...	71,483	4,869 8
November	"	...	...	41,119	3,392 4
December	"	...	...	45,228	3,645 0
January	1909	...	...	52,675	4,062 6
February	"	...	...	39,843	3,192 8
March	"	...	...	30,803	2,479 9
Total				471,305	35,929 12
Daily average of visitors				1,296	...

APPENDIX C.

*A List of Donors and their Donations during the year
1908-1909.*

A

Audsley, A. E. MacAuley, Esq.,	1 Green Pigeon.
Ainslie, E. F., Esq.,	... 1 Bear, 1 Leopard.
Annandale, Dr. N.	... 1 Bonnet Monkey.
Ambler, H. G., Esq.,	... 1 Russel Viper.
Apcar, Mrs. A. A.	... 3 Macaque Monkeys.

*II.— Comparative Statement of Expenditure for 1907-1908
and 1908-1909.*

	EXPENDITURE FOR—			
	1907-1908.		1908-1909.	
	Rs.	A. P.	Rs.	A. P.
Establishment	12,082	1 4	8,817	14 2
Food of animals	17,870	11 9	19,658	7 6
Purchase of animals	10,615	11 0	26,968	0 3
Transport of animals	980	10 3	421	12 9
Miscellaneous contingencies	4,382	1 5	5,015	8 2
Repairs of roads	500	10 3	1,027	3 6
Repairs of buildings	4,246	9 6	6,054	12 0
Original construction	15,752	5 11	6,344	13 9
Garden construction	2,769	13 6	3,642	15 9
Tools and plants	350	0 0	9	0 0
Total Rs.	70,550	10 11	77,960	7 10
Closing balance	21,888	14 7	7,019	6 6
GRAND TOTAL	92,439	9 6	84,979	14 4

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Annandale, Dr. N.	... 1 Bonnet Monkey.
Ambler, H. G., Esq.,	... 1 Russel Viper.
Apcar, Mrs. A. A.	... 3 Macaque Monkeys.

B	
Blackburn, H. P., Esq.,	... 2 Himalayan Bear cubs.
C	
Crozier, H. M., Esq.,	... 1 Hornbill.
Chatterton, Major B.	... 1 Hawk Eagle.
Caddy, Miss Beatrice	... 1 Dingo.
Cockell, N. F., Esq.,	... 2 Black Partridges.
D	
Deb, Maharaja Bahadur Binay Krishna.	2 Peafowls.
Dempster, G., Esq.,	... 1 Python.
Dickson, J. G., Esq.,	... 2 Peafowls.
F	
Furness, G. C., Esq.,	... 1 Rhesus Monkey (small variety).
Finne, R., Esq., ...	... 1 Snake-eating Cobra.
Farrington, Sir H. ...	... 1 Andaman Pig.
L	
Lermit, Revd. L. H.	... 1 Orange-crested Cockatoo.
Lyall, F., Esq., i.c.s.	... 1 Gharial.
Lomer, Capt. ...	... 2 Himalayan Bear cubs.
Luson, R. G., Esq.	... 1 Bear cub.
Lal, Babu Radhakant	... 1 Leopard.
M	
Murray, Miss. E.	... 1 Sloth Bear.
Michael, W. H., Esq.	... 2 Green Pigeons.
Mukherji, Babu Saahi Bhusan	1 Hanuman.
Meyers, B., Esq. ...	... 3 Spotted Deer.
Mair, A., Esq. ...	... 5 Guinea Pigs.
Malony, H. J. C., Esq.	... 1 Badger.
Madge, A. A., Esq....	... 1 Spotted Deer.
McArthur, F. D., Esq.	... 1 Egret.
Moore, F. W., Esq....	... 1 Spotted Deer.
Mazumdar, F. K., Esq.	... 1 Rhesus Monkey, 1 tailed Monkey, 1 Indian Squirrel.
Mapole J., Esq. ...	... 1 pair Peafowls, 1 Antelope.
Mitra, S. C., Esq.	... 1 Leopard.

Morse, E., Esq. 16 birds of sorts.
 Murshidabad, Nawab Bahadur
 of 3 Spotted Deer, 1 Sambhur
 Deer, 2 Australian Cas-
 sowaries.

O

Oakley, Master Fred. ... 1 Java Parrot.

P

Pullen, A. G., Esq. ... 1 Rhesus Monkey.

S

Shah, Babu Jadunath ... 1 Python.
 Singh, Raja Bunwari Lal of
 Nowagarh ... 1 Leopard.
 Shiart, M., Esq. ... 1 Sloth Bear.
 Sanges, A de, Esq. ... 2 Leopards.
 Superintendent, Muzaffarpur
 Jail ... 3 Nilgais.
 Singh, Babu Surendra Narayan 1 Python.
 Singh, Kumar Krityanand ... 1 Leopard.
 Smythe, Esq. ... 1 Spotted Deer.

T

Thomas, B. A., Esq. ... 1 Water Lizard.

V

Vear, R. N., Esq. ... 1 Indian Antelope.

Y

Young, M. O. G., Esq. ... 1 Leopard.

REPORT

OF THE

HONORARY COMMITTEE

FOR THE

MANAGEMENT OF THE ZOOLOGICAL
GARDEN, CALCUTTA,

FOR

1909-10.



CALCUTTA:

BENGAL SECRETARIAT PRESS.

1910.

REPORT
OF THE
HONORARY COMMITTEE
FOR THE
MANAGEMENT OF THE ZOOLOGICAL
GARDEN, CALCUTTA,
FOR 1909-10.

THE Honorary Committee have the honour to present their report for the year ending 31st March 1910, the contents of which, as usual, include, among other items,

- (1) The Superintendent's report upon the management of the Garden.
- (2) Monthly returns of visitors and list of donors.
- (3) Abstract of accounts of ordinary and extraordinary receipts and expenditure.

1. THE COMMITTEE.

The Committee consists of—

President :

The Hon'ble Mr. F. W. Duke, I.C.S., C.S.I.

• *Vice-President :*

W. K. Dods, Esq.

Honorary Secretary and Treasurer :

Lieutenant-Colonel E. H. Brown, M.D., I.M.S.
F.Z.S., F.R.C.S.E.

Superintendent :

Mr. Bijay Krishna Basu.

Assistant Superintendent :

Babu Somadev Ganguli.

Members of the Committee :

His Highness Maharaja Sir Nripendra Narayan Bhup
Bahadur, G.C.I.E., C.B., of Cooch Behar.

Sir Herbert Hope Risley, I.C.S., C.S.I., C.I.E., K.C.I.E.

Roostamjee Dhunjeebhoy Mehta, Esq., C.I.E.

The Hon'ble Maharaja Sir Prodyot Kumar Tagore, Kt.

Major R. Bird, M.D., C.I.E., M.S., F.R.C.S., I.M.S.

Philip Lindsay Buckland, Esq., B.A., Bar.-at-law.

Dr. Nelson Annandale, B.A., D.Sc., C.M.Z.S.

The Hon'ble Mr. W. R. Gourlay, I.C.S.

Colonel G. M. Porter, R.E.

Ralph Percy Ashton, Esq.

H. J. McIntosh, Esq., I.C.S.

Intishan-ul-Molk, Rais-ud-Daula, Amir-ul-Umara,

Nawab Sir Asif Kadr Saiyid Wasif Ali Mirza,

Khan Bahadur, Mahabat Jang, Nawab Bahadur of

Murshidabad, K.C.S.I.

John George Dean, Esq.

Lieutenant-Colonel Charles Robert Mortimer Green,

I.M.S., M.D., F.R.C.S.

David Ezra, Esq.

Major Leonard Rogers, M.D., I.M.S.

The Hon'ble Mr. Henry Wheeler, I.C.S., C.I.E.

Ambica Charan Lall, Esq.

G. Girard, Esq., F.R.H.S.

The Hon'ble Sir Bijay Chand Mahtab, K.C.I.E.,

Maharajadhiraj Bahadur of Burdwan.

Shirley Tremearne, Esq.

Ex-officio Members:

- The Commissioners of Divisions in Bengal.
The Executive Engineer of the Public Works Department
of the Division in which the Garden is placed.
The Sanitary Commissioner with the Government of
Bengal.
The President of the Asiatic Society of Bengal.
The Director of Public Instruction, Bengal.
The Natural History Secretary of the Asiatic Society of
Bengal.
The Director of Land Records.
The Superintendent, Civil Veterinary Department,
Bengal.
The Professor of Comparative Anatomy and Zoology,
Medical College, Bengal.
The Superintendent of the Royal Botanic Garden, Sibpur.
The Chairman of the Calcutta Corporation.
The Principal of the Bengal Veterinary College, Calcutta.
The following new members were appointed during the
year:—

- The Hon'ble Mr. H. Wheeler, I.C.S., C.I.E.
Ambica Charan Law, Esq.
G. Girard, Esq., F.R.H.S.
The Hon'ble Sir Bijay Chand Mahtab, K.C.I.E.,
Maharajadhiraj Bahadur of Burdwan.
Shirley Tremearne, Esq.

The following members resigned during the year:—

- Surgeon-General G. Bomford, M.D., I.M.S.
W. A. Dring, Esq., C.I.E.

The following members resigned their membership prior
to their departure from India, but were reappointed on
their return:—

- J. G. Dean, Esq. | David Ezra, Esq.

2. STAFF AND ESTABLISHMENT.

Mr. Bijay Krishna Basu continued in charge of the Garden as Superintendent throughout the year and Babu Somadev Ganguli as Assistant Superintendent.

The following is a list of the ordinary staff of the Garden at the end of 1909-10:—

1 Superintendent.	3 Bhisties.
1 Assistant Superintendent.	1 Carpenter.
1 Store-keeper and Typist.	1 Cook.
1 Overseer.	3 Sweepers.
1 Gate Clerk.	1 Chaprasi.
1 Head Keeper.	2 Cartmen.
20 Keepers.	1 Syce.
10 Darwans.	1 Scytheman.

Besides these, there were a number of labourers engaged temporarily by the Garden.

3. BUILDINGS.

The following improvements were undertaken during the year:—

- (a) *Construction of the Tapir Enclosure.*—Before the acquisition of the Hippopotamus, the Malayan Tapirs were accommodated in the Buckland Enclosure. The Enclosure, however, containing as it does a paved pool was considered to be more suitable for the newcomer, and the Tapirs were removed into a temporary enclosure contiguous to it. The present enclosure occupied by the Tapirs, with two large retiring rooms, was built at a cost of Rs. 1,398-7-9, advantage having been taken of the crocodile pool which was converted into a convenient watering place for them.

- (b) *Reconstruction of the Peafowl Pavilion.*—Greater facilities of movement and exit for the gradually increasing number of Peafowls in the Pavilion containing them was enlarged and completely overhauled at a cost of Rs. 1,000. The present aviary, measuring 95 feet \times 11 feet and divided into four compartments with an ornamental lofty kiosk in the center is a great improvement on the old one and the birds are quite at home in their quarters.
- (c) *Improvement in the paddocks.*—Extensive improvements were done to the paddocks during the year under review. The low lands were raised and the grounds properly levelled and the drainage improved. The kiosks and sheds, which were liable to be submerged in the rains, were raised and fitted with strong iron doors and the openings were walled up to a certain height. This arrangement has proved very beneficial to the Peafowls generally, and to the sick and the young in particular, inasmuch as they can now be kept indoors protected from the cold and rain.
- (d) A large number of $\frac{1}{2}$ inch plate glasses of the Peafowl House, which had been cracked for a long time past, were replaced during the year.
- (e) *Iron fencing in the Rhino Enclosure.*—This was done in order to provide separate accommodation for the two male one-horned Rhinoceroses chased during the year. A small retiring place was also erected by the side of the old house.
- (f) *Iron fencing in the Gajul Enclosure.*—As it was found that the present fencing was not strong enough to hold such a powerful animal, it was decided to strengthen it. A new fencing with iron posts and strong T-iron bars was erected during the year and the enclosure.

Greater attention was paid to the annual repairs of the Garden. Before this the repairs were entrusted to contractors, but in the year under review the Committee of management sanctioned the carrying out of extensive repairs and thought it advisable to have them done departmentally. Every house and enclosure was included, and though it was not an easy task to supervise the labour, &c., it was found on completion that the work was excellently done, and considerable savings were thus effected which were devoted to other important improvements.

In this connection the Committee's thanks are due to the Superintendent and the Assistant Superintendent for the careful supervision exercised by them over this work, and to the Public Works Department Officers who willingly helped the Garden authorities whenever their services were required. The following is a list of some of the more important repairs executed during the year:—

- (1) *Burdwan House*—Repaired and repainted; the recreation enclosure thoroughly repainted.
- (2) *Smaller Carnivora House*—Repaired, colour-washed.
- (3) *Murshidabad House*—Repaired and repainted.
- (4) *Reptile House and its cages*—Whitewashed and repainted.
- (5) *Rodent House*—Repaired, colour washed and repainted.
- (6) *Huckland Enclosure*—Repaired and repainted.
- (7) *Sarnomoyi House*—Repaired and colour-washed.
- (8) *Gubbay House*—Painted inside and outside and many repairs done to the cages.
- (9) *Entrance Lodge and the Office*—Thoroughly repaired and repainted.
- (10) *Hermitage*—Repaired and repainted.
- (11) *Darbhanga House*—Repaired and repainted.
- (12) *Refreshment Pavilions*—Repaired and repainted.
- (13) *Library*—Whitewashed and painted.
- (14) *Dumraon House*—Colour-washed, cages painted.

- (15) *Sonebursa House*—Repaired and repainted.
- (16) *Lalgala House*—Whitewashed and repainted.
- (17) *New Antelope House*—Repaired and repainted.
- (18) *Bear House*—Repaired and whitewashed.
- (19) *Abdul Gani House*—Repaired and repainted.
- (20) *Schwendler House*—Repaired, colour-washed and repainted.
- (21) *Jhind House*—Repaired and repainted.
- (22) *Old Hospital*—Repaired, colour-washed and repainted.
- (23) *Cooch Behar House*—Repaired, colour-washed and repainted.
- (24) *Multick House*—Repaired, colour-washed and repainted.
- (25) *Rhino Enclosure*—Repaired, colour-washed and repainted.
- (26) *Mandrill House*—Repaired, colour-washed and repainted.

Petty repairs of smaller houses, sheds and enclosures were attended to, the iron fencing of the paddocks was coal-tarred, and roads and paths were thoroughly repaired and the drainage put in order.

4. FINANCE.

It will appear from the following comparative statement that the financial condition of the Garden was exceptionally good. The receipts from visitors amounted to Rs. 36,088-4, in spite of the free days and the rearrangement of Sunday fees. The authorities of the Garden, at the instance of the Corporation of Calcutta, granted a free day once a month to enable the poorer people to visit the Garden. The admission fee on Sundays was also reduced from four annas to one anna from 10 A.M. to 2 P.M. to enable the labourers and pilgrims from Kalighat to visit the Garden.

The following is a comparative statement of receipts from visitors :—

Year.	Receipts.	
	Rs.	A.
1907-08	37,731	15
1908-09	35,929	12
1909-10	36,088	4

The accounts of income and expenditure are summarised in Appendix A.

5. THE PUBLIC.

The increasing popularity of the Garden appears from the numbers indicated by the turnstile, which show that 534,635 persons, including free day visitors, visited the Garden during the year. The greatest number of visitors on a single day was 13,336 against 8,834, the greatest number recorded on any single day last year.

Comparative table of visitors during the last three years.

Year.	Visitors.	
1907-08	504,397	
1908-09	471,305	
1909-10	499,628	

In addition, a large number of children under four years of age and school children, attended by their teachers, were admitted free. On the day of the Fancy Fair about 12,000 people entered the Garden. Besides these, 25,167 persons visited the Garden on the free days. A list of free days showing the number of visitors is shown in Appendix C.

6. GARDEN.

The Gardens, from a horticultural and floricultural point of view, have been a great success. The show of annuals throughout the cold weather, and well into April, has

been particularly good, the artistic arrangement of the massed flowers near the entrance being specially appreciated by the public.

The show of Dahlias and Chrysanthemums has improved very much, and a still further improvement is expected during the current year.

Great credit is due to the Superintendent for the trouble that he has taken in raising a succession of flowers, so that there has been a continuous show at times when such flowers were rarely to be seen elsewhere.

CONCLUSION.

The thanks of the Committee are due to the ladies and gentlemen who have added to the collection of the Garden by their donations, a list of which is given in Appendix D. Thanks are also due to those who kindly offered to present animals to the Garden, but whose offers could not be accepted, either because the particular species of animal was already sufficiently well represented, or owing to the want of accommodation.

The Committee also desires to express its sincere thanks to the Officers Commanding the 10th Jats and the 27th Punjabis for allowing their band to play free on Sunday evenings.

Mr. B. Basu, the capable Superintendent of the Garden, has continued to perform his duties to the complete satisfaction of the Committee.

The success in breeding animals, commented on in the previous year, has been a marked feature of last year's work; the collection of animals has been kept up to the usual standard; the show of flowering annuals has improved, and the Gardens generally have been maintained in a satisfactory condition. Added to this the Superintendent has succeeded in considerably curtailing expenditure without any loss of efficiency, and large savings have been effected

carrying out repair and construction works departmentally.

Mr. S. Ganguli, the Assistant Superintendent, has worked throughout the year. He is an energetic and painstaking officer, and takes an intelligent interest in his work.

E. HAROLD BROWN,
Honorary Secretary.

E. V. LEVINGE,
President.

SUPERINTENDENT'S REPORT.

I HAVE the honour to submit the following report on the existing condition and the progress of the menagerie of the Garden.

The following comparative table shows how the various sections of animals in the Garden stood during the last three years:—

Year.	Mammals.	Birds.	Reptiles.
1906-07	... 413	741	307
1907-08	... 401	795	310
1908-09	... 417	803	312
1909-10	... 589	1,137	247

The most important addition to the collection during the year was a couple of male one-horned Indian Rhinoceroses. They were purchased at Rs. 15,000 from Nepal and brought down to the Garden in December, 1910. The larger of the two was mated with the female we had in our collection, and it is hoped that before long we shall have a good number of representatives of this important species, specimens of which are very rarely seen in captivity.

The following additions of species new to the collection deserve special notice:—

1 Pair White Llamas	(purchased).
1 Pair White Wallabies	(ditto).
1 Great Black Cockatoo	(ditto).
1 Wallaroo	(ditto).
1 Glaucose Macaw	(ditto).
1 Blessbock	(ditto).

The following is a list of the more noticeable additions made to the menagerie during the year:—

- 4 Pairs Clacking Teals.
- 2 Pairs Australian Mountain Ducks.
- 2 Pairs African Nun-Geese.
- 1 Ant-eater.
- 2 Slender Lorises.
- 1 Pink-headed Duck.
- 1 Red and Yellow Macaw.
- 2 Clouded Leopards.
- 10 Wolf Cubs.
- 1 Great Kangaroo.
- 1 White-coloured Mangabey.
- 2 Mandrills.
- 2 Lesser White-nosed Monkeys.
- 1 Pair Flamingoes.
- 3 Mona Monkeys.
- 1 Pair Sooty Mangabeys.
- 1 Orang-utan.
- 14 Tragopan Pheasants.
- 1 Tibetan Lynx.
- 1 Black Leopard.

A list of donors and their donations during the year is given in Appendix C.

BIRTHS.

The following is a list of the most important instances of birth in captivity during the year 1909-10:—

- Mammals*:—8 Lions, 1 Burmese Pig-tailed Monkey, 3 Bantings, 2 Formosan Deer, 2 Hanumans, 2 Great Kangaroos, 1 Wallaby, 2 Nilgais, 2 Swamp Deer, 4 Spotted Deer, 1 Barking Deer, 6 Sambur Deer, 4 Rhesus Monkeys, 2 Indian Antelopes, 3 Leopards, 2 Macaque Monkeys, 2 Grivet Monkeys, 4 Hog Deer, 1 Cashmere Goat, 3 English Hares, many White Rats, many Guinea Pigs, many Rabbits.
- Birds*.—1 Victorian Crowned Pigeon, 1 Red-breasted Parakeet, 1 Scarlet Ibis, 3 Black-headed Ibises, 2 Sonnerat's Jungle Fowl, 2 Muscovy Ducks, 9 Spotted-billed Ducks, 5 Grass Parrakeets, 5 Zebra Finches.

Reptiles.—10 Horsfield's Tortoises, 27 Cobras, 33 Russell's
Vipers.

The Garden has been a favourite breeding ground for a large number of birds of different species in a wild state. The following is a list of those birds that bred during the year in their wild state:—

- (1) Indian House Crow—*Corvus splendens* (Vieill).
- (2) Indian Tree-pie—*Dendrocitta rufa* (Scop).
- (3) Golden-backed Woodpecker—*Brachypternus aurantius* (Linn).
- (4) Bengal Red-whiskered Bulbul—*Otocompsa emeria* (Linn).
- (5) Common Kingfisher—*Alcedo bengalensis* (Gmel).
- (6) White-breasted Kingfisher—*Halcyon smyrnensis* (Linn).
- (7) Common Pariah Kite—*Milvus gobinda* (Sykes).
- (8) Pied Myna—*Sturnopastor contra* (Linn).
- (9) Common Myna—*Acridotheres tristis* (Linn).
- (10) Black Drongo—*Dicrurus ater* (Hermann).

The following birds bred freely in a wild state in the *Bird Chummary* on the island of the big lake:—

- (1) Little Cormorant—*Phalacrocorax javanicus* (Horsf).
- (2) Indian Snake-bird—*Plotus melanogaster* (Gm).
- (3) Night Heron—*Nycticorax griseus* (Blyth).
- (4) White Egret—*Herodias alba* (Linn).

DEATHS.

The total number of deaths during the year was 112—one less than the preceding year.

The following is a list of more important deaths during the year:—

One Bewick's Swan, 1 Black Leopard, 1 Orang-utan, 1 Greater Vasa Parrot, 1 Brown Bear, 4 Anoa's, 1 Llama, 2 Australian Cassowaries, 3 Lion Cubs, 1 Dusky-leaf Monkey, 1 Mandrill, 1 Great Kangaroo, 1 Black Cockatoo.

There were other losses by death of smaller animals, birds and reptiles, but most of them were due to causes for which the management of the Garden could not be responsible.

PATHOLOGICAL DEPARTMENT.

The work in this department was carried on with the help of Mr. S. Ganguli, the Assistant Superintendent. Colonel F. Raymond, F.R.C.V.S., Principal, Veterinary College, Belgachia, rendered invaluable assistance to the staff of the Garden in every important case. The results of the *post-mortem* examination during the year have been entered in the *post-mortem* book of the Garden, which shows the diversity of ailments from which the animals in captivity suffer.

The following list includes the cases which presented the principal subjects for pathological diagnosis:—

Number of cases.	Subjects.
Abscess of liver ...	... 1 White-throated Babbler.
Abscess of throat ...	... 1 Hornbill.
Accident ...	... 3 Brahminy Ducks, 1 Chaffinch, 1 Bullfinch, 1 Indian Antelope, 1 Chakar Partridge, 1 Leopard Cub, 1 Comb Duck, 1 Great Vasa Parrot, 1 Purple Coot, 2 Pelicans, 1 Red Cardinal, 1 Great Kangaroo.
Apoplexy ...	... 1 Tibetan Goat.
Bronchitis (acute) ...	... 1 Rosella.
Catarrh (intestinal) ...	... 1 Black Cockatoo, 2 Tragopan Pheasants.
Congestion of the liver ...	... 1 Mona Monkey, 1 Tragopan Pheasant, 1 Cheer Pheasant.
Congestion, pulmonary ...	... 1 Malayan Squirrel.
Debility ...	... 1 Marmoset, 1 Sheldrake, 1 Brahminy Duck, 1 Bar-headed Goose, 1 Flamingo.
Dilatation of the heart (acute)...	1 Red and Blue Lorikeet.
Diarrhœa ...	... 1 Burrhol Sheep, 1 Sloth Bear.

Number of cases.		Subjects.
Dysentery (acute)	...	1 Sloth Bear, 1 Himalayan Bear.
Dropsy	...	1 English Rabbit.
Enteritis	...	1 Brown Bear, 1 Himalayan Bear.
Fatty degeneration of the liver	1	Coypu Rat, 1 Chakar Partridge, 1 Paradise Whydah, 1 Dusky-leaf Monkey, 2 Tragopan Pheasants, 1 Grass Parrakeet.
Gastritis	...	1 Malayan Squirrel.
Hepatitis (chronic)	...	1 Persian Gazelle, 1 Slow Loris.
Hepatitis (acute)	...	1 Marmoset.
Hæmorrhagic septicæmia	...	1 Japanese Deer, 1 Spotted Deer.
Injury	...	2 black Vultures, 1 Indian Antelope, 1 Hornbill.
Metritis	...	1 Nilgai.
Nephritis (acute)	...	1 Coypu Rat.
Peritonitis	...	1 Rhesus Monkey.
Pericarditis	...	1 Australian Cassowary.
Phthisis	...	1 Orang-utan, 1 Brown stump-tailed Monkey, 1 Mandrill.
Pneumonia	...	1 Mandarin Duck, 1 Burmese Peahen, 1 Sloth Bear, 1 Himalayan Bear.
Pleuro-pneumonia (trömatic)	...	1 Bewick's Swan, 1 Hoolock Gibbon, 2 Anoa Cows.
Pleuro-pneumonia (tubercular)	1	Spider Monkey.
Paralysis (cage)	...	1 Black Leopard.
Pyæmia	...	1 Andaman Pig.
Rupture of spleen...	...	1 Anoa Bull.
Snakebite	...	1 Greater Bird of Paradise.
Tuberculosis	...	1 Spider Monkey.

PROVISIONS.

The following table shows the quantity of provisions consumed during the year:—

			Mds.	srs.	ch.	
Gram	...	...	883	27	8
Bran	...	...	401	0	0
Paddy	...	...	295	23	0
Rice	...	...	142	30	0
Wheat	...	...	76	35	0
				lbs.		
Canary seed	...	...	1,553		
				Mds.	srs.	ch.
Peas	...	...	9	11	0
Kangney	...	...	1	8	0
Hempseed	...	...	1	7	8
Vegetables	...	...	77	20	8
Indian-corn	...	...	33	0	0
Flour	...	...	48	0	0
Mashkelai	...	...	24	0	0
Linseed	...	...	13	5	0
Gúr (coarse sugar)	...	...	12	38	0
Shattoo	...	...	87	19	4
Mutton	...	...	11	2	12
Beef	...	...	958	33	0
Oilcake	...	...	304	27	0
Milk	...	...	74	6	4
Bisouits	...	...	2	19	8
Sugar	...	...	0	36	0
Fish	...	...	24	5	8
Worms	...	...	13	20	0
Paddy straw	...	...	1,398	27	0
Oats	...	...	121	20	0
Black salt	...	...	0	5	0
Common salt	...	...	18	26	0
Onions	...	...	4	35	0
Ghee	...	...	0	25	12
Potatoes	...	...	139	7	0
Bajra	...	...	48	37	0
				No.		
Ducks	...	...	215		
Bread	...	...	6,277		

	No.
Plantains	48 kabans 9 pauns 12 gds.
Eggs	4,082
Fruits (papaya)	1,825
Fowls	521
Hay	23,000 bundles.
Grasshoppers	197,500
Leaves (jack fruit)	185 cart-loads.
Goats	97

The vegetable supply of the Garden was maintained throughout the year from the vegetable garden started last year, and the milk was also supplied from the dairy farm.

Though the number of animals showed a marked increase over that of the last year, the expenditure under the head "Provisions" instead of increasing proportionately was less than that of the last year by Rs. 1,268-11-7, and great credit is due to the Storekeeper Babu J. K. Roy for his keen supervision.

The following table gives the chief items of expenditure:—

	Rs.	A.	P.
Beef	4,647	2	3
Mutton	217	13	0
Fowls	162	13	0
Goats	218	4	0
Ducks	107	8	0
Worms	165	3	0
Live fish	174	6	9
Grasshoppers	33	0	0
Plantain	231	10	9
Gram, wheat, rice, &c.	9,274	5	11
Bread	429	1	6
Biscuits	134	14	0
Oats	526	14	0
Shattoo	102	4	0
Leaves	185	0	0
Miscellaneous food, such as smaller fish, eggs, fruits, &c., &c.	1,778	14	9
Total	18,389	1	11

GENERAL CONDITION OF THE ANIMALS.

Throughout the year the general health of the animals as a whole has been very good. The death-rate remained at the low mark of the past few years, and no animal of great value was lost during the year. The health of the larger carnivorous animals was excellent, and the increased number of births amongst them during the year is a fair indication that a healthy environment has been established. The hooped animals maintained perfect health, and nearly all of them are breeding, thus showing that they are at least living under natural conditions. The only exception took the form of a malady which started from the New Antelope House and caused the loss of the whole herd of anoas. This house is situated in an exposed portion of the Garden about which mention was made in the last Annual Report* (*vide* page 18).

The death-rate amongst the birds has been considerably reduced; and the majority of birds are perfectly happy in their improved surroundings.

As usual, treatment and housing of sick animals have been diligently and carefully attended to. Subjoined is a list of some of the cases that have been successfully treated.

Name of animal.	Disease.	Result.
Lion ...	Constipation ...	Cure.
Leopard ...	Diarrhœa ...	Do.
Spotted Deer ...	Ditto ...	Do.
Barking Deer ...	Ditto ..	Do.
Leopard ...	Gastritis ...	Do.
Monkey, etc. ...	Abscess ^p ...	Do.
Spotted Deer ...	Ditto ...	Do.
Hyæna ...	Hepatitis ...	Do.
Weeper Capuchin ...	Bronchitis ...	Do.
Hoolock ...	Ditto ...	Do.
Wild Ass ...	Enteritis ...	Do.
Spotted Deer ...	Peritonitis ...	Do.
Sambur ...	Fracture of the meta-tarsal bone off fore.	Do.

* Since then the Committee perceived the gravity of the situation, and have sanctioned the construction of a wall

Name of animal.	Disease.	Result.
Hyæna ...	Sloughing ulcer in the leg.	Leg amputated.
Leopard ...	Nephritis ...	Cure.
4 Sloth Bears ... } 3 Himalayan Bears ... }	Dysentery ...	All cured.
Spider Monkey ... } Formosan Deer ... }	Diarrhœa ...	Cure.
Nilgai ... }		
Gayal ... }		
Orang utan ... }		
Gayal ...	Dysentery ...	Do.
Orang, Bear, Hornbill, } Cockatoo, Imperial } Pigeon, Barking } Deer, Brahminy } Duck, Comb Duck. }	Pneumonia ...	Do.
Crown Pigeon, Peacock Pheasant and Cheer Pheasant. }	Bronchitis ...	Do.
Sarabur Deer, Mandrill, } Crown Pigeon, Tragopan Pheasant. }	Rheumatism ...	Do.
Lion cubs ...	Rickets ...	Do.
Kiang ...	Colic ...	Do.

COLLECTION OF ANIMALS.

The collection of animals showed for the year a marked increase over the number on hand at the end of 1908-09. Attempts were made to increase the important species of the Indian Fauna, and we have been successful in acquiring a couple of male Indian Rhinoceroses (*Rhinoceros unicornis*) which are becoming rare, their range being reduced to a very small area. The authorities of the Garden had the good fortune to obtain several important specimens of Pheasants from different parts of the Himalayan range. The collection of Ducks and Geese was also very satisfactory, and two rare species of them, viz., the Pink-headed Duck (*Rhodonessa caryophyllacea*) and the Baikal Teal (*Nettion formosum*) were acquired during the year.

B. BASU,

Offg. Supdt., Zoological Garden, Calcutta.

APPENDIX A.

I.—Comparative Statement of Receipts for 1908-09 and 1909-10.

	RECEIPTS FOR—					
	1908-09.			1909-10.		
	Rs.	A.	P.	Rs.	A.	P.
Opening balance	21,888	14	7	7,019	6	6
Interest	163	3	4	163	3	4
Donation and subscription	388	0	0	309	0	0
Entrance receipts	35,929	12	0	36,088	4	0
Rent	1,890	0	0	1,895	0	0
Carriage, palkie, jhinrickshaw	675	8	0	770	8	0
Fishing	233	0	0	236	0	0
Picnic	133	0	0	154	0	0
Rhino urine	1,277	0	0	1,767	0	0
Miscellaneous	2,369	12	5	18,543	0	4*
Government contributions	20,000	0	0	20,000	0	0
Total	84,948	2	4	86,945	6	2
<i>Add</i> —Receipts of 31st March 1908 which were included in 1908-09.	80	12	0			
	85,028	14	4			
<i>Add</i> —Receipts of 31st March 1909 which were included in 1909-10.	.....			49	0	0
				86,994	6	2
<i>Deduct</i> —Receipts of 31st March 1909 which were included in 1909-10.	49	0	0			
	84,979	14	4			
<i>Deduct</i> —Receipts of 31st March 1910 which will be included in 1910-11.	.....			69	9	0
				86,924	13	2

* This includes the sum of Rs. 16,262-4 realised from the sale of duplicate animals and of animals born in the Garden.

I.—Comparative Statement of Expenditure for 1908-09
and 1909-10.

	EXPENDITURE FOR—	
	1908-09.	1909-10.
	Rs. A. P.	Rs. A. P.
Establishment	8,817 14 2	8,243 8 7
Food of animals	19,658 7 6	18,389 1 11
Purchase of animals	29,968 0 3	7,261 9 3
Transport of animals	421 12 9	1,453 7 3
Miscellaneous contingencies	5,015 8 2	4,681 10 7
Repairs of roads	1,027 3 6	529 11 0
Do. of buildings	6,054 12 0	6,742 0 6
Original construction	6,344 13 9	9,911 4 9
Garden ditto	3,642 13 9	3,060 13 9
Tools and plant	9 0 0	.....
	<hr/>	<hr/>
	77,960 7 10	60,273 3 7
Closing balance	7,019 6 6	28,651 9 7
	<hr/>	<hr/>
	84,979 14 4	88,924 13 2

APPENDIX B.

*A Summary of Visitors and Gate Receipts during the year
1909-10.*

Month and year.				Number of visitors.	Receipts.
					Rs. A.
April	1909	...	...	28,376	2,036 2
May	"	...	...	34,633	2,517 14
June	"	...	...	37,139	2,539 14
July	"	...	...	31,862	2,245 9
August	"	...	...	34,926	2,387 1
September	"	...	...	42,608	2,731 15
October	"	...	...	70,625	5,029 9
November	"	...	...	44,347	3,039 6
December	"	...	...	49,287	3,441 9
January	1910	...	...	53,198	3,910 12
February	"	...	...	46,830	3,316 8
March	"	...	...	41,964	2,993 1
Daily average of visitors				524,795*	36,088 4
				1,438	

* This includes 25,167 freeday visitors.

APPENDIX C.

List showing the Free Days and the number of visitors.

Days.			Number of visitors.
9th August	1909	...	2,335
13th September	"	...	1,920
11th October	"	...	2,695
8th November	"	...	4,110
13th December	"	...	2,960
10th January	1910	...	4,051
7th February	"	...	3,429
14th March	"	...	3,667
		Total	25,167

APPENDIX D.

A List of Donors and their Donations during the year
1909-10.

A

Ambler, Mr. H. G.	...	1 Hog Deer, 2 Pythons.
Addy, Babu Matilal	...	1 Cobra.
Allen, Mr. C. T.	...	1 Otter.
Ainslie, Mr. E. F.	...	1 Otter.

B

Bartlett, Mr. J.	...	1 Egret.
Beattie, Mr. M. H.	...	1 Indian Koel.
Bannerji, Babu Nalini Kanto	...	1 Crocodile.
Belletti, Mr. G. E.	...	2 Macaque Monkeys.
Broucke, Mr. P.	...	2 Pythons.

C

Cleghorn, Mr. C.	...	1 Cobra (young).
Cantopher, Miss	...	1 Rhesus Monkey.
Clarke, Mrs.	...	1 Clouded Leopard.
Cotton, Mr. W. B.	...	4 Wolf Cubs.
Collin, the Hon'ble Mr. E. W.	...	1 Java Sparrow, 3 Muniahs

D

Deb Roy, Raja Promotha	1 Eagle and 7 Cobra
Bhusan, of Naldanga.	(young).
Dubern, Mrs. Lottie	... 1 Macaque Monkey.
Dunne, Mr. J.	... 1 Russel's Viper.
Digby, Mr. E.	... 1 Leopard.

E

Ezra, Mr. David	... 1 Cashmere Sheep, 1 Goat.
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F

Friel, Mr. R.	... 1 Himalayan Bear.
---------------	-----------------------

G

Ganguli, Babu Ganadev	... 1 Fishing Cat.
Gibbs, Mr. R. P.	... 1 Red and yellow Macaw.

H

Hutchinson, Mr. R. Sneyd	... 1 Ant Eater.
Henid, Mr. J. T.	... 1 Rhesus Monkey.
Heysham, Mr. R. K.	... 1 Macaque Monkey.
Harley, Mrs. Fred.	... 2 Macaque Monkeys.
Harrop, Mr. W.	... 54 Muniahs of sorts.
Hazaribagh, Deputy Com- missioner of.	4 Wolf Cubs.
Hignell, Mr. S. R.	... 2 Leopard Cubs.

I

Inspector of Garden Reach Police outpost.	1 Crocodile.
--	--------------

K

Kallikote and Atagoda Estates, Rani of.	2 Leopards.
Kerfoot, Mr. E.	... 1 Leopard.
Kerr, Mr. P. C.	... 1 Great Kangaroo.

M

Mulvany, Major J.	... 2 Guinea Pigs.
Milligan, Mr. J. A.	... 1 Leopard.
Murray, Miss	... 2 Bengal Porcupines, 2 Ho Deer.
Morrow, Mr. W.	... 1 Fishing Cat.
Manger, Mr. C.	... 6 Canaries.

McDonell, Mr. L.	...	1	Four-horned Antelope.
Maharani of Nator	...	1	Hanuman.
Manners-Smith, Lt.-Col. J.		1	Python.
V.C., C.I.E.			
Mahammad, Prince Golam		6	Hanumans.
Minto, H. E. Lord	...	1	Hog Deer.
Mahtab, the Hon'ble Sir		2	Crocodiles.
Bijay Chand, K.C.I.E.			
Moitry, Mr. M. N.	...	1	Indian Antelope.
N			
Nowagarh, Raja of	...	1	Python.
Norman, Mr. C. A.	...	1	Red Eclectus.
R			
Rushton, Mr. D.	...	1	Pink-headed Duck and 2 Red-headed Pochards.
Reid, Mr. David	...	1	Clouded Leopard.
Roy, Kumar Sarat Kumar	...	2	Leopard Cubs.
Roy Chowdbury, Kumar		2	Indian Antelopes.
Manmatha Nath			
S			
Solomon, Miss H. N.	...	1	Sheep.
Singh, Kumar G. P. of		1	Leopard.
Khaira.			
Smyth, Mr. C. P.	...	1	Rat Snake.
Stevens, Mr. H. H.	...	4	Sloth Bears.
Shakespeare, Lt.-Col. J.	...	2	Bears.
Singh Deb, Thakur, U. N.	...	3	Wild Dogs (young).
Scroggie, Capt. W. R. J.	...	1	Sloth Bear.
T			
Tagore, The Hon'ble Maha- raja Sir Prodyot Kumar.		2	Leopard Cubs.
Titmon, Mrs. D	...	1	Bonnet Monkey.
V			
Vandyke, Mrs. C.	...	1	Laughing Jackass.
W			
Walsh, Mr. J.	...	1	Rhesus Monkey.
Weinmann, Capt. C.	...	2	Bear Cubs.
Watson, Mr. L.	...	2	Slender Loris, 1 Shama.

REPORT
OF THE
HONORARY COMMITTEE
FOR THE
MANAGEMENT OF THE ZOOLOGICAL GARDEN,
CALCUTTA,
1910-11.



CALCUTTA :
BENGAL SECRETARIAT PRESS.

1911.

1910 - 1911

R E P O R T
OF THE
HONORARY COMMITTEE
FOR THE
MANAGEMENT OF THE ZOOLOGICAL
GARDEN, CALCUTTA,
1910-11.

THE Honorary Committee have the honour to submit their report for the year ending 31st March 1911, the contents of which, as usual, include, among other items:—

- (1) The Superintendent's report upon the menagerie.
- (2) Monthly returns of visitors and a list of donors.
- (3) Abstract of accounts of ordinary and extraordinary receipts and expenditure.

1. THE COMMITTEE.

The Committee consists of—

President :

The Hon'ble Sir Charles Allen, Kt, I.C.S. (from 5th April 1910).

The Hon'ble Mr. E. V. Levinge, I.C.S. (from 26th November 1910).

The Hon'ble Mr. F. W. Duke, C.S.I., I.C.S. (from 30th November 1910).

Vice-President :

W. K. Dods, Esq. (from 1st April 1910).
P. L. Buckland, Esq. (from 4th July 1910).

Honorary Secretary and Treasurer :

Lieutenant-Colonel E. H. Brown, M.D., I.M.S.
(RTD.), D.P.H., F.Z.S., F.R.C.S.E.

Superintendent :

Mr. Bijay Krishna Basu, G.B.V.C., C.M.Z.S.

Assistant Superintendent :

Babu Somadev Ganguli.

Members of the Committee :

His Highness the Maharaja Sir Nripendra Narayan
Bhup Bahadur, G.C.I.E., C.B., of Cooch
Behar.

Sir Herbert Hope Risley, K.C.I.E., C.S.I., I.C.S.

Roostumjee Dhunjeebhoy Mehta, Esq., C.I.E.

The Hon'ble Maharaja Sir Prodyot Kumar
Tagore, Kt.

Major R. Bird, M.D., C.I.E., M.S., F.R.C.S., I.M.S.

Dr. Nelson Annandale, B.A., D.Sc., C.M.Z.S.

The Hon'ble Mr. W. R. Gourlay, I.C.S.

Colonel G. M. Porter, R.E.

Ralph Percy Ashton, Esq.

H. J. McIntosh, Esq., I.C.S.

Ihtisham-ul-Mulk, Rais-ud-Daula, Amir-ul-Umara,
Nawab Sir Asif Kadr Saiyid Wasif Ali
Mirza, Khan Bahadur, Mahabat Jang, Nawab
Bahadur of Murshidabad.

John George Dean, Esq.

Lieutenant-Colonel Charles Robert Mortimer Green,
M.D., F.R.C.S., I.M.S.

David Ezra, Esq.

- Ambica Charan Law, Esq.
G. Girard, Esq., F.R.H.S.
The Hon'ble Sir Bijay Chand Mahtab, K.C.I.E.,
I.O.M., Maharajadhiraj Bahadur of Burdwan.
Shirley Tremearne, Esq.
W. K. Dods, Esq.
Nawab A. F. M. Abdur Rahaman, Khan Bahadur.
J. C. R. Johnston, Esq.
W. A. Dring, Esq., C.I.E.

Ex-officio members :

- The Commissioners of Divisions in Bengal.
The Executive Engineer of the Public Works
Department of the Division in which the
Garden is placed.
The Sanitary Commissioner with the Government of
Bengal.
The President of the Asiatic Society of Bengal.
The Director of Public Instruction, Bengal.
The Natural History Secretary of the Asiatic
Society of Bengal.
The Director of Land Records.
The Superintendent, Civil Veterinary Department,
Bengal.
The Professor of Comparative Anatomy and Zoology,
Medical College, Bengal.
The Superintendent of the Royal Botanic Garden,
Sibpur.
The Chairman of the Calcutta Corporation.
The Principal of the Bengal Veterinary College,
Calcutta.

The following new members were appointed during
the year :—

- J. C. R. Johnston, Esq.
W. A. Dring, Esq., C.I.E.
J. G. Dean, Esq.
Nawab A. F. M. Abdur Rahaman, Khan Bahadur.

The following members resigned during the year :—

Major L. Rogers, M.D., I.M.S.

The Hon'ble Mr. H. Wheeler, C.I.E., I.C.S.

The following member resigned his membership prior to his departure from India, but was reappointed on his return :—

R. P. Ashton, Esq.

Obituary :

The Hon'ble Sir Charles Allen, Kt., I.C.S.

At a meeting of the Committee of Management held on 16th April 1910, the following resolution was passed.

“The Committee records with deepest regret the news of the untimely death of its President, Sir Charles Allen, Kt., who, notwithstanding his manifold duties in other branches of the public service, nevertheless as a member of the Committee was able to comprise within his sphere of interest the welfare of this Garden, and desires the Honorary Secretary to convey its sincere condolence to Lady Allen.”

2. STAFF AND ESTABLISHMENT.

Mr. Bijay Krishna Basu continued in charge of the Garden as Superintendent throughout the year, and Babu Somadev Ganguli as Assistant Superintendent.

Babu Haridas Chatterjee, the Overseer of the Garden, was dismissed from the service for misconduct, and Babu Niranjan Mukherjee was appointed in his place.

The following is a list of the^o superior staff of the Garden at the end of 1910-11:—

Superintendent :

Mr. Bijay Krishna Basu, G.B.V.C., C.M.Z.S.

Assistant Superintendent :

Babu Somadev Ganguli.

Store-keeper and Typist :

Babu Jugal Kishore Roy.

Overseer :

Babu Niranjan Mukherjee.

Gate Clerk :

Babu Doyal Chandra Dass.

The following is a list of the menial staff of the Garden at the end of 1910-1911:—

1 Head keeper.	1 Cook.
20 Keepers.	3 Sweepers.
10 Darwans.	1 Chaprasi.
3 Bhistis.	2 Cartmen.
1 Carpenter.	1 Syce.
1 Scytheman.	

Besides these, there were a number of labourers engaged temporarily by the Garden.

3. BUILDINGS.

The following new works were undertaken during the year:—

- (a) Completion of the boundary wall on the West side.—This much-needed work has been completed during the year under review. The whole Garden is now surrounded by a brick wall 7 feet high and protected from outside interference.
- (b) The new Monkey House.—The collection of monkeys having gradually increased, a circular brick-built house for delicate monkeys with a

spacious wire and iron enclosure was constructed. It is divided into 12 compartments, each with an earthen floor, so as to allow the animals to live in what are as nearly as possible natural surroundings. The outer enclosure allows the inmates plenty of open air and space for exercise. The inner enclosure is protected with a tiled verandah, and is provided with snug dormitories which afford good shelter from sun and rain. The whole house is admirably planned, and the animals enjoy the place very much and are in splendid health.

- (c) The recreation enclosure to the Small Carnivora House.—With a view to giving the smaller carnivora an opportunity of taking open air exercise by turns, an open air recreation enclosure was built behind the existing building. The enclosure is divided into 6 compartments. The floor is covered with sand, and each cage is provided with a bath. Opportunity has been taken in this connexion to improve the ventilation of the house, and large ventilation holes with iron gratings have been added to the dens.

Judging from its appearance, the enclosure is not only one of the best and most attractive places in the Garden, but is also a source of very great relief to its inhabitants where disease and death ruled very high.

- (d) The dwarf wall round the Big Lake.—To afford protection to the aquatic birds from the raids of jackals, civets, and other vermin, the whole lake, which was formerly surrounded by wire-netting, is now enclosed with a dwarf wall having a wire-netting fence over it.

- (e) The Barasingha Enclosure.—A new commodious shelter-shed for the Barasingha deer has been erected. The old wooden one, which was unsightly, was removed, and the space in front was raised and the drainage improved.
- (f) Drainage.—An underground drain has been laid in the grounds near the Smaller Carnivora House. The paths and the grounds in this vicinity, which were formerly flooded after an ordinary heavy shower by water from the Kidderpore lands, are now well drained, raised and dressed.
- (g) The remodelling of the unfiltered water service pipes.—Another great improvement, which was effected during the year, was the remodelling of the unfiltered water-service. Formerly the unfiltered water-supply was very unsatisfactory, and the lawns and roads could not be kept in a proper condition for want of a sufficient supply of water. The Corporation sanctioned a 4-inch connexion and 2-inch pipes inside the Garden, and the whole service has been remodelled. In acknowledgment of the privilege thus granted by the Corporation, the Committee of Management made a free gift of 3 cottahs 1 chittak and 36 square feet of land, which the Corporation required for enlarging the road along the boundary line of the Hermitage.
- (h) The renewing of the wire-netting of the Sarnomoyi House Aviary.—The wire-netting of the western aviary of the Sarnomoyi House having become rotten, it was decided to replace it with strong wire-netting of

$\frac{1}{2}$ -inch mesh. The work has been done very satisfactorily. Advantage was also taken of this opportunity to improve the site by constructing an ornamental rivulet, which has a spickery on either side, and which is fed by clean pipe-water from a fountain placed on an artificial rock.

- (i) The Wild Buffalo enclosure.—As the old fencing was found not strong enough to hold such a powerful animal, it was decided to strengthen it by additional iron posts and crossings which was accordingly done during the year.
- (j) The Store Godown.—Extensive improvements have been made to the Store Godown. The floors of the two corrugated sheds have been brick-on-edged and the sheds secured by iron railings.

The annual repairs of the Garden, as reported in the previous year, were carried on departmentally and large savings have thereby been effected.

The following is a list of some of the more important repairs executed during the year:—

- (1) The Entrance Lodge and the Office—Rooms limewashed and woodwork repainted.
- (2) The Dumraon House—Repaired, colourwashed and the ironwork repainted.
- (3) The Porcupine Shed—Colourwashed and repainted.
- (4) The Lalgola House—Iron-fencing repaired and repainted.
- (5) The Sonebursa Enclosure—Woodwork thoroughly repaired and the whole building colourwashed and thoroughly repainted.
- (6) The Rhinoceros Enclosure—Colourwashed.
- (7) The Cranes' Enclosure—Wood and ironwork repainted.

- (8) The Gubbay House—Whitewashed, outside colourwashed and the iron cages repainted.
- (9) The Smaller Duck House—Repainted.
- (10) The Murshidabad House—Whitewashed, colourwashed and repainted.
- (11) The Sarnomoyi House—The whole house with the aviaries thoroughly repainted—the wire-netting of the western aviary was replaced.
- (12) The Library—Repaired and repainted.
- (13) The Mullick House—Repaired, colourwashed and repainted.
- (14) The Reptile House—Inside whitewashed, repaired and repainted.
- (15) The Antelope House—Repaired and repainted.
- (16) The Small Carnivora House—Outer and inner dens whitewashed and ironwork repainted.
- (17) The Ostrich House—Repaired and repainted.
- (18) The New Bear House—Whitewashed.
- (19) The Buckland Enclosure—The surrounding wall was raised 15 inches throughout, a wire-netting fence was provided for along the railing, and a new iron door was substituted for the old one.
- (20) The Cooch Behar House—Whitewashed.
- (21) The Ezra House—Colourwashed and wood-work repaired and repainted.
- (22) The Burdwan House—Repaired and repainted, the recreation enclosure thoroughly repainted.
- (23) The Mandrill House—Repaired, colourwashed and repainted.
- (24) The Abdul Ghuny House—Repaired and repainted.
- (25) The Refreshment Pavilion—Repainted and repaired.
- (26) The Rodent House—Repaired and repainted.

(27) Servants' quarters—Thoroughly repaired; rooms colourwashed and outside colourwashed, and the woodwork repainted. The corrugated roof over the kitchen being worn out, it was replaced by a new structure.

(28) Store Godown—Repaired, innerside whitewashed and woodwork repainted.

Besides these, a considerable amount of minor repairs and renewal work was carried out. Usual attention was paid to the roads and paths, which were thoroughly repaired and kept in proper condition.

4. FINANCE.

The financial condition of the Garden is very satisfactory, and there is a steady increase in the receipts from visitors which amounted to Rs. 42,018-12 as against Rs. 36,088-4 of the previous year, thus showing an increase of Rs. 5,930-8.

The following is a comparative statement of receipts from visitors:—

YEAR.	Receipts.	
	Rs.	A.
1908-09	35,929	12
1909-10	36,088	4
1910-11	42,018	12

The amounts of income and expenditure are summarised in Appendix A.

5. VISITORS.

It is gratifying to report that the total number of paying visitors during the year was 537,122, an increase of 37,494 over the figure of the previous year. This clearly indicates the increasing popularity of the Garden.

Among other distinguished visitors, Their Excellencies the Viceroy and Lady Hardinge visited the Garden several times and His Royal and Imperial Highness the German Crown Prince also honoured it by a visit during his stay in Calcutta.

Comparative table of visitors during the last three years:—

YEAR.		Visitors.
1908-09	... 0 ...	471,305
1909-10	... 0 ...	499,628
1910-11	... 0 ...	537,122

In addition, a large number of children under four years of age and school children attended by their teachers were admitted free. On the day of the Fancy Fair about 10,000 people entered the Garden. Besides these 47,139 persons visited the Garden on the free days. A list of free days showing the number of visitors is shown in Appendix C.

6. GARDEN.

The Garden has been kept up in excellent condition throughout the year. The lawns and paths are in good order, and the show of flowers has been a special attraction to visitors. It is also a pleasure to report that the Garden was awarded 8 first, 1 second, and 2 third prizes in the Alipur Agricultural Society's Flower Show held on 17th and 18th February 1911.

CONCLUSION.

The thanks of the Committee are due to the ladies and gentlemen who have added to the collection of the garden by their donations, a list of which is given in Appendix D. Thanks are also due to those who kindly offered to present animals to the Garden but whose offers could not be accepted, either because

the particular species of animal was already sufficiently well represented or owing to the want of accommodation.

The Committee also desires to express its sincere thanks to the Officers Commanding the 27th Punjabis for allowing their band to play free on Sunday evenings.

Mr. B. Basu has proved a great success as the Superintendent of the Gardens, and has performed his duties most intelligently and satisfactorily.

The success in breeding animals, which was a marked feature in the two former years, has continued during the year under review.

The collection of animals has been maintained at a high standard; and the Garden has been kept up in a manner, which reflects great credit on the Superintendent.

The flowering annuals have been a source of great pleasure to the visitors and have proved almost as attractive as the animals; and the Garden was awarded several prizes at the Flower Show at the Horticultural Gardens.

Owing to the fact that a good many of the improvements effected during the year have been carried out departmentally a considerable saving in expenditure has been effected.

Mr. S. Ganguli, the Assistant Superintendent, has done very good work; he is an intelligent, hard-working and reliable officer, and has showed very great interest in his work.

E. HAROLD BROWN,
Honorary Secretary.

F. W. DUKE,
President.

SUPERINTENDENT'S REPORT.

I HAVE the honour to submit the following report on the existing condition and the progress of the menagerie of the Garden.

The following comparative table shows how the various collections of animals in the Garden stood during the last four years:—

YEAR.	Mammals.	Birds.	Reptiles.
1907-1908	401	795	310
1908-1909	417	803	312
1909-1910	589	1,137	247
1910-1911	599	1,342	259

Many important additions to the collection have been made during the past year, among which attention may be called to the following:—

- 1 pair Anoa — *Anoa depressicornis*.
- 3 Leopard Cats — *Felis bengalensis*.
- 1 pair King Parrakeets — *Aprosmictus scapulatus*.
- 2 pairs Slender Loris — *Loris gracilis*.
- 3 Orang-utangs — *Simia satyrus*.
- 2 Bengal Rock-horned Owls — *Bubo bengalensis*.
- 1 pair Hoary-bellied Himalayan Squirrels — *Sciurus locroides*.
- 1 Golden Cat — *Felis temmincki*.
- 1 Rufous Macaque — *Macacus rufescens*.
- 3 Purple-faced monkeys — *Semnopithecus cephalopterus*.
- 1 Male White Llama — *Llama glama*.
- 2 White-browed Gibbons — *Hyllobates gibbon*.
- 2 Illiger's Macaw parrots — *Ara maracana*.
- 10 Flamingoes — *Phanicopterus antiquorum*.
- 1 Burmese Ferret Badger — *Helictis personata*.
- 1 pair White-necked Storks — *Dissura episcopus*.
- 1 Manchurian Crane — *Grus japonensis*.
- 1 Musk deer — *Moschus moschiferus*.
- 3 Tigers — *Felis tigris*.
- 8 Gharials — *Gavialis gangeticus*.
- 2 Burrhel sheep — *Ovis na hoor*.
- 4 Summer ducks — *Anas sponza*.

- 1 Afgan Wooly Camel—*Camelus dromedarius*.
 2 Uryals—*Ovis vignei*.
 1 Rakatbangsi Snake—*Coluber helena*.
 1 Green Rat Snake—*Coluber prasinus*.
 1 Black Rat Snake—*Gongylophis conicus*.

A list of donors and their donations during the year is given in Appendix C.

BIRTHS.

The following is a list of the most important instances of birth in captivity during the year 1910-1911.

Mammals:—6 lion cubs (*Felis leo*), 3 leopard cubs (*Felis pardus*), 1 white jackal (*Canis aureus* [*Albino*]), 1 Malayan tapir (*Tapirus indicus*), 1 white wallaby, 6 kangaroos (*Macropus giganteus*), 1 Indian gazelle (*Gazella bennetti*), 2 Barasingha deer (*Cervus duvaucelli*), 1 Barking deer (*Cervulus muntjac*), 3 Hog deer (*Cervus porcinus*), 4 Spotted deer (*Cervus axis*), 2 Mouse deer (*Tragulus memmina*), 4 Sambur deer (*Cervus aristotelis*), 2 Bantengs (*Bos sondaicus*), 1 Hybrid gazelle, between Persian and Indian, 2 Indian antelopes (*Antilops cervicapra*), 1 Uryal (*Ovis vignei*), 2 Rhesus monkeys (*Macacus rhesus*), 2 Macaque monkey (*Macacus cynomolgus*), 1 Pig-tailed monkey (*Macacus nemestrinus*), 1 Grivet monkey (*Cercopithecus sabaeus*).

Birds:—1 Crowned pigeon (*Goura coronata*), 4 Ring-necked doves (*Turtur risoreus*), 2 Ring-necked parrakeets (*Palocornis torquatus*), 4 Black-headed Ibis (*Ibis malanocephalus*), 1 Pied Imperial pigeon (*Carpophaga bicolor*), 1 Scarlet Ibis (*Eudocimus ruber*), 1 Nicobar pigeon (*Calœnas nicobarica*).

Reptiles:—50 Russel's Vipers (*Daboia russelli*), 14 Cobras (*Naja tripudians*), 6 Tortoises, 10 Banded Kraits (*Bungarus fasciatus*).

The following is a list of those birds that bred in the Garden during the year in their wild state:—

- (1) Indian House Crow—*Corvus splendens*.
- (2) Indian Tree pie—*Dendrocitta rufa* (Scop).
- (3) Golden-backed Woodpecker—*Brachypternus aurantius* (Linn).
- (4) Bengal Red-whiskered Bulbul—*Otocompsa emeria* (Linn).

- (6) Common Kingfisher—*Alcedo bengalensis* (Gmel).
- (6) White-breasted Kingfisher—*Halcyon smyrnensis* (Linn).
- (7) Common House Kite—*Milvus govinda* (Sykes).
- (8) Pied Myna—*Sturnopastor contra* (Linn).
- (9) Common Myna—*Acridotheres tristis* (Linn).
- (10) Black-naped Oriole—*Oriolus indicus* (Jerdon).
- (11) Indian Koel—*Eudynamis honorata* (Linn).
- (12) Common Hawk Cuckoo—*Herococcyz varius* (Vohl).
- (13) Red-vented Bulbul—*Molpastes bengalensis* (Blyth).
- (14) House Sparrow—*Passer domesticus* (Linn).
- (15) Magpie Robin—*Copsychus saularis* (Linn).

The following birds bred freely in a wild state on the island of the big lake :—

- (1) Little Cormorant—*Phalacrocorax Pygmaeus* (Pall).
- (2) Indian Snake Bird—*Plotus melanogaster* (Gmel).
- (3) Night Heron—*Nycticorax griseus* (Blyth).

The following birds laid eggs but were unable to hatch :—

- Burmese peafowl—(*Pavo muticus*).
- Gold pheasant—(*Thanmalea picta*).
- Ostrich—(*Struthio camelus*).

DEATHS.

The total number of deaths during the year was 174.

The following is a list of more important deaths during the year :—

- 1 Vieillot's Fireback (*Euplocamus vicilloti*), 2 White Llamas (*Llama glama*), 3 Lion cubs (*Felis leo*), 1 Clouded leopard (*Felis nebulosa*), 1 Golden Cat (*Felis temmincki*), 1 Orang-utang (*Simia satyrus*), 1 Tiger (*Felis tigris*), 1 Anoa (*Anoa depressicornis*), 1 White Peafowl (*Pavo cristatus*), 1 Lesser Bird of Paradise (*Paradisea minor*), 2 Banteng bulls (*Bos sondaicus*), 2 Banteng cows (*Bos sondaicus*) 3 Gayals (*Bos frontalis*), 3 Nilgais (*Boselaphus tragocamelus*), 2 Sambur deer (*Cervus aristotelis*).

There were other losses by death of smaller animals, birds and reptiles, but most of them were due to causes for which the management of the Garden could not be responsible.

PATHOLOGICAL DEPARTMENT.

The work in this department was carried on as usual on restricted lines. The detail work has been greatly facilitated by Mr. S. Ganguli, the Assistant Superintendent, whose services are very useful to me. As in the former years Colonel F. Raymond, F.R.C.V.S., Principal, Veterinary College, Belgachia, rendered invaluable services to the staff of the Garden in many ways, and special thanks are due to him in this connexion.

The results of the *post-mortem* examinations during the year have been entered in the *post-mortem* book of the Garden.

The following list includes the cases which presented the principal subjects for pathological diagnosis:—

Number of cases.	Subjects.
Apoplexy ... 3	Tragopan pheasants, 1 Burrhal sheep.
Accident ... 1	Wolf cub, 1 Leopard cat, 1 Black partridge, 1 Spotted deer, 2 Indian antelopes, 1 Mouse deer, 1 Hornbill, 1 Clawless otter, 1 Demoiselle crane.
Congestion of the liver.	1 Tragopan pheasant, 1 Bar-headed goose, 1 Flamingo, 1 Wolf cub.
Congestion of the lungs.	1 Cheer pheasant, 1 Vieillot's Fire-back, 1 Monaul pheasant, 1 Indian squirrel.
Debility ... 1	Flying squirrel, 1 large Indian squirrel, 2 Tragopan pheasants, 1 Banteng bull, 1 Gayal.
Dysentery ... 3	Sloth bears.
Debility, general (due to old age.)	1 Amazon, 1 Nilgai, 1 Indian antelope.
Diarrhoea ... 1	Indian gazelle, 1 Spotted deer, 1 Himalayan bear cub.

Name of cases.	Subject.
Dilatation of heart	1 Red-necked wallaby.
Enteritis ...	1 Clouded leopard, 1 Rat kangaroo, 1 Anoa.
Fatty degeneration of the liver.	1 Nicobar pigeon, 1 Lesser Bird of Paradise, 1 Golden cat, 1 Wild pig, 1 Painted partridge, 1 White peafowl.
Gastritis (chronic)	1 Wild pig.
Ditto (acute)	1 Wolf cub.
Hepatitis ...	1 Leopard cub, 1 Malayan squirrel.
Hæmorrhagic septicæmia.	1 Indian gazelle, 1 Spotted deer.
Intestinal catarrh (chronic).	1 African mongoose, 1 Sonnerat's jungle fowl, 1 Saras crane.
Metritis ...	1 Barking deer, 1 Spotted deer.
Metro-peritonitis	1 Spotted deer.
Mange ...	1 Leopard cat.
Nephritis ...	1 Hanuman.
Pneumonia ...	1 Large Malayan squirrel, 1 White Llama, 1 Cheer pheasant.
Pyæmia ...	1 Fishing cat.
Phthisis ...	1 Celebes black monkey, 1 Marmoset, 1 Cinerous vulture, 1 Silver pheasant, 1 Flamingo.
Peritonitis ...	1 Peafowl, 1 Sambur deer.
Pleuro-pneumonia	1 Spider monkey, 1 Hoolock Gibbon.
Pericarditis ...	1 Indian antelope.
Rinderpest ...	1 Banteng bull, 2 Banteng cows, 3 Nilgais, 2 Gayals, 1 Sambur deer.
Tuberculosis ...	1 Weeper capuchin, 1 Lesser white-nosed monkey, 1 Mouse deer, 1 Orang-utang.
Tumour ...	1 African goose.

PROVISIONS.

The following table shows the quantity of provisions consumed during the year :—

			Mds.	s.	CH.	
Gram	...	...	974	0	0
Bran	...	...	414	6	0
Paddy	...	...	336	38	0
Rice	...	...	163	5	0
Wheat	...	...	99	7	8
Kangney	...	...	1	8	8
				lbs.		
Canary seed	...	...	1,707		
				Mds.	s.	CH.
Hempseed	...	...	1	8	8
Indian corn	...	...	48	27	0
Flour	...	...	54	14	0
Peas	...	...	9	6	0
Potatoes	...	...	192	5	0
Gur (coarse sugar)	...	...	13	32	0
Shattoo	...	...	91	5	12
Mutton	...	...	26	16	12
Oilcake	...	...	381	30	0
Milk	...	...	99	3	0
Biscuits	...	...	4	24	0
Beef	...	...	819	35	0
Sugar	...	...	1	39	8
Fish	...	...	31	30	8
Vegetable	...	...	80	15	8
Worms	...	...	13	26	0
Paddy straw	...	...	1,925	15	0
Bazra	...	...	62	2	0
Kelai	...	...	24	0	0
Oats	...	...	148	0	0
Black salt	...	...	2	21	0
Common salt	...	...	23	30	8
Onions	...	...	5	8	8
Ghee	...	...	0	26	4
Linseed	...	...	24	0	0
Garlic	...	...	0	26	0
Green grass	...	...	38	10	0

			Number.
Sugarcane	...	...	1,992
Ducks	...	...	436
Bread	...	...	6,495½
Plantains	...	...	55 kahans, 14 pauns, 16½ gandas.
			Number.
Eggs	...	...	4,648
Fruits (papaya, etc.)	..	...	2,019½
Fowls	...	...	931
Hay	...	...	36,700 bundles.
Grasshoppers	...	...	37,300
Leaves (jack fruit)	...	...	185 cart loads.
Goats	...	...	112

Besides the above, a large amount of vegetables was grown in the Garden and supplied to the animals throughout the year. The milk was also supplied from the Dairy Farm. The Store-keeper, Babu J. K. Roy, managed his work very satisfactorily and thanks are due to him in this respect.

The following table gives the chief items of expenditure under "Food of Animals":—

	Rs.	A.	P.
Beef	3,168	3	0
Mutton	516	2	0
Fowls	261	13	6
Goats	252	0	0
Ducks	218	0	0
Worms	163	12	0
Live fish	228	2	9
Grasshoppers	36	0	0
Plantain	287	3	0
Gram, wheat, rice, etc.	8,622	4	6
Bread	399	7	6
Biscuits	46	0	0
Oats	661	4	0
Shattoo	117	0	0
Leaves	185	0	0
Miscellaneous food, such as, smaller fish, fruits, salt, etc., etc.	3,046	4	9
Total	18,108	9	0

GENERAL CONDITION OF THE ANIMALS.

Excepting two epidemic diseases which occurred amongst the ruminants, viz., the foot and mouth disease and the rinderpest, the general condition of the animals has been satisfactory. The mammals and birds have been free from any other serious diseases, and the larger and the smaller carnivorous animals are in prime condition.

The general health of the birds has been very good, and there have been no important deaths amongst them.

It is gratifying to report that the following animals, viz., the Burriel sheep, the Musk deer, the Tibetan lynx, the Cat bears, and the Clouded leopard which are inhabitants of colder regions and which do not thrive well in captivity in the Garden, have been thoroughly acclimatized and are enjoying perfect health.

As usual, the treatment and housing of sick animals have been diligently and carefully attended to. Subjoined is a list of some of the cases that have been successfully treated.

NAME OF ANIMAL.	Disease.	Result.
Lioness ...	Dysentery ...	Cure.
Spotted deer ...	} Diarrhœa ...	D
Gayal ...		
Wild horse, or Kiang ...	Enteritis ...	Do.
Leopard ...	Abscess ...	Do.
2 Sloth bears ...	} Dysentery ...	Do.
Himalayan bear ...		
Tragopan pheasant ...	} Bronchitis ...	Do.
Himalayan bear ...		
Spotted deer ...		
Sambur stag ...		
Leopard cub ...		
Ourang-utang ...		
Hoolock Gibbon ...		
C. jkatoo ...	} Pneumonia ...	Do.
Nilgai ...		
Himalayan bear ...		
Leopard cat ...		
Rhesus monkey ...		

NAME OF ANIMAL.	Disease.	Result.
Sambur deer	} Rheumatism ...	Cure.
Spotted deer		
Gayal		
Imperial pigeon		
Mandrill		
Saras crane	} Metritis ...	Do.
Black-necked stork		
Barking deer	} Nephritis ...	Do.
Spotted deer		
Leopard	} Mange ...	Do.
Wild Ass		
Leopard	} Cold ...	Do.
Tiger		
Spotted deer	} Debility ...	Do.
Sambur deer		
Gayal		
Wild Ass		
Barking deer		
Black buck	} Fracture ...	Do.
Blessbock		
Spotted deer	} Wound ...	Do.
Barking deer		
Sambur deer		

APPENDIX A.

I.—Comparative Statement of Receipts for 1909-1910
& and 1910-1911.

	1909-1910.			1910-1911.			
	Rs.	A.	P.	Rs.	A.	P.	
Opening balance	7,019	6	6	26,651	9	7	
Interest	163	3	4	163	3	4	
Donation and subscription	309	0	0	551	0	0	
Entrance receipts	36,088	4	0	42,018	12	0	
Rent	1,895	0	0	3,957	12	0	
Carriage, palki, jhinrickshaw	770	8	0	699	0	0	
Fishing	236	0	0	35	0	0	
Picnic	154	0	0	165	0	0	
Rhino urine	1,767	0	0	1,863	0	0	
Miscellaneous	18,543	0	4	5,774	3	0	
Government contribution	20,000	0	0	20,000	0	0	
Total	86,945	6	2	1,01,878	7	11	
<i>Add</i> —Receipts of 31st March 1909, which were included in 1909-1910.	49	0	0	...			
	86,994	6	2				
<i>Add</i> —Receipts of 31st March 1910, which were included in 1910-1911.	...			69	9	0	
				1,01,948	0	11	
<i>Deduct</i> —Receipts of 31st March 1910, which were included in 1910-1911.	69	9	0	...			
	...				70	16	0
<i>Deduct</i> —Receipts of 31st March 1911, which will be included in 1911-1912.	...						
GRAND TOTAL	86,924	13	2	1,01,877	1	11	

*II.—Comparative Statement of Expenditure for 1909-1910
and 1910-1911.*

	1909-1910.		1910-1911.	
	Rs.	A. P.	Rs.	A. P.
Establishment	243	8 7	6,910	8 0
Food of animals	18,389	1 11	18,108	9 0
Purchase of animals	7,261	9 3	9,593	15 0
Transport of animals	1,453	7 3	710	2 0
Miscellaneous contingencies	4,681	10 7	3,243	15 3
Repairs of roads	529	11 0	1,485	3 3
Repairs of buildings	6,742	0 6	8,770	5 3
Original construction	9,911	4 9	24,263	12 3
Garden construction	3,060	13 9	3,701	14 6
Tools and plant ... ..	...		18	0 0
Total Rs.	60,273	8 7	76,806	4 6
Closing balance	26,651	9 7	25,070	13 5
GRAND TOTAL	86,924	13 2	1,01,877	1 11

APPENDIX B.

*A Summary of visitors and gate receipts during the year
1910-11.*

Month and year.				Number of visitors.	Receipts.
					Rs. A.
April	1910	...	...	32,392	2,294 4
May	"	...	...	30,034	2,039 14
June	"	...	...	50,278 ^a	3,290 11
July	"	...	...	39,511	2,922 11
August	"	...	...	37,648	2,853 7
September	"	...	...	45,487	2,938 5
October	"	...	...	93,499	6,280 8
November	"	...	...	54,938	4,092 4
December	"	...	...	51,606	3,949 8
January	1911	...	...	57,581	4,525 14
February	"	...	...	47,657	3,430 15
March	"	...	...	43,635	3,400 7
Total				584,261 ^a	42,018 12
Daily average				1,601	

^a This includes 47,139 free visitors.

APPENDIX C.

A list showing the free days and the number of free visitors.

Free days.		Number of visitors.
1910.		
12th April	...	... 2,992
9th May	....	... 3,798
13th June	...	... 4,053
11th July	...	... 4,072
1st August	...	... 2,256
5th September	...	... 4,222
3rd October	...	... 4,130
7th November	...	... 4,253
5th December	...	... 4,132
1911.		
9th January	...	... 4,344
13th February	...	... 6,477
13th March	...	... 2,410
		...
Total		... 47,139

APPENDIX D.

*A list of Donors and their Donations during the year
1910-1911.*

A.

Ahmad, Mr. A., I.C.S.	...	2 Hyæna cubs.
Antonini, Mr. J.	...	1 White-browed gibbon.
Allen, Mr. E. C., I.C.S.	...	1 Wolf cub.

B.

Bradley-Birt, Mr. F. B., I.C.S.	...	1 Leopard.
Bijni, Rani of	...	1 Leopard.
Burton, Mrs. E. H.	...	2 Java squirrels.
Banerji, Babu Tincowri	...	1 Young crocodile.
Bennertz, Mr. A. H.	...	1 Nilgai.
Barber, Sergeant S. W.	...	1 Indian antelope.
Bannerji, Mr. N. N.	...	3 Wolf cubs.
Bhattacharjee, Rai Bahadur, Syama Charan.		1 Spotted deer.
Bose, Babu Jiban Krishna	...	1 Python.

C.

Cotton, Mr. W. B., I.C.S.	...	4 Young pigs.
Coates, Captain V., I.C.S.	...	1 Golden cat, 1 Hornbill.
Cleghorn, Miss	...	1 Indian dove.

D.

De, Babu Khagendra Nath	...	1 Spotted deer.
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E.

Etheridge, Mr. W. S.	...	1 Barn owl.
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F.

Frederickson, Mr. H.	...	1 Sloth bear.
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G.

Ghosb, Mr. J. N.	1 Indian antelope.
Ghosal, Kumar S. B.	1 Indian antelope.

H.

Harvey, Mrs. G.	1 Spotted deer.
Halder, Mr. S. J. ...	...	1 Sloth bear.
Hill, Miss ...	...	1 Cheer pheasant.

J.

Judge, Mr. C. E. ...	...	3 Leopard cats.
Jana, Babu Gopal Krishna ...	...	1 Four-horned antelope.

K.

Keelan, Mr. D. N.	2 Hoary-bellied Himalayan squirrels.
Kilner, Mr. S. N.	1 Python.

L.

Levinge, Mrs.	1 Sloth bear.
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M.

Mahammad, Prince Golam	9 Hanumans.
Murdock, Mr. F. H.	3 Nilgais.
Moitry, Mr. M. N.	2 Domestic sheep.
Murray, Miss D. ...	...	2 Frizzled fowls.
Middleton, Mr. L. W. ...	...	1 Coluber prasinus.
Murray, Miss E.	1 Pair wild pigs, 1 Sambur deer.

N.

Nicholas, Capt. B. G.	1 Leopard cub.
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O.

Ormod, Mr. J. B., i.c.s.	...	1 Bear cub.
Olive, Miss	...	2 Red eclectus.
Osmaston, Mr. B. B.	...	1 Black-necked stork.

P.

Police, Commissioner of, Calcutta	1 Rhesus monkey.
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R.

Rifle Brigade, B. Co.	...	1 Indian antelope.
Robinson, Mr. F. B.	...	1 Leopard, 1 Sloth bear.
Roos-Keppel, Colonel, S.	...	1 Musk deer.

S.

Seroope, Mr. G. E.	...	2 Bengal rock-horned owls.
Stark, Mr. A. W.	...	1 Leopard cat.
Sunder, Mr. D.	...	1 White-browed gibbon, 1 Sambur deer, 2 Wolf cubs.
Stolke, Mr. J. W.	...	1 Large Malayan squirrel.
Smith, Mr. W. S.	...	1 Spotted deer.
Smythe, Mrs.	...	1 Python.
Singh, Kumar Krityanand	...	2 Leopards, 1 Hyæna.
Shakespear, Lieutenant-Colonel J., C.I.E.	...	1 Leopard, 1 Himalayan bear, 1 Slow loris.

T.

Tumkobi, Raja of	...	2 Leopard cubs.
Tagore, the Hon'ble Maharaja Sir Prodyot Kumar, Kt.	...	1 Barking deer.
Trafford, Mr. F.	...	1 Fishing cat.

W.

Westmacott, Mr. C.	...	8 Gharials.
Wyndham, Mr. P., i.c.s.	...	1 Wild dog pup.

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REPORT
of
THE HONORARY COMMITTEE
for the
MANAGEMENT OF THE ZOOLOGICAL
GARDEN, CALCUTTA.

—•—
1911-12.



CALCUTTA :
BENGAL SECRETARIAT PRESS.

1912.

REPORT
OF
THE HONORARY COMMITTEE
FOR THE
MANAGEMENT OF THE ZOOLOGICAL GARDEN
CALCUTTA, 1911-12.

THE Honorary Committee have the honour to submit their report for the year ending 31st March 1912, the contents of which, as usual, include, among other items,—

- (1) The Superintendent's report upon the management of the Garden.
- (2) Monthly returns of visitors and a list of donors.
- (3) Abstract of accounts of ordinary and extraordinary receipts and expenditure.

1. THE COMMITTEE.

The Committee consists of—

President :

The Hon'ble Sir F. W. Duke, K.C.I.E., C.S.I., I.C.S.

Vice-President :

P. L. Buckland, Esq.

Honorary Secretary and Treasurer :

Lieutenant-Colonel E. H. Brown, M.D., I.M.S.
(retired), D.P.H., F.Z.S., F.R.C.S.E.

Superintendent :

Mr. Bijay Krishna Basu, G.B.V.C., C.M.Z.S.

Assistant Superintendent :

Babu Somadev Ganguli.

Members of the Committee :

Roostumjee Dhunjeebhoy Mehta, Esq., C.I.E.

Lieut.-Col. R. Birl, M.D., C.I.E., M.V.O., M.S.,
F.R.C.S., I.M.S.

Dr. Nelson Annandale, B.A., D.Sc., C.M.Z.S.

The Hon'ble Mr. W. R. Gourlay, I.C.S.

H. J. McIntosh, Esq., I.C.S.

Ihtisham-ul-Mulk, Rais-ud-Daula, Amir-ul-Umara,

Nawab Sir Asif Kadr Saiyid Wasif Ali Mirza,

Khan Bahadur, Mahabat Jang, Nawab

Bahadur of Murshidabad, K.C.S.I., K.C.V.O.

John George Dean, Esq.

Lieut.-Col. Charles Robert Mortimer Green, M.D.,
 F.R.C.S., I.M.S.
 David Ezra, Esq.
 Ambica Charan Law, Esq.
 G. Girard, Esq., F.R.H.S.
 The Hon'ble Sir Bijay Chand Mahtab, K.C.S.I.,
 K.C.I.E., I.O.M., Maharaja Dhiraj Bahadur of
 Burdwan.
 Shirley Tremearne, Esq.
 W. K. Dods, Esq.
 Nawab A. F. M. Abdur Rahaman, Khan Bahadur.
 J. C. R. Johnston, Esq.
 Sir W. A. Dring, K.C.I.E.

Ex-officio Members :

The Commissioners of Divisions in Bengal.
 The Executive Engineer of the Public Works
 Department of the Division in which the
 Garden is placed.
 The Sanitary Commissioner with the Government
 of Bengal.
 The President of the Asiatic Society of Bengal.
 The Director of Public Instruction, Bengal.
 The Natural History Secretary of the Asiatic
 Society of Bengal.
 The Director of Land Records.
 The Superintendent, Civil Veterinary Department,
 Bengal.
 The Professor of Comparative Anatomy and
 Zoology, Medical College, Bengal.
 The Superintendent of the Royal Botanic Garden,
 Sibpur.
 The Chairman of the Calcutta Corporation.
 The Principal of the Bengal Veterinary College,
 Calcutta.

The following new members were appointed during the year :—

C. J. Elton, Esq.

Major L. Rogers, C.I.E., M.D., I.M.S.

Major C. R. Stevens, M.D., I.M.S.

The following members resigned during the year :—

The Hon'ble Maharaja Sir Prodyot Kumar Tagore, KT.

Colonel G. M. Porter, R.E.

Sir R. P. Ashton, KT.

Obituary :

His Highness the Maharaja Sir Nripendra Narayan Bhup Bahadur, G.C.I.E., C.B., of Cooch Behar.

Sir Herbert Risley, K.C.I.E., C.S.I., I.C.S.

2. STAFF AND ESTABLISHMENT.

Mr. Bijay Krishna Basu continued in charge of the Garden as Superintendent throughout the year, and Babu Somadev Ganguli as Assistant Superintendent. Babu Doyal Chandra Dass, gate-keeper, retired from the service on 8th June 1912 on a gratuity, and his place was not filled as a proper man could not be found.

The following is a list of the superior staff of the Garden at the end of 1911-12 :—

Superintendent :

Mr. Bijay Krishna Basu, G.B.V.C., C.M.Z.S.

Assistant Superintendent :

Babu Somadev Ganguli.

Store-keeper and Typist :

Babu Jugal Kishore Roy.

Overseer :

Babu Niranjan Mukherjee.

Gate Clerk :

Vacant.

The following is a list of the menial staff of Garden at the end of 1911-12 :—

1 Head-keeper.	1 Cook.
20 Keepers.	3 Sweepers.
10 Darwans.	1 Chaprasi.
3 Bhistis.	2 Cartmen.
1 Carpenter.	1 Syce.

1 Scytheman.

Besides these, there were a number of laborers engaged temporarily by the Garden.

3. BUILDINGS.

The following new works were undertaken during the year :—

- (a) Hermitage.—The boundary wall of the hermitage was raised 3 feet, and a portion of the old wall dismantled and a new wall constructed in its place. The flooring of some of the rooms was also marbled.

- (b) Kangaroo Enclosure.—The number of Kangaroos and Wallabies, etc., was increasing rapidly by birth and the recreation ground attached to the house was not big enough for all these animals. It was therefore decided to make use of a plot of land lying uselessly to the south of it. It was enclosed with a wire-netting fencing, and the inmates have now plenty of open space for exercise.
- (c) Small Carnivora House.—The arrangement for watering animals in this house was very defective. During the year under review service-pipes were laid and each compartment was provided with a tank and a continuous supply of water was maintained. A similar arrangement was made in the outdoor enclosure.
- (d) Burdwan House.—There was no handrailing in both of the wings of the Burdwan house where the lions were kept, and they were constantly teased by the visitors. To prevent this a handrailing was placed there.
- (e) Superintendent's Quarters.—A kitchen range was constructed in the Superintendent's quarters.
- (f) Reptile House.—A great improvement was effected in the Reptile House. The basins where the crocodiles and monitors were kept had been leaking for some time. The pavement made of glazed tiles were removed and patent stone substituted.

Each cage in the Reptile House was provided with an iron basin sunk in the floor and fed by filtered water-pipes. This arrangement greatly increases the comfort of the inmates.

(a) Schwendler House.—This was the most important work carried out during the year. The old outer enclosure was very low and primitive and it was dismantled and a big and lofty circular aviary measuring 171 feet in circumference and $16\frac{1}{2}$ feet in height was constructed. Apart from its greater adaptability to the requirements of the birds the structure is pleasing to the eye and a great improvement on the old house.

(b) Sarnomoyi House.—To protect the birds from the inroads of rats the whole ground of the western aviary of the Sarnomoyi House was laid with brick-on-edge covered by earth one foot deep and turfed.

(i) New Paths.—New paths were cut and laid in front of the outdoor enclosure to the small Carnivora House and the Uryal House and the Ostrich enclosure. Extensive alterations and widening of the paths were made in front of the Kangaroo enclosure, Paddocks and Ezra House.

The annual repairs were carried on as usual departmentally. The following is a list of more important repairs executed during the year:—

(1) The Entrance Lodge and the office—Lime-washed and repainted.

- (2) The Dumraon House—Repaired, colourwashed and repainted; hand-railing provided in one of the rooms.
- (3) The Porcupine shed—Colourwashed and repainted.
- (4) The Lalgola House—Iron fencing repaired and repainted; rooms limewashed.
- (5) The Sonebursa enclosure—Repaired, colourwashed and repainted.
- (6) Paddocks.—The iron fencing was coal-tarred and the sheds repaired, limewashed and the woodwork painted.
- (7) The Sarnomoyi House.—The whole house with the aviaries thoroughly repainted, the wire-netting of the western aviary was replaced.
- (8) The Murshidabad House—Whitewashed, colourwashed and repainted.
- (9) The Gubbay House—Whitewashed, outside colourwashed and the iron cages repainted.
- (10) The smaller Duck House—Repainted.
- (11) The Mullick House—Repaired, colourwashed and repainted.
- (12) The Antelope House—Repaired and repainted.
- (13) The small Carnivora House.—Outer and inner dens whitewashed and ironwork repainted.
- (14) The new Bear House—Whitewashed.
- (15) The Cooch Behar House—Whitewashed.
- (16) The Burdwan House—Repaired and repainted, the recreation enclosure repainted.

- (17) The Ezra House—Colourwashed and wood work repaired and repainted.
- (18) The Maifdrill House—Repaired, colourwashed and repainted.
- (19) The Abdul Ghuny House—Repaired and repainted.
- (20) The Rodent House—Repaired and repainted.
- (21) The Refreshment Pavilion—Repainted and repaired.

Besides these, a considerable amount of minor repairs were attended to and the roads and paths were repaired and kept in proper condition.

4. FINANCE.

It will appear from the following comparative statement that the financial condition of the Garden is satisfactory, the receipts from visitors steadily increasing and amounted to Rs. 48,496-11 as against Rs. 42,018-12 of the previous year, thus showing an increase of Rs. 6,477-15.

The following is a comparative statement of receipts from visitors:—

Year.	Receipts.	
	Rs.	A.
1909-10	36,088	4
1910-11	42,018	12
1911-12	48,496	11

The amounts of income and expenditure are summarised in Appendix A.

5. VISITORS.

The total number of paying visitors to the Garden during the year amounted to 629,151, showing an increase of 92,029 as compared with the previous year. This large attendance may be accounted for by the presence of His Majesty's collection of Nepal animals, by the Hindu festival *Churamoni Yoga* and by the increased attractiveness of the Gardens generally.

Comparative table of visitors during the last three years :—

Year.	...	...	Visitors.
1909-10	...	...	499,628
1910-11	...	...	537,122
1911-12	...	...	629,151

In addition, a large number of children under four years of age and school children attended by their teachers were admitted free. On the day of the Fancy Fair about 15,000 people entered the Garden. Besides these, 51,154 persons visited the Garden on the free days. A list of free days with the number of visitors is given in Appendix C.

6. EXHIBITION OF HIS MAJESTY THE KING'S COLLECTION OF NEPAL ANIMALS.

The most important event of the year was the exhibition of a fine collection of animals presented to His Majesty by the Nepal Durbar. By the request of the Zoological Society of London, they were accommodated in the Garden prior to their

departure to the Zoological Society's Gardens, London. The following is a list of animals:—

1 Young rhinoceros.	2 Four-horned sheep.
1 Baby elephant.	2 Bhutia goats.
1 Shou.	1 Yak.
2 Barasinghas.	3 Leopards.
2 Sambur deer.	4 Himalayan bears.
2 Nilgais.	2 Snow leopards.
2 Spotted deer.	2 Tahrs.
2 Indian antelopes.	1 Wolf.
2 Burrhal sheep.	1 Fox.
2 Goral sheep.	2 Tibetan dogs.
3 Hog deer.	2 Japanese dogs.
1 Four-horned antelope.	1 Leopard cat.
2 Musk deer.	5 Squirrels.
1 Barking deer (albino).	2 Porcupines.
1 Ditto (female).	3 Civets.
1 Kiang.	2 Martens.
4 Fighting sheep.	3 Indian mungooses.
2 One-horned sheep.	8 Indian monitors.
2 Two-horned sheep.	Pheasants, partridges and
1 Three-horned sheep.	pigeons, etc.

Their Majesties visited the Garden on the afternoon of 30th December, accompanied by their Excellencies the Lord and Lady Hardinge. The Royal Visitors were received by the Honorary Secretary and Superintendent who showed them round the Garden. Their Majesties inspected the various animals in the collection and asked many questions as regards their habits and seemed very pleased with the general management of the Garden.

7. GARDEN.

The floral display for which the Garden has for long been well-known was extremely successful.

New paths and lawns were laid out and much clearing was done throughout the year. A large number of new shrubs and plants were planted. The show of flowering annuals was particularly good and was much appreciated by the public.

CONCLUSION.

The thanks of the Committee are due to the ladies and gentlemen who have added to the collection of the Garden by their donations, a list of which is given in Appendix D. Thanks are also due to those who kindly offered to present animals to the Garden, but whose offers could not be accepted, either because the particular species of animals was already sufficiently well represented, or owing to the want of accommodation.

The Committee also desires to express their sincere thanks to the Officers Commanding 27th Punjabis and 40th Pathans for allowing their bands to play on Sunday evenings without charge.

W. K. DODS,
Honorary Secretary.

F. W. DUKE,
President.

SUPERINTENDENT'S REPORT.

I HAVE the honour to submit the following report on the existing condition and the progress of the menagerie of the Garden.

The following comparative table shows how the various collections of animals in the Garden stood during the last four years:—

YEAR.	Mammals.	Birds.	Reptiles.
1908-1909	... 417	803	312
1909-1910	... 589	1,137	247
1910-1911	... 599	1,342	259
1911-1912	... 654	1,612	127

ACQUISITIONS.

The most noteworthy event of the past year was the acquisition of a pair of full-grown Elands presented to the Garden by His Grace the Duke of Bedford.

The importation of a female Hippopotamus purchased from Mr. Hagenbeck of Hamburg was another important event. A consignment consisting of the following animals was also received from Mr. Hagenbeck along with the Hippopotamus:—

1 pair Waterbucks.
1 pair Wapiti deer.
1 female Adax.
1 male Jaguar
1 Gold Marmoset.

1 pair Capybaras.
1 pair Opposums.
4 Boa Constrictors.
1 Anaconda.

other consignment of animals was received from Zoological Society of London on exchange during year.

Among other acquisitions the following deserve mention:—

Tiger cub (*Felis tigris*), presented by the Feudatory Chief of Patna.

Tiger cubs (*Felis tigris*), purchased through the good offices of the Deputy Conservator of Forests, Khulna.

Gayals (*Bos frontalis*), purchased through the good offices of the Deputy Commissioner, Shillong.

Gharials (*Gavialis gangeticus*), presented by W. Westmacott, Esq.

Pair Malayan Tapirs (*Tapirus indicus*), purchased.

Clouded leopard (*Felis nebulosa*), purchased.

Baby elephant (*Elephas indicus*), purchased.

Spider monkey (*Ateles ater*), purchased.

White-browed Gibbon (*Hylobates gibben*), presented by Mr. A. G. Cowper.

Jungle cat (*Felis chaus*), presented by Mr. A. Milton.

White-cheeked Capuchins (*Cebus lunatus*), purchased.

Smooth-headed Capuchins (*Cebus monachus*), purchased.

Brown Capuchin (*Cebus fatuellus*), purchased.

Black-headed lemurs (*Lemur brunneus*), purchased.

Rufous Kangaroo (*Macropus rufus*), purchased.

Amherst's pheasants (*Thaumalea amherstiae*), purchased.

Flamingoes (*Phenicopterus antiquorum*), purchased.

Argus pheasants (*Argus giganteus*), purchased.

Red Birds of Paradise (*Paradisea rubra*), purchased.

Lesser Bird of Paradise (*Paradisea minor*), purchased.

The following animals were received through the offices of Mr. F. E. Moller:—

Black bear (*Aelurus fulgens*).

Tibetan Marmot (*Arctomys himalayanas*).

Urrhel sheep (*Ovis nahoar*).

A list of donors and their donations during the year is given in Appendix "C."

BIRTHS.

The following is a list of the most important instances of births in captivity during the year 1912 :—

- 2 Indian Antelopes (*Antelope cervicapra*).
- 1 Persian Gazelle (*Gazella subgutturosa*).
- 3 Mouse deer (*Tragulus memina*).
- 1 Barasingha deer (*Cervus duvaucelli*).
- 2 Hog deer (*Cercus porcinus*).
- 2 Spotted deer (*Cervus axis*).
- 1 Sambur deer (*Cervus aristotelis*).
- 1 Barking deer (*Cerculus muntjac*).
- 4 Kangaroos (*Macropus giganteus*).
- 1 Rufous kangaroo (*Macropus rufus*).
- 2 Grivet monkeys (*Cercopithecus sabæus*).
- 5 Entellus monkeys (*Semnopithecus entellus*).
- 2 Lion cubs (*Felis leo*).
- 1 Crown pigeon (*Goura coronata*).
- 2 Nicobar pigeons (*Calenas nicobarica*).

The following birds bred freely in a wild state on an island of the big lake :—

- Little Cormorant (*Phalacrocorax pygmaeus*).
- Indian snake bird (*Plotus melanogaster*).
- Night Heron (*Nycticorax griseus*).

The following birds laid eggs but were unable to hatch :—

- Burmese peafowl (*Pavo muticus*).
- Gold pheasant (*Thaumalea picta*).
- Ostrich (*Struthio camelus*).
- Amherst pheasant (*Thaumalea amherstiae*).
- Purple Coot (*Porphyrio poliocephalus*).

DEATHS.

:

The following is a list of more important deaths during the year:—

- 2 Lion cubs (*Felis leo*).
- 1 Manchurian crane (*Grus viridirostris*).
- 1 Crown pigeon (*Goura coronata*).
- 2 White Llamas (*Lama glama*).
- 1 Uryal (*Ovis vignei*).
- 1 Cat bear (*Aelurus fulgens*).
- 1 Jaguar (*Felis onca*).
- 1 Fireback (*Euplocamus vieilloti*).
- 1 Sooty Mangabey (*Cercocebus fuliginosus*).
- 1 Greater Bird of Paradise (*Paradisaea apoda*).
- 1 Wombat (*Phascolomys mitchelli*).
- 1 Clouded leopard (*Felis nebulosa*).
- 2 Tiger cubs (*Felis tigris*).
- 1 Gayal (*Bos frontalis*).
- 1 Baby elephant (*Elephas indicus*).
- 1 Six-banded armadillo (*Dasypus sexcinctus*).
- 1 Lynx (*Felis lynx*).
- 1 Kiang (*Equus kiang*).
- 1 Lesser Bird of Paradise (*Paradisaea minor*).

PATHOLOGICAL DEPARTMENT.

The work in this department was carried on as usual. Thanks are due to the Principal, Bengal Veterinary College, for his kind help in important cases.

The results of the *post-mortem* examinations during the year have been entered in the *post-mortem* book of the Garden. :

Subjoined is a list of the more important cases which presented the principal subjects for pathological diagnosis:—

Number of cases.		Subjects.
Apoplexy	... ..	1 Uryal.
Accident	... ..	1 Saras crane, 1 Four-horned antelope, 1 Comb duck, 1 Mouse deer, 1 Fireback.
Chicken cholera	... ..	10 Doves, 3 Blood-breasted pigeons.
Congestion of the lungs	... ..	1 White Llama.
Debility	... ..	1 Saras crane, 1 Sambur deer.
Debility (due to inadaptability to the climate).	1	Prairie Marmot, 1 Tragopan pheasant.
Debility (brought on by unsuitable food).	2	Tiger cubs.
Debility (due to old age)	... ..	1 Jaguar, 1 large Indian squirrel.
Dysentery	... ..	1 Sloth bear, 2 Himalayan bears, 1 Fishing cat.
Diarrhœa	... ..	1 Hog deer.
Enteritis	... ..	1 Clouded leopard, 2 leopards, 1 wild ass.
Eversion of the uterus	... ..	1 Arabian baboon.
Fatty degeneration of the liver.	1	Slender lory, 1 Cat bear, 1 Otter, 2 Bar-headed geese, 1 Pink headed duck, 1 Red-headed lory.
Gastritis (acute)	... ..	1 Wild dog.
Hepatitis	... ..	1 Hog deer.
Hæmorrhagic septicæmia	... ..	1 Spotted deer.
Intestinal catarrh (chronic)	1	Comb duck, 1 Adjutant.
Metritis	... ..	1 Spotted deer, 1 Barking deer,
	1 Barki & g deer.

DEATHS.

The following is a list of more important deaths during the year :—

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- 1 Manchurian crane (*Grus viridirostris*).
- 1 Crown pigeon (*Goura coronata*).
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- 1 Uryal (*Ovis vignei*).
- 1 Cat bear (*Aelurus fulgens*).
- 1 Jaguar (*Felis onca*).
- 1 Fireback (*Euplocamus vicilloti*).
- 1 Sooty Mangabey (*Cercocebus fuliginosus*).
- 1 Greater Bird of Paradise (*Paradisaea apoda*).
- 1 Wombat (*Phascologmys mitchelli*).
- 1 Clouded leopard (*Felis nebulosa*).
- 2 Tiger cubs (*Felis tigris*).
- 1 Gayal (*Bos frontalis*).
- 1 Baby elephant (*Elephas indicus*).
- 1 Six-banded armadillo (*Dasypus sexcinctus*).
- 1 Lynx (*Felis lynx*).
- 1 Kiang (*Equus kiang*).
- 1 Lesser Bird of Paradise (*Paradisaea minor*).

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Debility	1 Saras crane, 1 Sambur deer.
Debility (due to inadaptability to the climate).	...	1 Prairie Marmot, 1 Tragopan pheasant.
Debility (brought on by unsuitable food).	...	2 Tiger cubs.
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Eversion of the uterus	1 Arabian baboon.
Fatty degeneration of the liver.	...	1 Slender loris, 1 Cat bear, 1 Otter, 2 Bar-headed geese, 1 Pink headed duck, 1 Red-headed lory.
Gastritis (acute)	1 Wild dog.
Hepatitis	1 Hog deer.
Hæmorrhagic septicæmia	1 Spotted deer.
Intestinal catarrh (chronic)	...	1 Comb duck, 1 Adjutant.
Metritis	1 Spotted deer, 1 Barking deer,
	1 Barki g deer.

Number of cases.		Subjects.
Mange	...	1 White jackal, 1 Indian wolf.
Paralysis	...	1 White Wallaby.
Pneumonia	...	1 Cat bear, 1 White llama, 1 Wombat, 1 Indian antelope, 1 Gold pheasant.
Peritonitis	..	1 Indian antelope.
Tuberculosis	...	1 Hoolock, 1 Persian Gazelle, 1 Sooty Mangabey, 1 Spider monkey.

PROVISIONS.

The following table shows the quantity of provisions consumed during the year:—

			Mds.	s.	CH.
Gram	...	...	950	19	0
Bran	...	...	512	2	0
Paddy	..	...	370	24	0
Rice	...	...	200	2	0
Wheat	...	...	91	4	0
Indian-corn	...	...	28	8	0
Flour	...	...	87	18	0
Potato	...	...	222	5	0
Peas	...	...	9	3	8
Oilcake	...	...	379	25	0
Paddy-straw	...	...	1,962	32	0
Bazra	...	...	93	13	0
Kelai	..	...	21	0	0
Oats	...	...	269	0	0
Linseed	...	...	19	0	0
Canary	...	...	lbs. 1,789		
			Mds.	s.	CH.
Kaugney	...	...	1	8	0
Hempseed	...	...	1	8	0
Gur	...	...	13	34	0
Black salt	...	...	4	35	0
Table salt	...	...	23	25	8
Onion	...	...	5	29	8
Ghee	...	...	0	25	12

		Mds. s. ch.		
Garlic	...	...	1	3 0
Shattoo	!	...	81	13 0
Mutton	•	...	26	16 8
Milk	...	...	78	29 4
Biscuits	...	...	73	25 2
Beef	...	...	944	11 0
Sugar	...	...	2	26 4
Fish	...	...	17	35 2
Smaller fish	...	...	12	21 14
Vegetable	...	...	78	23 8
Worms	...	...	12	34 0
Green grass	...	...	38	0 0
Sugarcane	•	...	No.	1,925
Ducks	...	...	„	487
Bread	...	...	Loaves	9,030
Plantain	...	...	85 kahans	12 pauns 8 gundas.
Eggs	...	...	No.	6,688
Miscellaneous fruits, such as	as	...	„	2,429
papaya, etc.	...	...	„	1,283
Fowl	...	...	„	52,500
Hay	...	...	Blds.	36,600
Grasshoppers	...	...	No.	185½
Jack fruit leaves	...	...	Cart-load	83
Goat	...	...	No.	

Besides the above a large amount of vegetables was grown in the Garden and supplied to the animals throughout the year.

The following table gives the chief items of expenditure under "Food of Animals" for the past year:—

		Rs. A. P.		
Beef	3,527	14 6
Mutton	526	12 0
Bread	533	7 6

			Rs.	A.	P.
Worms	...	...	155	10	3
Fish	...	...	29	11	0
Plantain	...	...	383	9	9
Biscuits	...	...	177	15	0
Grasshoppers	...	...	36	0	0
Gram, wheat, rice, etc.	...	...	8,851	1	6
Shattoo	...	...	117	0	0
Cattle food	...	...	798	0	6
Oilcake	...	...	172	0	0
Oats	...	...	986	2	0
Dal bhoosa	...	...	14	0	0
Australian hay	...	...	36	8	0
Miscellaneous food, such as, smaller fish, fruits, eggs, leaves, ducks, fowls, etc., etc.	...	...	3,366	7	3
Total	...	...	19,912	3	3

GENERAL CONDITION OF THE ANIMALS.

An outbreak of rinderpest amongst the animals broke out in the month of January, but on account of the prompt measures taken it was completely stamped out before much mischief had been done.

The general health of the mammals, birds and reptiles has been very good, and there have been no important deaths amongst them.

As usual, the treatment and housing of sick animals have been diligently and carefully attended to.

Subjoined is a list of some of the cases that have been successfully treated :—

NAME OF ANIMAL.	Disease.	Result.
1 Tiger ...	Abscess	} Cure.
1 Spotted deer ...	} Diarrhœa	
1 Hippopotamus ...			Enteritis
1 Sambur deer ...	} Dysentery	
1 Sloth bear ...			Pneumonia
1 Fishing cat ...	} Rheumatism	
1 Cat bear ...			Metritis
1 Weeper ...	} Mange	
1 Peafowl ...			Cold
1 Gold pheasant ...	} Debility	
1 Tragopan pheasant ...			Fracture
1 Spotted deer ...	} Tumour	
1 Barking deer ...			Constipation
1 Tapir ...	} Injury	
1 Indian wolf ...		
1 Greater Bird of Paradise ...		
1 Lion ...		
1 Sambur deer ...		
1 Wild ass ...		
1 Gayal ...		
1 Kiang ...		
1 Barking deer ...		
1 Saras crane ...		
1 ditto ...		
1 Wild dog ...		
1 Rhinoceros ...		
1 Leopard ...		
1 Sambur deer ...		
1 Spotted deer ...		
1 Great kangaroo ...		
1 Blood-breasted pigeon ...		

APPENDIX A.

I.—Comparative Statement of Receipts for
1910-1911 and 1911-1912.

	1910-1911.			1911-1912.		
	Rs.	A.	P.	Rs.	A.	P.
Opening balance	26,651	9	7	25,070	13	5
Interest	163	3	4	163	3	4
Donation and subscription	551	0	0	472	0	0
Entrance receipts	42,018	12	0	48,496	11	0
Rent	3,957	12	0	3,420	0	0
Carriage, paiki, jhinrickshaw, etc.	699	0	0	895	4	0
Fishing	35	0	0	291	0	0
Picnic	165	0	0	154	0	0
Rhino urine	1,863	0	0	2,031	0	0
Miscellaneous	5,774	3	0	4,334	12	0
Government contribution	20,000	0	0	20,000	0	0
Total	1,01,878	7	11	1,05,328	11	9
<i>Add</i> —Receipts of 31st March 1910, which were included in 1910-1911.	69	9	0	.....	
<i>Add</i> —Receipts of 31st March 1911, which were included in 1911-1912.	.....			70	15	0
	1,01,948	0	11	1,05,399	10	9
<i>Deduct</i> —Receipts of 31st March 1911, which will be included in 1911-1912.	70	15	0	.....	
<i>Deduct</i> —Receipts of 30th and 31st March 1912, which will be included in 1912-1913.	.....			456	5	0
GRAND TOTAL	1,01,877	1	11	1,04,943	5	9

*II.—Comparative Statement of Expenditure for
1910-1911 and 1911-1912.*

	1910-1911.		1911-1912.	
	Rs.	A. P.	Rs.	A. P.
Establishment ...	6,910	8 0	7,050	9 0
Food of animals ...	18,108	9 0	19,912	3 3
Purchase of animals ...	9,593	15 0	26,935	3 5
Transport of animals ...	710	2 0	1,014	15 3
Miscellaneous contingencies ...	3,243	15 3	13,143	5 8
Repairs of roads ...	1,485	3 3	2,300	2 6
Ditto of buildings ...	8,770	5 3	6,379	6 0
Original construction ...	24,263	12 3	15,458	12 6
Garden ditto ...	3,701	14 6	5,756	15 0
Tools and plant ...	18	0 0	6	14 0
Total ...	76,806	4 6	97,958	6 7
Closing balance ...	25,070	13 5	6,984	15 2
GRAND TOTAL ...	1,01,877	1 11	1,04,943	5 9

APPENDIX B.

*Summary of Visitors and Gate receipts during
1911-1912.*

MONTH AND YEAR.				Number of visitors.	Receipts.	
					Rs.	A.
April	1911	...	...	32,699	2,818	9
May	"	...	...	28,232	2,361	8
June	"	...	...	51,082	3,740	8
July	"	...	...	39,521	3,109	1
August	"	...	...	36,199	2,624	10
September	"	...	...	63,115	4,359	14
October	"	...	...	96,134	7,255	0
November	"	...	...	46,993	3,661	12
December	"	...	...	64,455	5,433	7
January	1912	...	...	73,761	5,828	6
February	"	...	...	46,037	3,666	14
March	"	...	...	50,923	3,637	2
Total			...	629,151	48,496	11

APPENDIX C.

A list of free days showing free visitors during the year 1911-1912.

10th April	1911	...	...	2,167
8th May	"	...	...	2,497
12th June	"	...	...	4,989
10th July	"	...	...	3,815
14th August	"	...	...	3,545
11th September	"	...	...	3,518
9th October	"	...	...	6,625
13th November	"	...	...	4,253
11th December	"	...	...	5,840
15th January	1912	...	...	4,695
12th February	"	...	...	5,083
11th March	"	...	...	4,127

		Total	...	51,154

APPENDIX D.

A list of Donors and their donations during the year 1911-1912.

A

Acton, Mr. E. ... 2 Brown pigeons.

B

Bedford, His Grace the Duke of 1 Pair Elands.
 Bardwan, Maharajadhiraj Bahadur of 1 Macaque monkey.
 Bannerji, Babu Mohim Chandra 1 Crocodile.
 Binning, Mr. J. ... 3 English thrushes, 1 Barbet.
 Baleman, Mr. N. G. ... 1 Roseate cockatoo.
 Bird, Lieut.-Col. R., M.D., I.M.S., C.I.E. 1 Four horned antelope.
 Blount, Mr. N. ... 2 Sulphur-crested cockatoos.
 Ballantine, Mr. ... 2 Gayals.
 Bose, Mr. K. D. ... 1 Civet cat.
 Barua, Raja Provash Chandra ... 1 Sloth bear cub.
 Bowles, Mr. L. O. ... 1 Otter.

C

Caddy, Mr. A. ... 2 Rosellas.
 Cassells, Mr. A. ... 1 Fishing cat.
 Cooper, Lieut. D. G., I.M.S. ... 1 Cobra.
 Chowdhury, Mr. E. C. ... 1 Python.
 Cossimbazar, Maharaja of ... 1 Python, 1 Leopard cat.
 Collector of Gaya ... 6 Wolf cubs.
 Cooper, Mr. C. E. ... 2 White Goves.
 Cowper, Mr. A. G. ... 1 Hooleck.
 Chowdhury, Mr. B. L. ... 2 Gargeny teals.

D

Dighapatya, The Hon'ble Raja Bahadur of. 2 Saras cranes.
 Das, Babu Ambica Chacau ... 1 Indian antelope.
 Dodsworth, Mr. O. K. ... 1 Python.

E

Ewing, Mr. F.	...	... 4	Himalayan bear.
Ezekial, Mrs.	...	... 1	Wild dog.

F

Frederickson, Mr. H.	...	... 2	Siamese cats, 1 Civet cat.
Fincke, Dr. H.	...	... 1	Four-horned antelope.
Francis, Sister Mary	...	... 1	Bear cub.

G

Girard, Mr. G.	...	... 4	White doves, 1 Painted partridge, 4 Crakes.
Ghose, Babu Bamapada	...	... 2	Spotted deer.
Green, Lieut.-Col. C. R. M.	...	... 1	Hog deer.
Gage, Major A. T.	...	... 1	ditto.
Ghose, Mr. J. N.	...	... 1	Four-horned antelope.
Gillan, Mrs. R. W.	...	... 1	Civet cat.
Gupta, Mr. S.	...	... 1	Indian antelope.

H

Hetampur, Kumar S. N. Chaker- butty of	...	... 1	Sloth bear.
Hafiz Abdul Majid Khan	...	... 1	Hyaena cub.
Hutton, Mr. J. K.	...	... 1	Himalayan bear.

K

Keelan, Mr. D. H.	...	... 1	Hoary-bellied Himalayan squirrel.
Knowles, Mr G. 1	Sloth bear.
Killie, Mrs. A. 1	Indian peafowl.

L

Long, Mrs. D. 1	Sulphur-crested cockatoo.
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M

Murray, Miss E. 1	Python, 3 Four-horned antelope, 1 male Barking deer, 1 female Hog deer.
Milton, Mr. A.	...	... 1	Jungle cat.

M

Martin, Mr. M. ...	... 1 Macaque monkey.
Middleton, Mr. L. W. ...	... 1 Ornamental snake, 1 Rat snake.
Michael, Mr. W. H. ...	... 1 Black-capped lory, 1 Sulphur-crested cockatoo.
Mukherjee, Dr. Sitanath ...	... 1 Indian antelope.
Mieire, Mr. H. D. ...	... 1 Nicobar pigeon.
Mendiata, Mr. L. ...	... 2 Peacocks.
Manley, Mrs. R. A. ...	... 1 Indian otter.
Mansfield, Mr. H. ...	... 1 Sloth bear.
Mackenzie, Mr. M. ...	... 3 Wolf cubs.

N

Nowagarh, Raja of ...	... 1 Leopard, 1 Python.
Norman, Mr. J. B. ...	... 1 Nilgai.
Nagarkar, Mr. E. S. ...	... 1 Sloth bear cub.

P

Patna, Feudatory Chief of ...	... 1 Tiger cub.
Parikud, Raja Bahadur of ...	... 5 Bar-headed geese, 2 Brahmīny ducks

R

Robinson, Mr. F. B. ...	... 2 Hyena cubs.
Robinson, Mr. P. C. ...	... 1 Leopard.
Rhee, Mr. Khee Za ...	... 1 Indian antelope.
Roy, Babu Hemchandra ...	... 1 Python.

S

Sircar, Mr. N. ...	... 1 Large Indian civet.
Smythe, Mr. ...	... 2 Rabbits.
Singh, Babu Shamlal ...	... 1 Indian antelope.
Stark, Mr. A. W. ...	... 1 Leopard cat.
Shields, Miss ...	... 2 White rats.
Swann, Mrs. ...	... 2 Leopard cubs.
Sewell, Mr. O. N. F. ...	... 1 sloth bear.
Steele, Mr. I. ...	... 1 male Nilgai, 2 young Nilgai, 1 Wild dog.
Shakespear, Col. J. ...	... 1 Slow loris, 1 Stump-tailed monkey, 1 Red dog.

T

Thompson, Captain	...	1 Arabian baboon.		
Tremearne, Mr. S.	...	2 Blue mountain parrakeets.	loris,	5 Grass

W

Westnacott, Mr. C.	...	2 Ghagials.		
Wanklyn, Mr. W.	...	1 Civet cat.		
Wakeshot, Mr. A.	...	1 Sambur deer.		
Walker, Mr. T.	...	1 Spotted deer.		

Z

Zorab, Mr. E. K.	...	1 Leopard.		
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REPORT

of

THE HONORARY COMMITTEE

for the

**MANAGEMENT OF THE ZOOLOGICAL
GARDEN, CALCUTTA.**



1912-13.



CALCUTTA :

BENGAL SECRETARIAT PRESS.

1913.

REPORT
of
THE HONORARY COMMITTEE
for the
MANAGEMENT OF THE ZOOLOGICAL
GARDEN, CALCUTTA, 1912-13.

THE Honorary Committee have the honour to submit their report for the year ending 31st March 1913, the contents of which, as usual, include, among other items,—

- (1) The Superintendent's report upon the menagerie.
- (2) Monthly returns of visitors and a list of donors.
- (3) Abstract of accounts of ordinary and extraordinary receipts and expenditure.

1. THE COMMITTEE.

The Committee consists of—

President :

The Hon'ble Sir F. W. Duke, K.C.I.E., C.S.I., I.C.S.

Vice-President :

P. L. Buckland, Esq., F.Z.S.

Honorary Secretary and Treasurer :

Lieut.-Col. E. H. Brown, M.D., I.M.S. (retired),
D.P.H., F.Z.S., F.R.C.S.E.

Superintendent :

Mr. Bijay Krishna Basu, G.B.V.C., C.M.Z.S.

Assistant Superintendent :

Babu Somadev Ganguli.

Members of the Committee :

Roostumjee Dhunjeebhoy Mehta, Esq., C.I.E.

Lieut.-Col. R. Bird, M.D., C.I.E., M.V.O. M.S., F.R.C.S.,
I.M.S.

Dr. Nelson Annandale, B.A., D.Sc., C.M.Z.S.

The Hon'ble Mr. W. R. Gourlay, I.C.S.

H. J. McIntosh, Esq., I.C.S.

Ihtisham-ul-Mulk Rais-ud-Daula Amir-ul-Umara
Nawab Sir Asif Kadr Saiyid Wasif Ali Mirza
Khan Bahadur, Mahabat Jang, Nawab Bahadur
of Murshidabad, K.C.S.J., K.C.V.O.

- John George Dean, Esq.
 Lieut.-Col. Charles Robert Mortimer Green, M.D.,
 F.R.C.S., I.M.S.
 David Ezra, Esq.
 Ambica Charan Law, Esq.
 G. Girard, Esq., F.R.H.S., I.S.O.
 The Hon'ble Sir Bijay Chand Mahtab, K.C.S.I.,
 K.C.I.E., I.O.M., Maharajadhiraj Bahadur of
 Burdwan.
 Shirley Tremearne, Esq.
 W. K. Dods, Esq.
 Nawab A. F. M. Abdur Rahman, Khan Bahadur.
 J. C. R. Johnston, Esq.
 C. J. Elton, Esq.
 Lieut.-Col. L. Rogers, C.I.E., M.D., I.M.S.
 Lieut.-Col. C. R. Stevens, M.D., I.M.S.

Ex-officio Members :

- The Commissioners of Divisions in Bengal.
 The Executive Engineer of the Public Works
 Department of the Division in which the
 Garden is placed.
 The Sanitary Commissioner with the Government
 of Bengal.
 The President of the Asiatic Society of Bengal.
 The Director of Public Instruction, Bengal.
 The Natural History Secretary of the Asiatic
 Society of Bengal.
 The Director of Land Records.
 The Superintendent, Civil Veterinary Department,
 Bengal.
 The Professor of Comparative Anatomy and
 Zoology, Medical College, Bengal.

The Superintendent of the Royal Botanic Garden,
Sibpur.

The Chairman of the Calcutta Corporation.

The Principal of the Bengal Veterinary College,
Calcutta.

Obituary :

The death of Sir W. A. Dring, K.C.I.E., who was long a member of the Garden, was a great loss to the Committee, who at their meeting on 30th November 1912 resolved that an expression of the regret of the Committee at his sad and untimely death be recorded and a copy sent to Lady Dring with a message of condolence and sympathy.

2. STAFF AND ESTABLISHMENT.

During the absence of Mr. B. Basu on deputation to England, Mr. Surendra Krishna Mitra, Lecturer, Bengal Veterinary College, was placed in charge of the Garden from 1st April to 3rd August 1912. Babu Somadev Ganguli acted as Assistant Superintendent throughout the year and Babu Panchanan Mukherji was appointed to the vacant post of Gate Clerk.

The following is a list of the superior staff of the Garden at the end of 1912-13—

Superintendent :

Mr. Bijay Krishna Basu, G.B.V.C., C.M.Z.S.

Assistant Superintendent :

Babu Somadev Ganguli.

Store-keeper and Typist:

Babu Jugal Kishore Roy.

Overseer

Babu Niranjan Mukherji.

Gate Clerk:

Babu Panchanan Mukherji.

The following is a list of the menial staff of the Garden at the end of 1912-13:—

1 Head-keeper.	1 Cook.
20 Keepers.	3 Sweepers.
10 Durwans.	1 Chaprasi.
3 Bhistis.	2 Cartmen.
1 Carpenter.	1 Syce.
1 Scytheman.	

Besides these, there were a number of labourers engaged temporarily by the Garden.

3. BUILDINGS.

During the past year the most important improvements comprised the construction of the Rodent House, the remodelling of the Murshidabad House, the conversion of the old Rodent House into a Refreshment pavilion, the construction of the kitchen and the construction of lavatories for ladies and gentlemen, the renewal of the wire netting of the Sarnomoyi House, the conversion of the Skating Rink into a lawn, the conversion of the old Refreshment pavilion into an Insect House.

- (1) *The construction of the Rodent House.*—The rodents were accommodated in small wire cages in a dark and unattractive house and

the animals had no outdoor runs. To afford them greater facilities for movement and exercise the present house was built. It is a circular brick-built house very similar to the new Monkey House with a large open air enclosure and is divided into 16 compartments. A number of trees were planted to afford the animals facilities for indulging in their natural habit of climbing trees.

(2) *The remodelling of the Murshidabad House.*—

This is another great improvement effected during the year. The small outer cages were demolished and big open-air aviaries were substituted instead. Advantage was also taken to improve the site by constructing ornamental rocks and rivulets which are fed by pipe-water. Mango, papaya and plantain trees are planted inside, and the Birds of Paradise who are the inmates of the house enjoy themselves in their natural surroundings.

(3) *Refreshment Hall.*—The removal of the rodents to the new Rodent House afforded the Committee the opportunity of improving the site and converting it into a Refreshment Hall. The whole structure was remodelled and a verandah was built on the western side, facing the lawn. The floor was laid with white marble and the whole place is greatly improved and converted into an excellent Refreshment Hall. A kitchen was also built and a cooking range provided for and the increased demands of

the public will be served by the new accommodation.

The agreement with Messrs. Wallace having ended on 31st December 1912, Messrs. Peliti were given a contract for the catering at the Garden.

- (4) *Lavatories for ladies and gentlemen.*—The arrangement was primitive, and the want of proper lavatory accommodation for the visitors was long keenly felt, but the work could not be taken in hand for want of funds.

The present retiring rooms for ladies and gentlemen have been built on approved lines and meet the requirements of the increasing number of visitors.

- (5) *Insect House.*—The old Refreshment pavilion which had been lying vacant on the transfer of the Refreshment room to the new building was thoroughly overhauled and converted into an Insect House. The stone floor was relaid and the partition removed and the woodwork repainted. Show-cases were constructed for exhibiting various kinds of insects.

- (6) The large plot of land occupied by the old Skating Rink was unsightly and useless, and the Rink was gradually falling into a state of disrepair and decay. It was suggested that the site might be utilised for some better purpose. The Rink was accordingly dismantled and the site converted into a lawn.

Among minor works that were undertaken during the year may be mentioned the construction of a

new road leading to the Hippo enclosure from the Burdwan House, the renewing of the wire-netting of the outer cages of the Sarnomoyi House and a thorough repair of the inside wire-netting of the same house, the construction of windlasses in the Small Carnivora House, teakwood flooring of the Abdul Ghany House.

As all available funds were spent in original construction, the annual repairs could not be carried out on an extensive scale. Only those houses which needed repairs very badly were attended to.

4. FINANCE.

The financial condition of the Garden is satisfactory. The receipts from visitors steadily increased and amounted to Rs. 50,499 as against Rs. 48,496-11 of the previous year, thus showing an increase of Rs. 2,002-5.

The following is a comparative statement of receipts from visitors:—

Year.	Receipts.	
	Rs.	A.
1910-11	...	42,018 12
1911-12	...	48,496 11
1912-13	...	50,499 0

The amounts of income and expenditure are summarised in Appendix A.

5. VISITORS.

The total number of paying visitors to the Garden during the year amounted to 656,402, showing an increase of 27,251.

Comparative table of visitors during the last three years.

Year.	...	...	Visitors.
1910-11	...	...	537,122
1911-12	...	...	629,151
1912-13	...	...	656,402

In addition, a large number of children under four years of age and school children attended by their teachers were admitted free. On the day of the Fancy Fair about 6,000 people entered the Garden. Besides these, 62,222 persons visited the Garden on the free days. A list of free days with the number of visitors is given in Appendix C.

6. DEPUTATION OF THE SUPERINTENDENT TO EUROPE.

In April 1912 the Superintendent of the Garden, Mr. B. Basu, was deputed by the Committee in connection with the transport of the King's collection of Nepal animals to study the management of the Zoological Gardens in England and Europe. His report will be found in Appendix E.

CONCLUSION.

The thanks of the Committee are due to the ladies and gentlemen who have added to the collection of the Garden by their donations, a list of which is given in Appendix D. Thanks are also due to those who kindly offered to present animals to the Garden, but whose offers could not be accepted, either because the particular species of animals was already sufficiently well represented, or owing to the want of accommodation.

The Committee also desire to express their sincere thanks to the Officers Commanding 40th Pathans for allowing their band to play on Sunday evenings without charge.

The thanks of the Committee are also due to many Railway and Steamer Companies for conveying animals belonging to the Garden free of charge and in particular to the East Indian Railway Company, Eastern Bengal State Railway, Bengal-Nagpur Railway Company, Oudh and Rohilkhand Railway, Bengal and North-Western Railway Company, British India Steam Navigation Company, India General Navigation and Railway Companies and Rivers Steam Navigation Company.

The Committee acknowledge with thanks the assistance of Dr. N. Annandale, B.A., D.Sc., and of F. H. Gravely, Esq., in organising the Insect House.

E. HAROLD BROWN,
Honorary Secretary.

F. W. DUKE,
President.

SUPERINTENDENT'S REPORT.

I HAVE the honour to submit the following report on the existing condition and the progress of the menagerie of the Garden.

The following comparative table shows how the various collections of animals in the Garden stood during the last four years—

Year.	Mammals.	Birds.	Reptiles.
1909-10	... 589	1,137	247
1910-11*	... 599	1,342	259
1911-12	... 654	1,612	127
1912-13	... 341 ^o	1,188 ^o	150

* The apparent reduction in the number of animals is due to the rabbits, guineapigs, common rats, common doves, common mynas, coelis, etc. having been excluded from the list by order of the Committee of Management of the Garden.

A list of animals in the Garden on 31st March 1913 is given in Appendix F.

ACQUISITIONS.

The collection of animals was enriched by numerous additions to the menagerie: the most important of them are the following:—

- 1 Tiger cub (*Felis tigris*), presented by H. C. Gordon, Esq.
- 1 Lioness (*Felis leo*), purchased.
- 1 Tigress (*Felis tigris*), presented by Mohant Dahnir Puri, of Budhowli.
- 1 Tiger cub (*Felis tigris*), purchased.
- 1 Snow leopard (*Felis uncia*), purchased.
- 1 Goral (*Nemorhadus goral*), purchased.
- 1 Tibetan lynx (*Felis lynx*), purchased.
- 1 Indian ratel (*Mellivora indica*), purchased.
- 2 Pairs Ruffed lemurs (*Lemur varius*), purchased.
- 2 Gayals (*Bos frontalis*), purchased.
- 1 Brow-antlered deer (*Cervus eldi*), purchased.

- 1 Brow-antlered deer (*Cervus eldii*), by exchange from the Rangoon Garden.
- 3 Orang-utans (*Simia satyrus*), purchased.
- 1 Wombat (*Phascologomys wombat*), purchased.
- 1 Pair Argus pheasants (*Argus giganteus*), purchased.
- 1 Pair Gang-gang cockatoos (*Callocephalon galeatum*), purchased.
- 1 Pair Vasa parrots (*Coracopsis nigra*), purchased.
- 1 Vieillot's Fireback (*Euplocomus vieilloti*), purchased.
- 1 Red Bird of Paradise (*Paradisea rubra*), purchased.
- 2 Black-necked swans (*Cygnus nigricollis*), purchased.
- 6 Imperial Sand grouse (*Pterocles arenarius*)
- 7 Common Sand grouse (*Pterocles exustus*)
- } presented by His Highness the Maharaja of Bikaner.
- 2 *Kachuga intermedia*, presented by Dr. N. Annandale.
- 2 Green Pit Vipers (*Trimeresurus gramineus*)
- 3 *Tropidonotus subminiatus*
- 1 *Tropidonotus himalayanus*
- 1 *Lycodon gamouzi*
- 8 *Dipsas hexagonotus*
- 1 Red-bellied flying squirrel (*Pteromys magnificus*.)
- 3 *Lycodon aulicus*
- } presented by His Excellency the Governor of Bengal.

The following consignment of animals was received from the Zoological Society of London on exchange during the year:—

- 1 Vervet monkey (*Cercopithecus lalandii*).
- 1 Mona monkey (*Cercopithecus mona*).
- 2 Common badgers (*Meles taxus*).
- 2 Tasmanian devils (*Sarcophilus ursinus*).
- 1 Australian rail (*Rallus pictoralis*).
- 2 Black-tailed waterhen (*Tribonyx ventralis*).
- 1 Tessellated snake (*Tropidonotus tessellatus*).
- 1 Four-lined (*Coluber quatuorlineatus*).
- 2 Glass snakes (*Ophiosarus opus*).
- 2 Dark-green snakes (*Zamenis gemonensis*).
- 2 Leopardine snakes (*Coluber leopardinus*).
- 3 Algerian tortoises (*Testudo ibera*).
- 2 European pond Tortoises (*Emys orbicularis*).
- 2 Blood-stained Terrapins (*Cin sternum cruentatum*)

- 4 Tuberculated Iguanas (*Iguana tuberculata*).
- 1 Moorhen (*Gallinula chloropus*).
- 5 Wood pigeons (*Columba palumbus*).

A pair of young Puma's were purchased from the Dublin Zoo by the Superintendent during his visit to the Gardens in May last year.

Mr. F. A. Moller of Darjeeling helped the Garden by procuring and sending down animals, among which mention may be made of—

1 Goral. | 1 Snow leopard.

The collection of Indian poisonous snakes was maintained at a high state of efficiency by constant supplies received from Midnapore by the kind help of Mr. F. B. Bradley-Birt, I.C.S., Magistrate and Collector of the district.

A list of donors and their donation during the year is given in Appendix D.

BIRTHS.

The following is a list of the most important instances of births in captivity during the year 1912-13 :—

- 4 Spotted deer (*Cervus azis*).
- 1 Pig-tailed monkey (*Macacus nemestrinus*).
- 1 Hog deer (*Cervus porcinus*).
- 2 Leopards (*Felis pardus*).
- 5 Lion cubs (*Felis leo*).
- 1 Swamp deer (*Cervus duvaucelli*).
- 1 Tiger (*Felis tigris*).
- 1 Hybrid between Sambur and Wapiti.
- 1 Brow-antlered deer (*Cervus eldii*).
- 1 Nilgai (*Boscaphus tragocamelus*).
- 2 Macaque monkeys (*Macacus cynomolgus*).
- 2 Grivet monkeys (*Cercopithecus sabæus*).

- 2 Kangaroos (*Macropus giganteus*).
- 1 Crown pigeon (*Goura coronata*).
- 1 Nicobar pigeon (*Calenas nicobarica*).
- 2 Coral-billed pigeons (*Chalcophaps indica*).
- 4 Magpie pigeons.
- 1 Scarlet Ibis (*Eudocimus ruber*).

The following is a list of birds which bred in the Garden in a wild state during the year 1912-13:—

- House crow (*Corvus splendens*).
- Kite (*Milvus govinda*).
- Pied myna (*Sturnopastor contra*).
- Bulbul (*Otocompsa emeria*).
- Common myna (*Acridotheres tristis*).
- Tree pie (*Dendrocitta rufa*).
- Kingfisher (*Alcedo bengalensis*).
- Indian koël (*Eudynamis honorata*).
- Little cormorant (*Phalacrocorax pygmaeus*).
- Night heron (*Nycticorax griseus*).
- Snake bird (*Plotus melanogaster*).
- Black-naped oriole (*Oriolus indicus*).
- Magpie robin (*Copsychus saularis*).
- House sparrow (*Passer domesticus*).
- Doves (*Turtur suratensis*).
- Pigeon (*Columba intermedia*).

DEATHS.

The year under report was unfortunately a very bad one for the Gardens as it has caused some sad gaps in our collection. The deaths of a pair of fine African lions, a female black leopard, a female tapir (all breeding animals), and the pair of Eland antelopes are very serious losses to the Garden. The two Musk deer, one Uryal and one Orang-utan which had seemed well acclimatized also died during the year.

The whole herd of Kangaroos which bred freely during the past years and which were a great

attraction to the public were swept away by acute enteritis, and in spite of every precaution as regards segregation, etc., not a single specimen could be saved.

Among other deaths the following deserve mention:—

- 1 Black-shouldered (*Pavo nigripennis*).
- 1 Twelve-wired Bird of Paradise (*Seleucidis niger*).
- 1 Sulphur-breasted toucan (*Ramphastos vitellinus*).
- 1 Argus pheasant (*Argus giganteus*).
- 1 White-tailed gnu (*Connochetes gnu*).
- 2 Gang-gang cockatoos (*Callocephalon galleatum*).
- 1 *Lycodon gammiei*.
- 1 Hoolock (*Hylobates hoolock*).
- 1 Tiger (*Felis tigris*).
- 1 Tigress (*Felis tigris*).
- 1 Tiger cub (*Felis tigris*).
- 1 Black leopard cub (*Felis pardus*).
- 1 Clouded leopard (*Felis nebulosa*).
- 5 Lion cubs (*Felis leo*).
- 1 White-necked crane (*Anthropoides leucauchen*).

PATHOLOGICAL DEPARTMENT.

The work in this department was carried on as usual. Thanks are due to the Principal, Bengal Veterinary College, for his kind help in important cases.

The results of the *post-mortem* examinations during the year have been entered in the *post-mortem* book of the Garden.

Subjoined is a list of the more important cases which presented the principal subjects for pathological diagnosis.

Number of cases.		Subjects.
Apoplexy	...	1 Australian flying squirrel, 1 Tragopan pheasant, 2 Musk deer, 1 Black leopard, 1 Gazelle, 1 Cat bear.

Number of cases.	Subjects.
Accident ...	... 1 Lioness, 1 Barking deer, 1 Saras crane.
Broncho-pneumonia ...	... 1 Nilgai.
Congestion of the liver ...	... 1 Flying squirrel, 1 Otter.
Congestion of the intestine ...	... 2 Lion cubs, 2 Four-horned antelopes, 2 Otters, 1 Uryal.
Debility ...	... 1 Hanuman, 2 Flamingoes, 1 Malayan squirrel, 1 Chákar partridge.
Dysentery ...	... 2 Sloth bears, 1 Barasingha deer.
Diarrhœa ...	... 1 Nilgai calf.
Enteritis ...	... 1 Indian antelope, 1 Red-headed pochard, 2 Black-headed ibises, 1 Comb duck, 1 King parrakeet, 1 Kokla green pigeon, 1 Queensland lory, 2 Banteng calves, 1 Bar-headed goose, 1 Mute swan, 4 Mountain ducks, 1 Indian antelope.
Fatty degeneration of the liver.	... 1 Tibetan marmot, 1 Red-billed blue magpie.
Fatty degeneration of the heart.	... 1 Barking deer, 1 Kangaroo, 1 Tragopan pheasant, 1 Jungle fowl, 1 Australian mountain duck, 1 Sulphur-breasted toucan.
Gastritis (acute) ...	... 1 Varanus flavescens, 1 Jackal, 1 Roseate cockatoo, 1 Hanuman, 1 Eclectus.
Gastro-enteritis ...	... 2 Indian antelopes.
Indigestion ...	... 1 Sloth bear cub, 1 Leopard cub.
Intestinal catarrh ...	... 1 Red Bird of Paradise, 1 Magpie goose, 1 Roseate cockatoo.
Pleurisy ...	... 1 Eland cow.
Pneumonia ...	... 1 Javan mouse deer, 1 Rosella, 1 Kangaroo, 1 Leopard cat, 1 Ruffed lemur, 1 Vervet monkey.
Pericarditis ...	... 1 Rosella, 1 White llama, 1 Celebian black monkey.
Pyæmia ...	... 1 White-necked crane, 1 Argus pheasant.
Tuberculosis ...	... 1 Female Tapir, 1 Hoolock.

PROVISIONS.

The following table shows the quantity of provisions consumed during the year:—

			Mds.	s.	CH.
Gram	...	...	1,031	10	0
Bran	...	...	550	37	0
Paddy	...	...	462	31	0
Rice	...	...	245	20	0
Wheat	...	...	89	2	0
Indian-corn	...	...	108	15	0
Flour	...	...	86	14	8
Peas	...	...	17	11	8
Potatoes	...	...	261	5	0
Oilcake	...	...	342	11	0
Paddy-straw	...	...	2,285	20	0
Bazra	...	...	144	11	8
Kalai	...	...	24	0	0
Crushed oats	...	...	446	35	0
Linseed	...	...	26	15	0
Canaryseed	...	...	lbs.	1,744	
			Mds.	s.	CH.
Kangney	...	...	1	8	0
Hempseed	...	...	1	8	0
Gûr	...	...	14	8	8
Shattoo	...	...	98	22	12
Rahar dâl	...	...	12	30	8
Mutton	...	...	36	2	14
Milk	...	...	65	24	6
Biscuits	...	...	5	23	4
Barley	...	...	47	0	0
Beef	...	...	959	37	0

			Mds.	s.	ch.
Sugar	...	...	2	26	12
Fish	...	...	34	17	2
Worms	...	...	13	35	8
Black salt	...	...	9	7	0
Table salt	...	...	20	29	0
Onion	...	...	7	9	10
Ghee	...	...	0	22 ^c	0
Garlic	...	...	0	35	8
Curd	...	...	20	5	0
Dates	...	...	1	24	0
Sugarcane	...	...	No.	4,601	
Ducks	...	...	"	398	
Bread	...	...	"	12,204 $\frac{1}{2}$	
Plantain	...	...	99	kahans	9 pons 10 gandas.
Eggs	...	...	No.	6,650	
Tea	...	...	14	tins	(1-lb. tin).
Fowl	...	...	No.	1,987	
Hay	...	...	73,200	bundles.	
Grasshoppers	...	...	No.	36,500	
Jack-fruit leaves	...	...	183	cart-load.	
Miscellaneous fruits, such as papayas, oranges, etc.	...	...	No.	7,352	
Goats	...	...	"	141	
Pigeons	...	...	"	549	
Arrowroot	...	...	12	tins.	
Nutrient	...	...	2	"	
Snakes	...	...	No.	139	
Frogs	...	...	"	3,002	
Smaller birds	...	...	"	109	

Besides the above a large amount of vegetables was grown in the Garden and supplied to the animals throughout the year.

The following table gives the chief items of expenditure under "Food of animals" for the year 1912-13:—

		Rs.	A.	P.
Beef	...	3,514	8	6
Mutton	...	562	13	0
Bread	...	750	11	0
Worms	...	161	12	3
Live fish	...	174	2	6
Plantains	...	448	9	9
Biscuits	...	51	15	6
Grasshoppers	...	36	0	0
Grains, such as gram, bran, wheat, etc.	...	14,755	9	3
Shattoo	...	352	0	0
Cattle food	...	201	10	0
Miscellaneous food, such as leaves, fowls, kangney, etc.	...	4,704	11	3
Milk	...	254	4	0
Total	...	25,968	11	0

APPENDIX A.

I.—Comparative Statement of Receipts for
1911-12 and 1912-13.

	1911-12.			1912-13.		
	Rs.	A.	P.	Rs.	A.	P.
Opening balance	25,070	13	5	6,997	7	2 ^c
Interest	163	3	4	163	3	4
Donations and subscriptions	472	0	0	240	0	0
Entrance receipts	48,496	11	0	50,499	0	0
Rent	3,420	0	0	5,310	0	0
Carriage, palki, jhinricksha, elephant ride, etc., etc.	895	4	0	933	6	0
Fishing	291	0	0	321	0	0
Picnic	154	0	0	156	0	0
Rhino urine	2,031	0	0	2,230	0	0
Miscellaneous receipts	4,334	12	0	7,487	15	0
Government contribution	20,000	0	0	20,000	0	0
Total	1,05,328	11	9	94,337	15	6
<i>Add—</i>						
Receipts of 31st March 1911, which were included in 1911-12.	70	15	0	.....	
Receipts of 30th and 31st March 1912, which were included in 1912-13.	.....			456	5	0
	1,05,399	10	9	94,794	4	6
<i>Deduct—</i>						
Receipts of 30th and 31st March 1912, which will be included in 1912-13.	456	5	0	.....	
Receipts of 27th to 31st March 1913, which will be included in 1913-14.	.....			818	10	0
GRAND TOTAL	1,04,943	5	9	93,975	10	6

* Including Rs. 12-8-2 which was added to the opening balance as per Accountant-General, Bengal's letter No. A.C.—705, dated 5th October 1912.

*II.—Comparative Statement of Expenditure for
1911-12 and 1912-13.*

	1911-12.		1912-13.	
	Rs.	A. P.	Rs.	A. P.
Establishment	7,050	9 0	7,543	3 8
Food of animals	19,912	3 3	25,968	11 0
Purchase of animals	26,935	3 5	11,648	8 0
Transport of animals	1,014	15 3	1,244	14 3
Miscellaneous contingencies	13,143	5 8	8,905	4 5
Repair of roads	2,300	2 6	792	3 6
Do. of buildings	6,379	6 0	4,420	0 6
Original construction	15,458	12 6	19,470	10 3
Garden ditto	5,756	15 0	4,085	10 3
Tools and plant	6	14 0	.....
Total	97,958	6 7	84,079	1 10
Closing balance	6,984	15 2	9,896	8 8
GRAND TOTAL	1,04,943	5 9	93,975	10 6

APPENDIX B.

*Summary of Visitors and Gate receipts during
1912-13.*

Month and Year.				Number of visitors.	Receipts.
					Rs. A.
April	1912	...	...	47,781	3,640 11
May	"	...	...	40,922	3,223 3
June	"	...	...	37,452	2,776 15
July	"	...	...	58,647	4,318 15
August	"	...	...	36,224	2,780 6
September	"	...	...	70,630	5,187 1
October	"	...	...	84,345	5,918 12
November	"	...	...	55,755	4,377 6
December	"	...	...	54,143	4,845 7
January	1913	...	...	63,981	5,033 7
February	"	...	...	50,642	3,844 1
March	"	...	...	55,880	4,552 12
Total			...	656,402	50,499 0

APPENDIX C.

A list of free days showing free visitors during the year 1912-13.

8th April	1912	...	5,351
13th May	"	...	3,429
10th June	"	...	4,740
8th July	"	...	5,731
12th August	"	...	5,436
9th September	"	...	5,694
14th October	"	...	7,349
11th November	"	...	6,135
9th December	"	...	5,221
13th January	1913	...	5,471
3rd February	"	...	3,431
3rd March	"	...	4,234
			<hr/>
		Total	... 62,222
			<hr/>

APPENDIX D.

List of Donors, 1912-13.

A

Annandale, Dr. N., B.A., D.Sc.	...	2	<i>Kachuga intermedia.</i>
Allen, Mr. B. C., I.C.S.	...	1	Slow loris.
Arbuthnot, Mr. P. B.	...	2	Indian Wild dogs.

B

Bradley-Birt, Mr. F. B., I.C.S.	...	1	Spotted deer, 1 Sloth bear.
Butt, Mrs. K. M.	...	1	Python.
Barton, Mr. L. H.	...	1	Leopard.
Banerji, Babu Satya Kripal	...	1	Spotted deer.
Boral, Babu Maniklal	...	1	Indian antelope.
Bikaneer, H. H. Maharaja of	...	6	Imperial Sand grouse, 7 Common Sand grouse.

C

Corbould, Mr. P. S.	...	1	Sambur stag.
Cleghorn, Miss M	...	1	Tree frog.
Christian, Mr. H. D.	...	1	Leopard cub.
Cossimbazar, Maharaja of	...	2	Leopards.
Christien, Mr. F. E.	...	1	Sambur stag.
Coupland, Mr. H.	...	1	Bison calf.
Chandra, Babu Rajendranath	...	1	Barking deer.
Craven, Mr. J. A.	...	2	Sloth bear cubs.

D

Devi, Rani Syamasundari	...	2	Bar-headed geese, 1 green pigeon, 2 doves.
Dods, Mr. W. K.	...	9	Indian foxes, 4 White-tailed Sea-eagles, 1 Indian Civet, 1 Indian Rail, 3 Cotton teals.
Dumayne, The Hon'ble Sir F. G., Kt.	1	Black-capped lory, 1 Eclectus, 10 Java sparrows, 1 Budgeregat, 5 Red muniahs.	

E

Ewing, Lt. P. S.	...	1	Otter.
Elmes, Private J.	...	1	Pig-tailed monkey.

F

Frederickson, Mr. H. ... 2 Sloth bear cubs.

G

Gordon, Mr. H. C. ... 1 Tiger cub.
 Girling, Mr. J. ... 2 Muscovy ducks.
 Girard, Mr. G., F.R.H.S., I.S.O. ... 3 White-breasted water-hens.
 Gover, Mr. W. ... 1 Leopard.
 Ghosh, Babu Nanku Lal ... 1 Sambur deer.

H

Henning, Kerr Karl ... 1 Rat snake.
 Holmes, Captain B. W. ... 2 Otters.
 Harrison, Dr. E. P. ... 2 Himalayan bears.
 Halliday, The Hon'ble Sir F. L. ... 1 Spotted deer.
 Kt., C.I.E., M.V.O., J.P.
 Harley, Mrs. ... 1 Domestic sheep.
 Harris, Mr. W. A. ... 1 Sloth bear cub.

I

I. G. S. N. Co.'s Staff Officer .. 1 Python.

J

Janowitz, Mr. A. ... 1 Indian antelope.
 Jacob Chinaman ... 1 Leopard cat.

K

Kumar of Panchgachia ... 1 Leopard.
 Kelly, Miss Ada ... 1 Budgregar, 2 Muniachs.

L

Lewin, Captain E. O. R. ... 2 Sloth bears.
 Law, Mr. T. ... 1 Leopard cub.
 Lal, Babu Jogeshawar ... Ditto.
 Lynch, Mrs. W. J. ... 1 Peafowl.
 Leslie, Mr. John ... 1 Leopard.

M

Mohunt Dalmir Puri	...	1 Tigress.
Mukherji, Mr. G.	...	1 Indian antelope.
Murray, Miss E.	...	2 Young jackals, 2 Cobras.
Majumdar, Mr. T. N.	...	1 Indian antelope.
McCrea, Mr. R. H.	...	1 Chaffinch.
Maharaja and Feudatory Chief of Patna.	1 Tigress.	
Murshidabad, Nawab Bahadur of	6 Indian antelopes, 2 Sloth bears.	
Mitter, Babu Tropondehwar	...	1 Fat-tailed sheep.
Meerza, Mrs. N.	...	2 Ring-necked doves.
Mazumdar, Mr. M. L.	...	1 Indian antelope.
Marens, Mr. H.	...	1 <i>Lycodon aulicus</i> .

N

Noble, Mr. W. R.	...	1 Himalayan bear.
Nahata, Mr. M.	...	1 Marsh crocodile, 2 Bengal moaitors.

P

Pittar, Mr. C. E.	...	1 Sand snake.
Pakur, Subdivisional Officer of	...	1 Leopard.
Pity, Babu Govindas	...	1 Indian antelope
Pal, Babu Surendra Nath	...	1 Cobra.
Paterson, Mr. D.	...	2 Gharials.

R

Roy Chowdhury, Babu Nagendra Behari.	1 Leopard.	
Rayner, Mr. G. E.	...	2 Leopard cats.
Reid, Mr. W. A.	...	1 Indian antelope.
Roy, Kumar Bimalendra Nath	...	1 Leopard cub.
Robertson, Mr. G.	...	1 Porcupine.
Roy, Babu Monoranjan	...	1 Nilgai.
Reilly, Mrs.	...	2 Large Indian squirrels.
Rutherford, Mr. R. E.	...	2 Wolf cubs, 1 Hyæna cub.

S

Sidey, Mr. G. J.	...	1 Barn owl.
Sing Deo, Birkishore Sekhar.	Mohan	1 Leopard cub.
Sing, Kumar A. K.	...	1 Roseate cockatoo, 1 Alexandrine parakeet.
Sedgley, Mrs. G.	...	1 Sloth bear cub.
Stielston, Mrs. M.	...	1 Indian antelope.
Siklim, Maharaj-Kumar of	...	1 Rock-horned owl.
Smallwood, Mr. E.	...	1 Sloth bear cub.
Stevens, Mrs. A. J.	...	2 Four-horned antelopes.

T

Tatam, Mr. A. C.	...	1 Hyæna cub.
Thomson, Mr. J.	...	1 Spotted deer.

W

Watson, Lt. G. E. B., R.A.	...	1 Python.
Westmacott, Mr. C. W.	...	2 Gharials.
Walker, Mr. J. P.	...	1 Leopard cat.
Whitty, Mr. J. S.	...	3 Hyæna cubs.

HIS EXCELLENCY THE GOVERNOR OF BENGAL.

2 Green pit vipers.	1 * <i>Lycodon gammiei</i> .
3 <i>Tropidonotus subminiatus</i> .	1 Tree snake.
1 <i>Tropidonotus himalayanus</i> .	7 Red-vented snakes.
3 <i>Lycodon aulicus</i> .	1 Red-bellied Flying squirrel.

8 *Dipsas hexagonotus*.

APPENDIX E.

Report of the Superintendent on his deputation to England in connection with the transport of the King's collection of Indian animals.

I BEG to submit the following report of my visit to Europe in connexion with the transport of His Majesty's collection of animals from Nepal.

I left Calcutta on the 1st of April 1912 by S.S. *Afghanistan* and reached London on the 20th May. I am glad to say that, with the exception of a very few small animals which died on the voyage, all the collection was landed in excellent condition and made over to the Secretary, Zoological Garden, London.

The authorities of the Garden seemed to be very pleased with them, and I am very glad to report that Their Majesties the King and the Queen came in person to inspect the collection of animals at the Zoo on 30th May, when I was asked to attend and had the honour to be presented to Their Majesties by Dr. P. Chalmers Mitchell, Secretary of the London Zoological Society.

I paid my first visit to the Zoo on the morning of the 21st May. Dr. P. Chalmers Mitchell and Mr. Pocock, Superintendent, showed me round the gardens. During my stay in London I visited the garden almost daily to study the general management of the garden. The Secretary and Superintendent were always very kind to me and helped me with every

information I wanted from them, and I take this opportunity of expressing my sincere thanks to them.

I met Mr. Girard and Mr. Ezra several times in the garden and we discussed many important things. I also met Mr. Johnston more than once at the garden and we talked about the housing arrangement of the otters and the sea-lions, and he is of opinion that we may also have similar arrangements in our garden. I was fortunate enough to make the personal acquaintance of Mr. C. E. Buckland and Mr. Frank Finn. I conversed with Mr. Finn about the breeding of the birds in our aviaries, and I am glad that I got very valuable information as regards housing and breeding arrangements.

I visited the following gardens during my tour:—

1. Zoological Society's Garden, London.
2. Zoological Garden, Clifton.
3. Zoological Garden, Dublin.
4. The Garden of the Royal Society of Zoology, Antwerp.
5. Zoological Garden, Rotterdam.
6. Zoological Garden, Amsterdam.
7. Jardin des plantes, Paris.
8. Jardin D'acclimatation, Paris.
9. Jardin Zoologique, Marseilles.
10. Zoological Garden, Hamburg.
11. Thierpark, Stellingen.
12. Zoological Garden, Berlin.
13. On my way to London I took the opportunity of visiting the Madras Garden, where our steamer anchored.

14. Woburn Abbey. His Grace the Duke of Bedford very kindly made special arrangements to enable me to see his extensive park. Under the kind guidance of Colonel Oliphant I went round the beautiful grounds containing a unique collection of deer, representing some very rare and almost extinct species. It is a treat to see such a large collection of deer, antelopes, bisons, etc., in one place and practically in a wild state.

have noted the following during my tour which be of importance :—

- (a) Housing of animals.
- (b) Breeding of animals.
- (c) Exchange of animals.
- (d) Aquarium.

The general arrangement of housing in European pens is based on conditions quite different from those of our garden here. They have to provide for winter, whereas we have to fight against heat.

Housing of animals—

Outdoor enclosure for larger carnivores :—

The outdoor enclosure of the London Zoo for larger carnivores is almost similar to our enclosure for the small voracious animals. They are furnished with rock and big trunks of trees. The pucca cement floor of the outer cage of the London Zoo is just like the recreation enclosure of the Bardwan se.

The lion and tiger houses of some of the European Gardens, *e.g.*, Antwerp, Rotterdam, Amsterdam, etc., are imposing structures; but as regards open-air arrangements our garden is not inferior to any other gardens except Mr. Hagenbeck's Thierpark, which is built entirely on a novel plan at an enormous cost.

The recreation enclosure of our Burdwan House may be said to be the biggest open-air enclosure of all the gardens I visited.

Flooring.—The London Zoo as well as most of the other gardens have plank flooring for the dens, which is very necessary for securing almost perfect immunity for the animals from rheumatism and other allied disorders.

Partition walls of the outdoor cages.—The partition walls of the outer dens of the smaller carnivorous animals are either solidly built or have the iron gratings covered with wire-netting of finer mesh.

Deer paddocks.—The London Zoo possesses a fine collection of antelopes, and their housing arrangements as well as those of other European gardens, *viz.* Berlin, Antwerp, Amsterdam, etc., are based on the practical method of avoiding damp as much as possible. The stalls are situated at the further end of the paddocks in one uniform line and on a height of about 4 feet and 5 feet from which the enclosures gradually slope down to the ground level 25 feet to 30 feet away. The stalls are spacious and well ventilated with passage for visitors who desire to see them in the stalls. Our new Antelope House is

similar to it except that we have a big run on the other side. If we get the Kidderpur House grounds we may construct a series of enclosures for antelopes on this line. Instead of fencing we may introduce strong wire-netting, which is much cheaper, and wire-netting as a fencing is extensively used in some of the gardens and also in the park of the Woburn Abbey.

Aviaries for birds.—The big flying aviaries of the Berlin and Antwerp and London Gardens are as imposing as they are useful. They are lofty enough to allow quite large trees to be grown in them and the rockeries, profusion of shrubs and creepers afford facilities to the birds to nest.

Enclosure for Aquatic birds.—The collection of ducks and geese in our garden may perhaps be said to be the largest and specially the best of all the collections I visited in one place. Our housing arrangements, however, are not spacious enough for the number of birds we have in our stock. We have only two enclosures—

- (a) Wild fowl house,
- (b) Duck pond,

The enclosures should be lengthened a good deal towards the lake so that larger trees and bushes can be grown inside and rockeries introduced. The question of enlarging the wild fowl enclosure is under the consideration of the Committee of Management of the Garden.

Besides these, a large number of aquatic birds are kept almost in a wild state in the big lake, but considering the area of the lake which is about $4\frac{1}{2}$ acres, many of the species are lost to view—

a few hundred birds there look a small show. The number should be increased to some thousands.

Hand-railing.—The London and other gardens in Europe prevent the visitors from teasing the animals by placing the hand-railings at a good distance from the cages. The hand-railings in the Dumraon House, Gubbay and Burdwan Houses and Small Carnivora House are placed only about 2° feet from the cage, thus affording an opportunity to the visitors of teasing the animals. In some of the gardens they use wire-netting of a thin mesh on the cage up to a certain height and have thus spared a good deal of annoyance caused by visitors. The outer enclosures of the Dumraon and Gubbay Houses should be provided with hand-railing 4 feet apart, or if this is not possible, wire-netting of a thin mesh should be used.

Breeding of animals.—Some of the European gardens are very successful in breeding valuable animals. The success is due partly to climatic conditions and partly to judicious feeding and especially careful housing. That housing is an important factor in the health as well as in breeding of animals may be proved by our pair of black leopards, lions, leopards and tapirs. These animals did not use to breed here, but by careful changes in housing arrangements, feeding and giving them exercise, they bred here so successfully.

The following is a list of the more important births in captivity:—

London Zoo.—Among others they bred Giraffe, Eland, Wapiti, Gayal, Banteng, Kiang, Polar bear, Bactrian Camel, some of the Indian deer and pheasants, etc.

Dublin Zoo.—Famous for breeding lions. They are also breeding Pumas and Leopards. We have taken from them a pair of Pumas at £20. I hope before long we shall also be able to breed them here.

Antwerp Zoo.—Besides others they breed Giraffes, Zebras, Bisons.

Amsterdam Zoo.—Hippo, Giraffe, Banteng, Zebra.

Berlin Zoo.—Very successful in breeding pheasants. In connexion with breeding pheasants, fowls, etc., most of the European gardens use incubators and are very successful. Mr. Hagenbeck uses incubator in his Ostrich farm at Stellingen. Some of our pheasants, viz., Amherst pheasants, Gold pheasants and the Burmese peafowl and Ostriches, lay eggs, but unfortunately the hen-birds are disturbed by other birds in the aviary, and hence they do not sit on their eggs.

Exchange of animals.—From my tour in Europe I am quite sure that we can build up a system of exchange with other Gardens to our great advantage. We may as well send from time to time consignments of Indian animals, birds and reptiles. It will be a source of income to our Gardens.

The following Indian animals are wanted in European gardens, and if we make it a point to stock them by purchasing when opportunity occurs, we can sell them at a profit:—

Young elephants, rhinoceroses, if available, spotted deer, Indian antelopes, Indian gazelles, hog deer four-horned antelopes, brow-antlered deer, Barasingha deer, tigers, black leopards, clouded leopards, leopard cats, fishing cats, Himalayan bears, cat

bears, Himalayan pheasants, lynx, Indian monkeys, all sorts of Indian birds and snakes.

There are three or four dealers in Calcutta who supply stock to foreign markets, and if we can begin in a businesslike way I am sure there will be a substantial yearly income. We shall have to spend nothing for supervision and upkeep. The Antwerp Gardens do a regular business in this line and make a decent profit. I saw Dr. Kerbert on the subject and he encouraged me. The Directors of Dublin, Clifton, Amsterdam and Berlin are all willing to open exchange account with us, and I have received letters from South Perth and Sydney Zoological Gardens intimating that they are also willing to open accounts with us. If we can occasionally send what they require from India and if we take from them what we want for our gardens, we can have a continuous supply of animals direct from them without any middleman's profit. I hope this matter be taken up seriously and endeavours be made to collect animals and birds from all parts of India.

Aquaria.—Almost all the European gardens have an aquarium attached to them. Antwerp, Amsterdam and Rotterdam have the finest aquaria. They are a great attraction to the public. A fresh-water aquarium may be constructed in our gardens on a small scale without much expense. The question of an aquarium in our garden is pending for long time, and it is now time to take the matter in hand. I am sure it will be appreciated by the people of Bengal and in the long run it will be paying.

B. BASU.

APPENDIX F.

LIST OF ANIMALS IN THE GARDEN ON 31ST MARCH 1913.

CLASS MAMMALIA.

Order Primates.

- 4 Orang-utans (*Simia satyrus*).
 3 Hoolock Gibbon (*Hylobates hoolock*).
 3 Mandrills (*Cynocephalus mormon*).
 1 Drill (*Cynocephalus leucophaeus*).
 3 Yellow baboons (*Cynocephalus babouin*).
 2 Arabian baboons (*Cynocephalus hamadryas*).
 1 Chacma baboon (*Cynocephalus porcarius*).
 1 Anubis baboon (*Cynocephalus anubis*).
 5 Grivet monkeys (*Cercopithecus griseo-viridis*).
 1 Moustach d monkey (*Cercopithecus cephus*).
 1 Green monkey (*Cercopithecus callitricus*).
 2 Houcheur monkeys (*Cercopithecus nictitans*).
 2 Celebes Black monkeys (*Cercopithecus niger*).
 4 Mona monkeys (*Cercopithecus mona*).
 8 Entellus monkeys (*Semnopithecus entellus*).
 4 Macaque monkeys (*Macacac cynomolgus*).
 2 Rhesus monkeys (*Macacus rhesus*).
 3 Brown stump-tailed monkeys (*Macacus arctoides*).
 4 Pig-tailed monkeys (*Macacus nemestrinus*).
 2 Lion-tailed monkeys (*Macacus silenus*).
 1 Bonnet monkey (*Macacus sinicus*).
 1 Brown capuchin (*Cebus fatuellus*).
 3 Weeper capuchins (*Cebus capucinus*).
 4 Common marmosets (*Hapale jacchus*).
 2 Golden marmosets (*Midas chrysomelas*).
 2 Yellow-handed Tamarin (*Midas midas*).
 1 Sooty mangabey (*Cercocebus fuliginosus*).
 2 White-collard mangabey's (*Cercocebus collaris*).

Order Lemures.

- 2 Mongoose lemurs (*Lemur mongoz*).
 4 Black-headed lemurs (*Lemur brunneus*).
 6 Ring-tailed lemurs (*Lemur catta*).
 4 Ruffed lemurs (*Lemur varius*).
 3 Slow loris (*Nycticebus tardigradus*).

Order Carnivora.

- 6 African lions (*Felis leo*).
- 1 Indian lion (*Felis leo*).
- 5 Tigers (*Felis tigris*).
- 10 Leopards (*Felis pardus*).
- 1 Black leopard (*Felis pardus*).
- 1 Snow leopard (*Felis uncia*).
- 1 Clouded leopard (*Felis nebulosa*).
- 1 Jaguar (*Felis onca*).
- 2 Pumas (*Felis concolor*).
- 4 Leopard cats (*Felis bengalensis*).
- 2 Fishing cats (*Felis viverrina*).
- 1 Siamese cat (*Felis*).
- 4 Himalayan bears (*Ursus torquatus*).
- 6 Sloth bears (*Melursus ursinus*).
- 2 Racoons (*Procyon lotor*).
- 2 Badgers (*Meles taxus*).
- 2 Common genets (*Genetta vulgaris*).
- 2 Ring-tailed coatis (*Nasua rufa*).
- 1 Large Indian civet (*Viverra zibetta*).
- 1 Small Indian civet (*Viverricula malaccensis*).
- 2 Indian wolves (*Canis pallipes*).
- 1 Indian jackal (*Canis aureus*).
- 1 Indian jackal (white) (*Canis aureus*).
- 1 Side striped jackal (*Canis lateralis*).
- 1 Indian mongoose (*Harpestes mungo*).
- 1 Crab-eating mongoose (*Harpestes urva*).
- 6 Striped hyænas (*Hyæna striata*).
- 3 Indian wild dogs (*Cyon dukhuensis*).
- 4 Indian foxes (*Vulpes bengalensis*).
- 1 Indian ratel (*Mellivora indica*).
- 2 Common otters (*Lutra vulgaris*).
- 13 Cat bears (*Aelurus fulgens*).

Order Proboscidea.

- 1 Indian elephant (*Elephas indicus*).

Order Ungulata.

- 2 Indian Rhinoceroses (*Rhinoceros unicornis*).
- 4 Malayan tapirs (*Tapirus indicus*).

- 2 Hippopotamuses (*Hippopotamus amphibius*).
 2 English wild cattle (*Bos taurus*).
 4 Gayals (*Bos frontalis*).
 2 Bantengs (*Bos sondaicus*).
 1 Anoa (*Anoa depressicornis*).
 2 Wild asses (*Equus onager*).
 2 Zebras (*Equus burchellii*).
 6 Nilgais (*Boselaphus tragocamelus*).
 14 Indian antelopes (*Antilope cervicapra*).
 5 Four-horned antelopes (*Tetraceros quadricornis*).
 3 Brow-antlered deer (*Cervus eldii*).
 10 Hog deer (*Cervus porcinus*).
 2 Barking deer (*Cervus muntjac*).
 7 Sambur deer (*Cervus aristotelis*).
 12 Spotted deer (*Cervus axis*).
 5 Barasingha deer (*Cervus duvaucelli*).
 2 Wapiti deer (*Cervus canadensis*).
 5 Javan mouse deer (*Tragulus javanicus*).
 3 Indian mouse deer (*Tragulus memmina*).
 1 Beatrix antelope (*Oryx beatrix*).
 1 Addax (*Addax naso-maculatus*).
 1 Blessbok (*Damaliscus albifrons*).
 2 Water bucks (*Cebus ellipsiprymnus*).
 1 Huanaco (*Lama huanacos*).
 4 White Llamas (*Lama glama*).
 1 Domestic goat (*Capra hircus*).
 3 Domestic sheep (*Ovis aries*).
 6 Wild pigs (*Sus cristatus*).
 1 Andaman pig (*Sus andamanensis*).

Order Marsupialia.

- 3 Rufous kangaroos (*Macropus rufus*).
 2 Wallaroos (*Macropus robustus*).
 3 Wallabies (*Macropus bennetti*).
 1 Wallaby (albino) (*Macropus bennetti*).
 1 Wombat (*Phascalomys wombat*).
 1 Rat kangaroo (*Potorous tridactylus*).
 2 Opossums (*Didelphys virginiana*).
 1 Vulphine phalanger (*Trichosurus vulpecula*).
 2 Tasmanian devil (*Sarcophilus ursinus*).

Order Rodentia.

- 4 Large Indian squirrels (*Sciurus indicus*).
- 5 Large Malayan squirrels (*Sciurus bicolor*).
- 1 Three-coloured squirrel (*Sciurus tricolor*).
- 1 Orange-bellied grey squirrel (*Sciurus blanfordi*).
- 3 Hoary-bellied Himalayan squirrels (*Sciurus lokroides*).
- 1 Grey flying squirrel (*Sciuropterus fibriatus*).
- 1 Tibetan marmot (*Arctomys hodgsoni*).
- 8 Indian porcupines (*Hystrix leucurus*).
- 1 Brush-tailed porcupine (*Atherura fasciculata*).
- 1 Hairy-rumped agouti (*Dasyprocta prymnolopha*).

CLASS AVES.

Order Passeres.

- 1 White crow (*Corvus splendens*).
- 1 Butcher crow (*Cracticus picatus*).
- 1 Greater Bird of Paradise (*Paradisea apoia*).
- 2 Lesser Birds of Paradise (*Paradisea minor*).
- 4 Red Birds of Paradise (*Paradisea rubra*).
- 1 Twelve-wired Bird of Paradise (*Seleucides niger*).
- 4 Indian tree pies (*Dendrocitta rufa*).
- 1 White-crested laughing thrush (*Garrular leucolophus*).
- 2 White-throated laughing thrush (*Garrular albigularis*).
- 1 Song thrush (*Turdus musicus*).
- 24 Bengal red-vented bulbuls (*Molpastes bengalensis*).
- 1 Red-whiskered bulbul (*Otocompsa jocosa*).
- 4 Rose-coloured starlings (*Pastor roseus*).
- 4 Black-headed mynas (*Temenuchus nigriceps*).
- 4 Grey-headed mynas (*Temenuchus malabaricus*).
- 1 Magpie robin (*Copsychus saularis*).
- 2 Black-naped orioles (*Oriolus indicus*).
- 1 Indian oriole (*Oriolus kundoo*).
- 3 Weaver birds (*Euplectes flammiceps*).
- 1 Blackthroated weaver bird (*Ploceus bengalensis*).
- 4 Paradise whydahs (*Vidua pardisea*).
- 9 Red munias (*Sporoginthus amandava*).
- 19 Java sparrows (*Padda oryzivora*).

- 2 Chaffinches (*Fringilla cœlebs*).
- 1 Gold finch (*Carduelis elegans*).
- 3 Yellow buntings (*Emberiza citrinella*).
- 3 Cut-throats (*Amadina fasciata*).
- 1 Bush lark (*Mirafra assamica*).
- 1 Black bird (*Merula merula*).
- 3 Indian pittas (*Pitta brachyura*).

Order Scansores.

- 9 Crimson-breasted barbets (*Xantholæma indica*).
- 1 Blue-throated barbet (*Cyanops asiatica*).

Order Columbæ.

- 26 Common pigeons (*Columba intermedia*)
- 2 Wood pigeons (*Columba palumbus*).
- 1 Bronze-winged pigeon (*Phaps chalcoptera*).
- 15 Coral-billed pigeon or emerald doves (*Chalcophaps indica*).
- 2 Wonga Wonga pigeons (*Leucosarcia picta*).
- 7 Blood-breasted pigeons (*Phlogonias cruentata*).
- 8 Common Crowned pigeons (*Goura coronata*).
- 5 Victoria Crowned pigeons (*Goura victoria*).
- 6 Nicobar pigeons (*Calenas nicobarica*).
- 4 Imperial green pigeons (*Carpophaga aenea*).
- 12 Bengal green pigeons (*Crocopus phœnicopterus*).
- 1 Kokla pigeon (*Sphenocercus sphenurus*).
- 1 Fruit pigeon (*Ptilopus superbus*).
- 20 Magpie pigeons.

Order Halcoynes.

- 1 Little Indian kingfisher (*Alcedo bengalensis*).

Order Bucerotes.

- 2 Pied hornbills (*Anthracoceros albirostris*).
- 1 Javan hornbill (*Buceros rhinoceros*).
- 1 Rhinoceros Hornbill (*Buceros silvestris*).
- 3 Sulphur-breasted Toucans (*Ramphastos carinatus*).

Order *Psittaci*.

- 6 Sulphur-crested cockatoos (Greater) (*Cacatua galerita*).
 5 Lesser Sulphur-crested cockatoos (*Cacatua sulphurea*).
 21 Roseate cockatoos (*Cacatua roseicapilla*).
 7 Bare-eyed cockatoos (*Cacatua gymnopsis*).
 1 Long-billed cockatoos (*Liemotis tenuirostris*).
 3 Rosy-crested cockatoo (*Cacatua moluccensis*).
 2 Leadbeater's cockatoos (*Cacatua leadbeateri*).
 11 Rosella cockatoos (*Platycercus eximius*).
 6 Adelaide parrakeets (*Platycercus adelaidæ*).
 6 Pale-headed parrakeets (*Platycercus pallidiceps*).
 2 Blossom-headed parrakeets (*Palæornis cyanocephala*).
 7 Alexandrine parrakeets (*Palæornis eupatrius*).
 4 Red-rumped parrakeets (*Platycercus hæmiltonotus*).
 6 Yellow-collared parrots (*Platycercus semi-torquatus*).
 2 Vasa parrots (Greater) (*Coracopsis vasa*).
 2 Red and Blue macaws (*Ara macao*).
 2 Blue and Yellow macaws (*Ara ararauna*).
 2 Hyacinthine macaws (*Anodorhynchus hyacinthinus*).
 2 Glaucous macaws (*Anodorhynchus glaucus*).
 2 Illiger's macaws (*Ara maracana*).
 2 Yellow-fronted Amazons (*Chrysotis ochrocephala*).
 2 Many-coloured parrots (*Platycercus multicolor*).
 25 Java parrots (*Palæornis alexandri*).
 9 Ring-necked parrots (*Palæornis torquata*).
 1 Black-capped lory (*Lorius lori*).
 1 Red-headed lory (*Lorius rubra*).
 3 Ornamental lorries (*Trichoglossus ornatus*).
 18 Undulated Grass Parrakeets (*Melopsittacus undulatus*).
 1 Undulated Grass Parrakeets (yellow variety).
 13 Cockateels (*Callipsittacus novæhollandiæ*).

Order *Striges*.

- 2 Indian barn owls (*Strix javanica*).
 3 Rock-horned owls (*Bubo bengalensis*).

Order *acciptres*.

- 2 Crestless hawk eagles (*Nisaetus bonelli*).
 1 Cinereous vulture (*Vulture monachus*).

- 2 King vultures (*Otogyps calous*).
- 1 Black vulture (*Cathartes atrata*).
- 1 Long-billed vulture (*Gyps indicus*).
- 6 White-tailed sea-eagles (*Pelioetus ichthyetus*).
- 1 Pallas sea-eagle (*Haliastur leucorhynchus*).
- 1 Crested serpent eagle (*Spilornis cheela*).

Order Platalea.

- 2 Spoonbills (*Platalea leucorodia*).
- 18 Black-headed Ibises (*Ibis melanocephalus*).
- 2 Glossy Ibises (*Plegadis falcinellus*).
- 3 Scarlet Ibis (*Eudocimus ruber*).

Order Odontoglossa.

- 2 Flamingoes (*Phaenicopterus antiquorum*).

Order Herodiones.

- 1 Common heron (*Ardea cinerea*).
- 2 Lesser egrets (*Herodias intermedia*).
- 2 Cattle egrets (*Bubulcus coromandus*).
- 2 Pond herons (*Ardeola grayi*).
- 2 Night herons (*Nyctiardea nycticorax*).
- 2 Adjutants (*Leptoptilus argala*).
- 3 Lesser adjutants (*Leptoptilus javanicus*).
- 15 Black-necked storks (*Xenorhynchus asiaticus*).
- 2 White-necked storks (*Dissura episcopus*).
- 5 White storks (*Ciconia alba*).
- 3 Japanese storks (*Ciconia boyciana*).

Order Steganopodes.

- 2 Little cormorants (*Phalacrocorax pygmaeus*).
- 1 Indian snake bird (*Plotus melanogaster*).
- 2 White pelicans (*Pelecanus onocrotalus*).

Order anseres.

- 1 Pied goose (*Anser melanoleucus*).
- 13 Wild or grey-lag geese (*Anser cinereus*).
- 11 Pink-footed geese (*Anser brachyrhynchus*).
- 54 Bar-headed geese (*Anser indicus*).

- 1 Spur-winged goose (*Plectropterus gambensis*).
 16 Cotton teals (*Nettapus coromandelianus*).
 2 Egyptian sacred geese (*Chenalopez aegyptiacus*).
 2 Canada geese (*Bernicla canadensis*).
 8 Black swans (*Cygnus atratus*).
 14 Mute swans (*Cygnus olor*).
 2 Bewick swans (*Cygnus bewicki*).
 1 Whooper swan (*Cygnus musicus*).
 2 Black-necked swans (*Cygnus nigrocollis*).
 33 Comb ducks (*Sarcidiornis melanota*).
 79 Brahminy ducks (*Tadorna casarca*).
 11 Mallard (*Anas boschas*).
 2 Sheldrake (*Tadorna cornuta*).
 16 Spotted-bill ducks (*Anas pécilorhyncha*).
 25 Lesser whistling teals (*Dendrocygna javanica*)
 3 Baikal teals (*Nettion formosum*).
 23 Common teals (*Querquedula crecca*).
 43 Gargeny teals (*Querquelula cirica*).
 52 Pintailed ducks (*Dafila acuta*).
 5 Shoveller (*Spatula clypeata*).
 4 Wigeons (*Mareca penelope*).
 7 Sumner ducks (*Æx sponza*).
 14 Mandarin ducks (*Æx galericulata*).
 6 Muscovy ducks (*Cairina moschata*).
 6 Pochards (*Fuligula ferina*).
 4 White-eyed pochards (*Nyroca africana*).
 11 Red-headed pochards (*Aythya ferina*).
 4 Tufted pochards (*Fuligula cristata*).
 3 Variegated sheldrake (*Tadorna variegata*).

Order *Gavidae*.

- 2 Stone plovers (*Isacus recurvirostris*).
 1 Bronze-winged Jacana (*Metopidius indicus*).

Order *Geallae*.

- 7 Common sandgrouse (*Pterocles exustus*).
 6 Large sandgrouse (*Pterocles arenarius*).
 34 Saras cranes (*Grus antigone*).
 15 Common cranes (*Grus communis*).

- 3 Large white cranes (*Grus leucogeranus*).
- 12 White-necked cranes (*Grus leucauchen*).
- 9 Demoisella cranes (*Grus virgo*).
- 2 Balearic cranes (*Balearica pavonina*).
- 1 Cape-crowned crane (*Balearica chrysopelargus*).
- 2 Stanley cranes (*Anthropoides paradisea*).

Order Fulcariæ.

- 8 Purple coots (*Porphyrio porphyrio*).
- 2 Moorhen (*Gallinula chloropus*).
- 7 White-breasted waterhens (*Erythra phoenicurus*).
- 1 Black-tailed waterhen (*Tribonyx ventralis*).

Order Gallinæ.

- 3 Common quails (*Coturnix communis*).
- 14 Chukar partridges (*Caccabis chukar*).
- 3 Swamp partridges (*Ortygornis gularis*).
- 3 Brown-breasted partridges (*Arboricula brunneopectus*).
- 3 Hill partridges (*Arboricula torquellus*).
- 2 See See partridges (*Ammoperdix bonhami*).
- 3 Monaul pheasants (*Lophophorus impeyanus*).
- 4 Ring-necked pheasants (*Phasianus torquatus*).
- 1 Cheer pheasant (*Phasianus wallichii*).
- 2 Gold pheasants (*Thaumalea picta*).
- 4 Silver pheasants (*Euplocamus nycthemerus*).
- 5 Amherst pheasants (*Thaumalea amherstiae*).
- 2 Japanese pheasants (*Phasianus versicolor*).
- 1 Vieillot's Fireback (*Euplocamus vieilloti*).
- 1 Kaleege (*Euplocamus horsfieldi*).
- 1 Red jungle-fowl (*Gallus ferrugineus*).
- 9 Sonnerat's Jungle-fowls (*Gallus sonnerati*).
- 1 Red Spur-fowl (*Gallopertix spadicea*).
- 2 Domestic fowls (*Gallus domesticus*).
- 4 Tragopan pheasants (*Cerionis satyra*).
- 6 Common peafowls (*Pavo cristatus*).
- 1 Common peafowl (white) (*Pavo cristatus*).
- 2 Burmese peafowls (*Pavo muticus*).
- 1 Piebald peafowl.
- 3 Peacock pheasants (*Polyplectron chinques*).
- 1 Argus pheasant (*Argus giganteus*).

- 1 Mexican curassow (*Craz globicera*).
- 2 Common curassows (*Craz alector*).
- 2 Wattled guans (*Aburria carunculata*).

Order Fulicariae.

- 2 Australian Rail (*Hypotaenidia philippensis*).

Order Casuarii.

- 1 Common cassowary (*Casuarus galeatus*).
- 2 Emu (*Dromaeus novae-hollandae*).

Order Strathionis.

- 3 Ostriches (*Struthio camelus*).
- 1 Common Rhea (*Rhea americana*).

CLASS REPTILIA.

Order Emydosauria.

- 5 Gharials (*Gavialis gangeticus*).
- 2 Sharp-nosed crocodiles (*Crocodylus porosus*).
- 7 Marsh crocodiles (*Crocodylus palustris*).
- 1 Mississippi alligator (*Alligator mississippiensis*).

Order Chelonia.

- 3 Pond turtles (*Emyda granosa*).
- 1 European pond tortoise (*Emys orbicularis*).
- 2 Elephantine tortoises (*Testudo elephantina*).
- 4 Horsfield's tortoises (*Testudo horsfieldi*).
- 1 Starred tortoise (*Testudo elegans*).
- 1 Algerian tortoise (*Testudo ibera*).
- 2 Bloodstained terrapin (*Cinosternum cruentatum*).
- 14 *Kachuga dhongoka*.
- 1 Hamilton's terrapin (*Damonia hamiltoni*).

Order Sauria.

- 9 Geckoes (*Gecko verticillatus*).
- 1 Yellowish monitor (*Varanus flavescens*).
- 1 Bengal monitor (*Varanus bengalensis*).
- 2 Wall lizards (*Lacerta muralis*).
- 1 Common chameleon (*Chamaeleon vulgaris*).

Order Ophidia.

- 5 Indian pythons (*Python molurus*).
- 2 Indian eryx (*Eryx johnii*).
- 2 Conical eryx (*Eryx conicus*).
- 4 Grass snakes (*Tropidonotus stolidus*).
- 2 *Tropidonotus subminiatus*.
- 24 Indian rat snakes (*Zamenis mucosus*).
- 6 Glass snakes (*Ophiocercus opus*).
- 1 Four-lined snake (*Coluber quatorlineatus*).
- 4 Leopardine snakes (*Coluber leopardinus*).
- 1 Tree snake (*Dryophis pictus*).
- 5 Green snakes (*Dryophis mycterizans*).
- 3 *Lycodon anlicus*.
- 9 Cobras (*Naia tripudians*).
- 1 Snake-eating cobra (*Naia bungarus*).
- 4 Russell's vipers (*Vipera russellii*).
- 3 Banded kraits (*Bungarus fasciatus*).
- 3 Common kraits (*Bungarus caruleus*).
- 2 Green pit vipers (*Trimeresurus gramineus*).

CLASS BATRACHIA.

Order Caudata.

- 1 Salamander (*Salamandra maculosa*).

CLASS ARACHINDA.

Order Scorpiones.

- 10 Scorpions (*Buthus tamulus*).

1913 - 1914

REPORT

of

THE HONORARY COMMITTEE

for the

**MANAGEMENT OF THE ZOOLOGICAL
GARDEN, CALCUTTA, 1913-14.**

THE Honorary Committee have the honor to submit their report for the year ending 31st March 1914, the contents of which, as usual, include, among other items,—

- (1) The Superintendent's report upon the menagerie.
- (2) Monthly returns of visitors and a list of donors and their donations.
- (3) Abstract of accounts of ordinary and extraordinary receipts and expenditure.
- (4) A list of animals in the Garden.

1. THE COMMITTEE.

The Committee consists of—

President :

The Hon'ble Sir F. W. Duke, K.C.I.E., C.S.I., I.C.S.

Vice-President :

P. L. Buckland, Esq., F.Z.S., F.L.S.

Honorary Secretary and Treasurer :

Lieut.-Col. E. H. Brown, M.D., I.M.S. (retired), D.P.H.
F.Z.S., F.R.C.S.E.

Superintendent :

Mr. Bijay Krishna Basu, G.B.V.C., C.M.Z.S.

Assistant Superintendent :

Babu Somadev Ganguli.

Members of the Committee :

Roostumjee Dhunjeebhoy Mehta, Esq., C.I.E.

Lieut.-Col. R. Bird, M.D., C.I.E., M.V.O., M.S., F.R.C.S.

I.M.S.

Dr. Nelson Annandale, B.A., D.S.C., C.M.Z.S.

The Hon'ble Mr. W. R. Gourlay, I.C.S.

H. J. McIntosh, Esq., I.C.S.

Ihtisham-ul-Mulk Rais-ud-Daula Amir-ul-Umara
Nawab Sir Asif Kadr Saiyid Wasif Ali Mirza Khan
Bahadur, Mahabat Jang, Nawab Bahadur of Mur-
shidabad, K.C.S.I., K.C.V.O.

John George Dean, Esq.

Lieut.-Col. Charles Robert Mortimer Green, M.D.,
F.R.C.S., I.M.S.

David Ezra, Esq.

Ambica Charan Law, Esq.

G. Girard, Esq., I.S.O., F.R.H.S.

The Hon'ble Sir Bijay Chand Mahtab, K.C.S.I.,
K.C.I.E., I.O.M., Maharajadhiraj Bahadur of Burdwan.

Shirley Tremearne, Esq.

W. K. Dods, Esq.

Nawab A. F. M. Abdur Rahman, Khan Bahadur.

J. C. R. Johnston, Esq.

C. J. Elton, Esq.

Lieut.-Col. Sir L. Rogers, K.T., C.I.E., M.D., I.M.S.

Lieut.-Col. G. R. Stevens, M.D., I.M.S.

C. J. Kerr, Esq.

R. S. Highet, Esq.

Ex-officio Members :

The Commissioners of Divisions in Bengal.

The Executive Engineer of the Public Works
Department of the Division in which the Garden is
placed.

The Sanitary Commissioner with the Government
of Bengal.

The President of the Asiatic Society of Bengal.

The Director of Public Instruction, Bengal.

The Natural History Secretary of the Asiatic
Society of Bengal.

The Director of Land Records.

The Superintendent, Civil Veterinary Department,
Bengal.

The Professor of Comparative Anatomy and
Zoology, Medical College, Bengal.

The Superintendent of the Royal Botanic Garden,
Sibpur.

The Chairman of the Calcutta Corporation.

The Principal of the Bengal Veterinary College,
Calcutta.

The following new members were appointed during
the year :—

C. J. Kerr., Esq.

R. S. Highet, Esq.

2. STAFF AND ESTABLISHMENT.

Mr. Bijay Krishna Basu continued in charge of the
Garden as Superintendent throughout the year and
Babu Somadev Ganguli as Assistant Superintendent.

Owing to the increasing office work it was found
necessary to engage the services of a clerk and Babu
Profulla Chandra Mitter was appointed on 5th April
1913.

The following is a list of the superior staff of the
Garden at the end of 1913-14 :—

Superintendent :

Mr. Bijay Krishna Basu, G.B.V.C., C.M.Z.S.

Assistant Superintendent :

Babu Somadev Ganguli.

Store-keeper and Typist :

Babu Jugal Kishore Roy.

Overseer :

Babu Niranjan Mukherji,

Clerk :

Babu Profulla Chandra Mitter.

Gate Clerk :

Babu Panchanan Mukherji.

The following is a list of the menial staff of the Garden at the end of 1913-14:—

2 Jamadars.	14 Gardeners.
8 Durwans.	3 Sweepers.
1 Head-keeper.	1 Chaprasi.
19 Keepers.	1 Carpenter.
3 Bhistis.	2 Cartmen.
1 Cook.	1 Syce.
1 Head Gardener.	1 Scytheman.

Besides these, a number of temporary labourers were engaged during the year.

3. BUILDINGS.

Various improvements were carried out during the year. The brick wall round the hippopotamus enclosure was raised all round, as the male hippo became very savage and tried to scale the wall several times. The path round the enclosure was also improved and new plants and shrubs grown.

In the New Antelope House the old iron-fencing on the southern portion of the enclosure was found rotten and it was removed and new fencing erected.

Between the Hermitage and the Gardens much old fencing was removed and a brick wall, 7 feet high, was built and shrubs and creeper planted, and the aspect of this part of the Garden was completely altered for the better.

The lowlands adjoining the Burdwan House circle used to be inundated by floods and high tides during the rainy season. A dwarf cemented wall was constructed to protect the Gardens and paths from the water coming from Tolly's Nullah.

The inner and the outer exhibition cages of the Dumraon House were provided with strong wire-netting of half inch mesh to prevent visitors from poking the animals.

A portion of the lands lying by the side of the Reptile House and occupied by the Indian Refreshment Stall was cleared and the land raised and returfed. A new ornamental fencing was erected round it and ornamental plants and shrubs planted. The general appearance of this part of the Garden has thus been greatly improved.

Many new paths were laid and gravelled and extensive widening and alterations were made. Portions of the main drive were remetalled and the path between the paddocks was thoroughly repaired and all the roads and paths were covered with surki-siftings.

The annual repairs of the buildings in the Garden were carried out departmentally on an extensive scale and much painting of fences and iron works was done during the year.

The following is a list of more important repairs executed:—

- (1) *Burdwan House*.—The hand-railing was thoroughly repaired and old wooden posts

substituted, the iron grating in the Lion's cage on the north-east side having worn out was removed and new grating substituted. The sand plastering was scratched in several places and the interior of the whole house was limewashed and the outside colourwashed. The iron and wood work repainted.

- (2) *Small Carnivora House*.—The inside walls limewashed and iron and wood work repainted. The grated apertures in the inner dens were covered with wire-netting to prevent small mammals from escaping.
- (3) *Reptile House*.—Limewashed and repainted. The outlets of the basins being defective, the basins were overflowed in heavy rain; proper drainage was provided for and a thorough levelling of the grounds behind the house was done.
- (4) *Sarnomoyi House*.—Inside walls limewashed and outside colourwashed, the wood and iron work repainted and portions of wire-netting repaired and renewed.
- (5) *Murshidabad House*.—Repaired and repainted. Inside wire-netting repaired in many places and wood work repaired.
- (6) *Gubbay House*.—Inside limewashed and outside colourwashed. Iron cages repainted.
- (7) *Schwendler House*.—Repaired and repainted.
- (8) *Dumraon House*.—Iron and wood work repainted.
- (9) *Refreshment Pavilion*.—Repainted.

- (10) *Sonebursa Enclosure*.—The teakwood roofing of one of the houses being absolutely rotten, it was dismantled and a new roofing made; a surface drain round the house repaired and wood and iron work repainted.
- (11) *Entrance Lodge and Office*.—Repaired, whitewashed and repainted.
- (12) *Retiring-rooms for Ladies and Gentlemen*.—Limewashed and furnitures polished and iron work repainted.
- (13) *Paddocks*.—All the sheds and kiosks in the paddock repaired and repainted and the iron fencing coal-tarred. One of the sheds was provided with red ruberoid roofing.

The grounds were raised and proper drainage given.

- (14) *Hospital*.—Repaired in patches and lime-washed.
- (15) *Library*.—Repaired and repainted.
- (16) *Jhind House*.—Repaired and repainted.
- (17) *New Bear House*.—Limewashed, wood and iron work repainted.
- (18) *New Monkey House*.—Limewashed, colour-washed and repainted.
- (19) *Rodent House*.—Limewashed, wood and iron work repainted.
- (20) *Servants' quarters*.—Thoroughly repaired, whitewashed and outside colourwashed.
- (21) *Store Godown*.—Repaired and repainted; a portion of the roof half-terraced.
- (22) *Mullick House*.—Repaired and repainted.

- (23) *Superintendent's Quarters*.—Repaired and repainted.
- (24) *Refreshment Stalls*.—Repainted and canvas screens provided.
- (25) *Crane Enclosure*.—Three sheds overhauled and repainted and the fencing repainted.
- (26) *Cooch-Bihar House*.—Lime washed.
- (27) *Ezra House*.—Inside lime-washed and outside colourwashed. The wood and iron work repainted.
- (28) *Abdul Ghani House*.—The house was thoroughly overhauled and wood work repaired, the roof was strengthened and a grated ceiling provided for. The wooden fringes repaired and the house repainted.
- (29) *Mandrill House*.—Repaired and repainted.

Besides these, petty repairs of smaller houses, sheds and enclosures were attended to. The Garden paths were improved and gravelled and every effort was made to improve the general appearance of the Garden.

4. FINANCE.

It will appear from the comparative statement of receipts from visitors that the financial condition of the Garden was even better than that of the previous year which was exceptionally good in this respect:—

Year.	Receipts.	
	Rs.	A.
1911-12	48,496 11
1912-13	50,499 0
1913-14	53,913 11

The amounts of income and expenditure are summarised in Appendix A.

5. VISITORS.

The attendance of paying visitors during the year was more than ever satisfactory, the turnstile records indicating a total for the year of 704,982 visitors admitted and thus showing an increase of 48,580.

The following is a comparative table of visitors for the last three years :—

Year.				Visitors.
1911-12	...	...	...	629,151
1912-13	...	...	...	656,402
1913-14	...	...	...	704,982

In addition, a large number of children under four years of age and school children attended by their teachers were admitted free. On the day of the Fancy Fair about 7,000 people entered the Garden. Besides these, 64,994 persons visited the Garden on the free days. A list of free days with the number of visitors is given in Appendix C.

CONCLUSION.

The thanks of the Committee are due to the ladies and gentlemen who have added to the collection of the Garden by their donations, a list of which is given in Appendix D. Thanks are also due to those who kindly offered to present animals to the Garden, but whose offers could not be accepted, either because the particular species of animals was already sufficiently well represented, or owing to the want of accommodation.

The Committee also desire to express their sincere thanks to the Officers Commanding 40th Pathans for allowing their band to play on Sunday evenings without charge.

The thanks of the Committee are also due to many Railway and Steamer Companies for conveying animals belonging to the Garden free of charge and in particular to the East Indian Railway Company, Eastern Bengal State Railway, Bengal-Nagpur Railway Company, Oudh and Rohilkhand Railway, Bengal and North-Western Railway Company, British India Steam Navigation Company, India General Steam Navigation and Railway Companies and Rivers Steam Navigation Company.

E. HAROLD BROWN,
Honorary Secretary.

F. W. DUKE,
President.

SUPERINTENDENT'S REPORT.

I HAVE the honour to submit the following report on the existing condition and the progress of the menagerie of the Garden.

The following comparative table shows how the various collections of animals in the Garden stood during the last four years :—

Year.	Mammals.	Birds.	Reptiles.
1910-11	... 599	1,342	259
1911-12	... 654	1,612	127
1912-13	... 341	1,188	150
1913-14	... 378	1,659	223

A list of animals in the Garden on 31st March 1914 is given in Appendix F.

ACQUISITIONS.

Of the additions to the collections of animals during 1913-14 the following deserve notice :—

MAMMALS.

- 1 Tiger cub (*Felis tigris*), presented by P. Wyndham, Esq., I.C.S., C.I.E.
- 3 Black leopards (*Felis pardus*), purchased.
- 8 Tiger cubs (*Felis tigris*), purchased.
- 1 Tiger (*Felis tigris*), purchased.
- 1 Indian Pangolin (*Manis pentadactyla*), presented by H. M. Sydenham Clarke, Esq.
- 1 Indian Pangolin (*Manis pentadactyla*), presented by the Maharaja of Sonapur.
- 1 Pair Anoa (*Anoa depressicornis*), purchased.
- 1 Clouded leopard (*Felis nebulosa*), purchased.
- 2 Pairs lion cubs (*Felis leo*), purchased.
- 1 Barasingha (*Cervus duvaucelli*), born in the Garden.
- 1 Tibetan wild cat (*Felis chaus*), purchased.
- 1 Pallas's cat (*Felis manul*), purchased.

- 1 Tibetan Lynx (*Felis isabellina*), purchased.
- 1 pair Gold Marmosets (*Midas rosalia*), purchased.
- 3 Burrhel sheep (*Ovis nakura*), purchased.
- 1 Tahr (*Hemitragus jemlaicus*), purchased.
- 2 Garnett's galagoes (*Galago garnetti*).
- 2 Pumas (*Felis concolor*), purchased.
- 1 Musk deer (*Moschus moschiferus*), presented by Raja Dutt Parshad Singh Bahadur of Mursan.
- 1 Rufous Kangaroo (*Macropus rufus*), born in the Garden.
- 1 Thamin deer (*Cercus eldi*), born in the Garden.
- 1 Gold Marmoset (*Midas rosalia*).
- 1 Pair Hunting leopards (*Cynalurus jubatus*), purchased.
- 1 Banteng bull (*Bos sondaicus*), received in exchange from the Rangoon Zoo.

BIRDS.

- 1 Crested Serpent Eagle (*Spilornis cheela*), presented by His Excellency the Governor of Bengal.
- 1 Pair crowned cranes (*Balearica pavonina*), purchased.
- 1 Pair Cereopsis geese (*Cereopsis novahollandica*), purchased.
- 1 Pair Californian quails (*Callipepla californica*), purchased.
- 1 Canadian geese (*Bernicla canadensis*), purchased.
- 2 Black-headed Ibises (*Ibis melanocephalus*), born in the Garden.
- 1 Reeve's pheasant (*Phasianus reevesi*), purchased.
- 1 White-bellied pigeon (*Columba leuconota*), purchased.
- 6 Blood pheasants (*Ithagenes cruentus*), purchased.
- 1 Pair Ruddy-headed geese (*Chloephaga rubidiceps*), purchased.
- 1 Pair Bornean Firebacks (*Euplocamus nobilis*), purchased.
- 1 Scarlet Ibis (*Eudocimus ruber*), born in the Garden.
- 1 Nicobar Pigeon (*Calaenas nicobarica*), born in the garden.
- 2 Two-wattled Cassowaries (*Casuarius bicarunculatus*) purchased.
- 5 Temminck's tragopan (*Cerionis*temmincki*), purchased.
- 2 Glossy Ibises (*Plegadis falcinellus*), purchased.
- 2 Brown-headed gulls (*Larus brunneicephalus*), purchased.
- 2 Black-headed gulls (*Kroikocephalus ichthyatus*), purchased.
- 4 White-collared Ouzels (*Merula albacincta*), purchased.
- 1 Grey-headed Ouzel (*Merula castanea*), purchased.

The following animals were obtained through the good offices of Mr. F. E. Møller of Darjeeling :—

- 4 Grey Flying Squirrels (*Sciuropterus fimbriatus*).
- 1 Burriel sheep (*Ovis nabhura*).
- 1 Large Indian Civet (*Viverra zibetha*).

The management of the Garden was much indebted to Mr. W. K. Dods for his kindly help in obtaining a number of common Indian birds for the Garden. Among the specimens received the following were important additions to the collection :—

- 5 Bronze-winged Jacanas (*Metopidius indicus*).
- 1 Baillon's crane (*Porzana bailloni*).
- 1 Ruddy crane (*Porzana fusca*).
- 2 Coots (*Fulica atra*).

Mr. G. Girard, F.R.H.S., I.S.O., also helped the Garden by securing from time to time different specimens of Kingfishers and other birds.

Thanks are also due to Dr. N. Annandale and Mr. F. H. Gravely of the Indian Museum for kindly procuring from time to time specimens for the Insect House.

Endeavours were also made by engaging the services of expert shikaries from the United Provinces to trap aquatic birds in the districts of Rajshahi and Kamrup and though our attempts were not very successful on account of the operations being directed late in the season, a fair collection of different kinds of teals and other aquatic birds were secured.

BIRTHS.

The following is a list of animals that bred in the Garden in 1913-14 :—

- 2 Nilgais (*Boselaphus tragocamelus*).
- 1 English cattle (*Bos taurus*).

- 1 Barasingha (*Cervus duvaucelli*).
 1 Hog deer (*Cervus porcinus*).
 2 Leopards (*Felis pardus*).
 1 Four-horned antelope (*Tetraceros quadricornis*).
 2 Indian porcupines (*Hystrix leucura*).
 2 Spotted deer (*Cervus axis*).
 2 Puma's (*Felis concolor*).
 1 Celebes monkey (*Cercopithecus niger*).
 1 Grivet monkey (*Cercopithecus griseo-iridis*).
 1 Macaque monkey (*Macacus cynomolgus*).
 3 Wild pigs (*Sus cristatus*).
 5 Entellus monkeys (*Semnopithecus entellus*).
 1 Rufous Kangaroo (*Macropus rufus*).
 3 Indian foxes (*Vulpes bengalensis*).
 1 Thamin deer (*Cervus eldii*).
 1 Gold Marmoset (*Midas rosalia*).
 2 Black-headed ibises (*Ibis melanocephalus*).
 5 Sonnerat's Jungle-fowl (*Gallus sonnerati*).
 2 Coral-billed pigeons (*Chalcophaps indica*).
 1 Crown pigeon (*Goura coronata*).
 1 Nicobar pigeon (*Calaenas nicobarica*).
 1 Scarlet Ibis (*Eudocimus ruber*).
 7 Black swans (*Cygnus atratus*).
 Russell's Vipers (*Vipera russellii*).
 Cobras (*Naja tripudians*).
 Geckoes (*Gecko verticillatus*).

The following is a list of birds which bred in the Garden in a wild state:—

- Indian House crow (*Corvus splendens*).
 Common Pariah kite (*Milvus govinda*).
 Indian Tree pie (*Dendrocitta rufa*).
 Pied myna (*Sturnopastor contra*).
 Jungle babbler (*Crateropus conorus*).
 Bengal Red-whiskered bulbul (*Otocompsa emeria*).
 Common myna (*Acridotheres tristis*).
 Black drongo (*Dicrurus ater*).
 Black-naped Oriole (*Oriolus indicus*).

- Indian coel (*Eudynamis honorata*).
 Magpie robin (*Capsychus saularis*).
 House sparrow (*Passer domesticus*).
 Crimson-breasted barbet (*Xantholama hematocephala*).
 Common King-fisher (*Alcedo bengalensis*).
 Indian Rock pigeon (*Columba intermedia*).

The following birds bred in the bird chummary
 the island in the big lake :—

- Little Cormorant (*Phalacrocorax pygmaeus*).
 Indian Snake bird (*Plotus melanogaster*).
 Night heron (*Nycticorax griseus*).

Eggs were laid but not hatched by the following
 birds :—

- Amherst pheasant (*Thaumalea amherstiae*).
 Silver pheasant (*Euplocamus nyctemerus*).
 Ostrich (*Struthio camelus*).

Eggs were also laid by a marsh crocodile (*Croco-
 tus palustris*) on 10th April 1913, but were not
 hatched.

DEATHS.

Several cases of chicken cholera occurred amongst
 the birds specially amongst the Psittaci in the
 Arnay House. Prompt precautionary measures
 were taken to stamp out the disease, but it could not
 be checked before a considerable number of birds died.

The heavy rain and storm during the months of
 June and July 1913 were responsible for a large
 number of deaths amongst the aquatic birds, especially
 the big lake.

The following is a list of important deaths during
 the year :—

- 3 Lion cubs (*Felis leo*).
 3 Tiger cubs (*Felis tigris*).

- 1 Mandrill, the oldest inhabitant of the Garden (*Cynocephalus mormon*).
- 1 Black leopard (*Felis pardus*).
- 1 Anoa cow (*Anoa depressicornis*).
- 1 Female Waterbuck (*Cebus ellipsifymnus*).
- 1 Beatrix antelope (*Oryx beatrix*).
- 1 Blessbock (*Damaliscus albifrons*).
- 1 Addax (*Addax naso-maculatus*).
- 1 Wapiti deer (*Cervus canadensis*).
- 1 Lesser Bird of Paradise (*Paradisca minor*).
- 1 Anoa bull (*Anoa depressicornis*).
- 1 Tigress (*Felis tigris*).
- 1 Snow leopard (*Felis uncia*).
- 1 Black-necked swan (*Cygnus nigrocollis*).
- 1 Pallas's cat (*Felis manul*).
- 6 Blood pheasants (*Ithagenes cruentus*).
- 1 Crowned crane (*Balearica pavonina*).

PATHOLOGICAL DEPARTMENT.

The work in this department was carried on as usual. Thanks are due to Major Smith, F.R.C.V.S., the Principal, Bengal Veterinary College, for his kind help in important cases.

Subjoined is a list of the more important cases which presented the principal subjects for pathological diagnosis—

	Number of cases.	Subjects.
Apoplexy	...	1 English wild bull, 1 Cat bear, 1 Burral sheep.
Abscess in the liver	...	1 Gayal cow.
Accident	...	1 Cassowary, 1 Rhinoceros hornbill, 1 Leopard cat, 1 Tigress, 1 Black-necked swan, 1 Nilgai cow.
Broncho-pneumonia	...	1 Gold pheasant, 1 Anoa, 1 Malayan squirrel.
Cancer of the ear	...	2 Wapitis.

congestion of the liver ...	1 Otter, 1 Imperial sandgrouse, 1 Grey flying squirrel, 1 Lynx.
congestion of the lungs ...	1 Baikal teal.
ability ...	1 Chacma baboon, 1 common sandgrouse, 1 Monal pheasant, 1 Leopard cat, 1 New Zealand parakeet, 1 Slender loris, 1 Black-headed lemur.
ability brought on by cold	
age ...	1 Beatrix antelope.
stemper ...	2 Jackals, 1 Wild dog.
sentery ...	1 Himalayan bear.
arrhoea ...	3 Sloth bears.
teritis ...	1 Black leopard, 2 Leopard cats, 1 Anoa cow, 1 Addax, 1 Snow leopard, 1 common Genet.
tty degeneration of the liver.	1 Fishing cat, 1 Sulphur-crested cockatoo, 1 Red-billed currawong, 1 Adelaide parakeet, 1 Hunting cissa, 1 Crested Serpent eagle.
tty degeneration of the heart.	1 Monal pheasant.
stritis (acute) ...	1 Indian wolf, 1 Ring-tailed lemur.
stritis complicated with	1 Ruffed lemur.
hepatitis.	
eart disease ...	1 Mandrill.
testinal catarrh ...	1 Yellow-fronted amazon, 1 Grey-flying squirrel, 1 Malayan squirrel, 1 Wild dog.
etritis ...	1 Spotted deer, 1 Four-horned antelope.
ange ...	1 White Llama, 1 Bless-buck, 1 Huanaco.
ecrosis of the lower jaw ...	1 Fishing cat.
aralysis ...	1 Reticulated python, 1 Flamingo.
eurisy ...	1 White-browed gibbon.
eumonia ...	1 Yellow-fronted amazon, 1 Kalij pheasant, 1 Grey-flying squirrel, 1 Water-buck, 1 Wallaby, 1 Lesser Bird of Paradise, 1 Opossum, 1 Gold pheasant, 1 Gold Marmoset, 1 White Wallaby, 2 Ruffed lemurs, 1 Pallas's cat.

Pleuro-pneumonia	...	1 Monal pheasant.
Pericarditis	...	1 Monal pheasant.
Peritonitis	...	1 Wild ass.
Snake-bite	...	1 Barasingha.
Tobacco-poisoning	...	1 Yellow baboon, 1 Pig-tailed monkey.
Tuberculosis	...	1 Brown Capuchin.

PROVISIONS.

The following table shows the quantity of provisions consumed during the year:—

			Mds.	s.	CH.
Gram	...	...	1,075	8	0
Bran	...	...	540	38	0
Paddy	...	...	423	5	0
Rice	...	...	271	18	0
Wheat	...	...	87	1	0
Barley	...	...	48	0	0
Indian-corn	...	...	117	0	0
Flour	...	...	105	8	8
Peas	...	...	13	28	8
Potatoes	...	...	257	30	0
Paddy-straw	...	...	2,626	0	0
Bazra	...	...	160	39	0
Kelai	...	...	23	17	0
Linseed	...	...	45	30	0
Oilcake	...	...	339	22	0
Shuttoo	...	...	94	5	12
Crushed oats	...	...	502	15	0
Worms	...	...	16	17	0
Canary seed	...	...	lbs. 1,746		

			Mds.	s.	CH.
Kangney	...	...	1	7	8
Hempseed	...	...	1	7	8
Gúr	...	...	18	9	0
Black salt	...	...	11	18	4
Table salt	...	...	22	33	8
Onion	...	...	8	23	8
Garlic	...	...	0	36	9
Beef	...	...	990	1	0
Mutton	...	...	62	36	4
Milk	...	...	65	27	8
Biscuits	...	...	3	16	14
Fish	...	...	40	30	4
Raisin	...	...	2	11	8
Date	...	...	4	17	4
Urhar dâl	...	...	13	31	0
Sugar	...	...	2	15	12
Ghee	...	...	0	18	0
Nut	...	...	0	0	10
Vegetables, such as, cauliflower, carrot, lettuce, cabbages, brinjals, knol khol, cucum- ber, beet, radish, tomato, etc., etc.	...	...	80	8	8
Green grass	...	...	4	0	0
Curd	...	...	47	34	0
Black pepper	...	...	0	0	4
Fewl	...	...	2,674		
Jack-fruit leaves	...	...	183½	cart-load.	
Smaller birds	...	...	573		
Rat	...	...	258		
Duck	...	...	296		
Goat	...	...	53		
Sugarcane	...	...	4,845		
Tea	...	...	14	tins.	

Ducks' eggs	...	...	7,013
Fowls' "	...	...	1,460
Miscellaneous fruits, such as, pomegranate, cocoanut, apple, papaya fruit, oranges, etc. etc.	...	...	8,385
Snakes	...	...	474
Frogs	...	...	1,765
Pigeon	...	...	2
Sheep	...	...	2
Bread	...	...	13,858½
Plantain	...	...	9 kahan 5 gandas.
Grasshoppers	...	...	35,900
Condensed milk	...	...	695 tins.

The following table gives the chief items of expenditure under "Food of animals" for the year 1913-14 :—

			Rs.	A.	P.
Beef	...	...	3,658	11	0
Mutton	...	...	920	12	3
Plantain	...	...	482	1	6
Fish	...	...	256	10	9
Worms	...	...	197	13	3
Bread	...	...	854	6	0
Grains, such as, gram, bran, wheat, etc., etc.	...	...	16,775	15	6
Shuttoo	...	...	183	0	0
Miscellaneous food, such as, canary, kangney, gúr, etc., etc.	...	...	711	4	6
Miscellaneous food, such as, fowl, goats, curd, ducks, etc., etc.	...	...	3,753	11	6
Grasshoppers	...	...	38	6	0
Biscuits	...	...	34	3	6
Milk	...	...	172	2	0
Condensed milk	...	...	196	14	3
Total	...	...	28,236	0	0

APPENDIX A.

I.—Comparative Statement of Receipts for
1912-13 and 1913-14.

	1912-13.			1913-14.		
	Rs.	A.	P.	Rs.	A.	P.
Opening balance	6,997	7	2	9,896	8	8
Interest	163	3	4	163	3	4
Donations and subscriptions	240	0	0	5,193	0	0
Entrance receipts	50,499	0	0	53,913	11	0
Rent	5,310	0	0	4,903	0	0
Marriage, rickshaw, elephant ride, etc., etc.	933	6	0	767	8	0
Printing	321	0	0	691	0	0
Electric	156	0	0	195	0	0
Urine	2,230	0	0	2,145	0	0
Miscellaneous receipts	7,487	15	0	13,242	12	8
Government contribution	20,000	0	0	20,000	0	0
Total	94,337	15	6	1,11,110	11	8
<i>Add—</i>						
Receipts of 30th and 31st March 1912, which were included in 1912-13.	456	5	0	.....	
Receipts of 27th to 31st March 1913, which will be included in 1913-14.	.....			818	10	0
	94,794	4	6	1,11,929	5	8
<i>deduct—</i>						
Receipts of 27th to 31st March 1913, which are included in 1913-14.	818	10	0	.....	
Receipts of 31st March 1914, which will be included in 1914-15.	... ..			111	5	0
GRAND TOTAL	93,975	10	6	1,11,818	0	8

*II.—Comparative Statement of Expenditure for
1912-13 and 1913-14.*

	1912-13.		1913-14.	
	Rs.	A. P.	Rs.	A. P.
Establishment	7,542	3 8	8,439	2 11
Food of animals	26,968	11 0	28,236	0 0
Purchase of animals	11,648	8 0	22,308	4 0
Transport of animals ^e	1,244	14 3	1,353	12 9
Miscellaneous contingencies	8,905	4 5	10,927	15 11
Repair of roads	792	3 6	2,120	13 6
Do. of buildings	4,420	0 6	8,533	5 6
Original construction	19,470	10 3	4,209	6 3
Garden ditto	4,085	10 3	3,897	10 9
Tools and plant ... ..	.....		.....
Total	84,079	1 10	90,026	7 7
Closing balance	9,896	8 8	21,791	9 1
GRAND TOTAL	93,975	10 6	1,11,818	0 8

APPENDIX C.

A list of free days showing free visitors during the year 1913-14.

7th April	1913	...	...	4,710
5th May	"	...	...	4,419
2nd June	"	...	...	4,489
7th July	"	...	...	4,754
4th August	"	...	...	5,086
1st September	"	...	...	5,402
20th October	"	...	...	3,877
3rd November	"	...	...	4,884
1st December	"	...	...	5,356
5th January	1914	...	...	7,625
2nd February	"	...	...	6,953
2nd March	"	...	...	7,439
				64,994

APPENDIX D.

List of Donors, 1913-14.

A

Adamson, Mr. J. C.	...	1 Macaque monkey.
Alston, Mr. J.	...	1 Mongoose.
Anam, Mr. A. N.	...	1 Common fox.

B

Balughat, Forest Officer	...	5 Wild dog pups.
Banerji, Babu Umesh Chandra	...	2 Bear cubs.
Bartlett, Mr. R. E.	...	1 Slow loris.
Bidyabhusan, Kaviraj Kalidas	...	1 Demoiselle crane.
Bose Chowdhury, Babu Haridas	...	4 Cobras.
Birdley-Birt, Mr. F., I.C.S.	...	1 Spotted deer, 5 Chamclions.

C

Cemetery, Superintendent of, Lower Circular Road	...	4 Jackal cubs.
Chakravarti, Babu Bijay Krishna	...	1 King crab.
Chowdhury, Dr. J. C.	...	1 Python.
" Mr. S.	...	1 Pair Mouse deer.
Christian, Mr. H. D.	...	1 Sambur deer.
Clarke, Mr. H. M. Sydenham	...	1 Indian Pangolin.
Claxton, Inspector	...	1 Black-cheeked Barbet.
Cockell, Mr. N. F.	...	1 Sand Grouse, 1 Yellow fronted amazon.
Cooch Behar, H. H. the Maharaja of—	...	1 Leopard, 1 Sloth bear.
Commissioner of Police, Calcutta	...	1 Black-necked Ibis, 1 Hanuman.
Creek, Mr. A. H.	...	1 Indian antelope.
Creet, Mr. A. H.	...	1 Ram.
Crum, Mr. W. E.	...	1 Wild pig.

D

- Dessa, Mr. R. B. ... 1 Rhesus monkey.
 Dods, Mr. W. K. ... 5 Cotton teals, 1 Common teal,
 1 Purple coots, 5 Bronze-winged jacana
 1 Jungle babbler, 11 Indian rails, 4
 Indian crakes, 1 Black drongo, 1
 Black-headed myna, 1 Red-vented
 bulbui, 1 Cattle egret, 1 White-
 breasted water-hen, 1 White-tailed
 Ser eagle, 2 Coots.

E

- Evans, Mr. Evan A. ... 1 Python.

F

- Faulkner, Mr. P. Leo ... 1 Sloth bear cub.

G

- Gillet, Lt. M. ... 1 Sambur deer.
 Girard, Mr. G., F.R.H.S., I.S.O. ... 1 Ornamental snake. 1 Kingfisher, 1
 Shoveller, 1 Dunbird.
 Gray, Mr. J. H. ... 1 Civet cat.

H

- Halliday, Sir Frederick ... 1 Fishing cat.
 Holdershaw, Mr. H. ... 1 Leopard.
 Hossein, Mr. A. ... 2 Pond herons.

K

- Kealman, Mr. J. ... 1 Laughing jackass, 1 Barking deer.

L

- Leeson, Mr. J. W. ... 1 Barasingha deer.

M

- Mahummad, Prince Golam ... 1 Bengal monitor, 1 Jungle cat.
 Malins, Mr. F. ... 1 Indian otter.
 Michael, Mr. John A. ... 1 Indian antelope.

Murray, Miss E. ... 2 Common otters.

Mursan, Raja Dutt Pershad Singh

Bahadur of ... 1 Musk deer.

O

Oates, Mr. R. E. ... 1 Common genet.

P

Paterson, Mr. D. ... 1 Wild dog.

Perrigo, Mr. F. ... 1 Cobra.

Police, Inspector of, Burtala thana 1 Bonnet monkey. *

R

Rampur, His Highness the 3 Himalayan bears and 1 Sloth bear.
Nawab Bahadur of.

Roy Chowdhuri, Babu Haripada 1 Cobra.

S

Sanders, Mr. D. ... 1 Sloth bear cub, 1 Four-horned
antelope.

Schaenzlin, Rev. G. ... 1 Barn owl.

Schooner, Mr. W. ... 1 Indian otter.

Sircar, Mr. N. ... 1 Fishing cat.

Singh Roy, Rai Bahadur Lalit 1 Marsh crocodile.
Mohan.

Skeaf, Mr. C. O. S. ... 1 Leopard.

Sonepur, Maharaja and Feuda- 1 Indian pangolin.
tory Chief of.

T

Toulmein, Mr. O. ... 1 Python.

Tredaway, Mrs. ... 1 Spotted deer.

Tweedie, Mr. T. C. ... 2 Pythons, 1 Jungle cat.

V

Vane, Mrs. S. N. 1 Sloth bear.

W

Walters, Mr. J. D. 1 Sloth bear.

Wyndham, Mr. P., I.C.S., C.I.E. ... 1 Tiger cub.

Y

Yackchee, Mr. L. 1 Snake bird.

HIS EXCELLENCY THE GOVERNOR OF BENGAL.

1 Crested serpent eagle.

1 Leopard.

APPENDIX E.

LIST OF ANIMALS IN THE GARDEN ON 31st MARCH 1914.

CLASS MAMMALIA.

Order Primates.

- 3 Orang-utans (*Simia satyrus*).
 2 Hoolock Gibbons (*Hyllobates hoolock*).
 2 Mandrills (*Cynocephalus mormon*).
 1 Drill (*Cynocephalus leucophorus*).
 2 Yellow baboons (*Cynocephalus babouin*).
 2 Arabian baboons (*Cynocephalus hamadryas*).
 1 Chacma baboon (*Cynocephalus porcarius*).
 1 Anubis baboon (*Cynocephalus anubis*).
 5 Grivet monkeys (*Cercopithecus griseo-viridis*).
 1 Moustached monkey (*Cercopithecus cephus*).
 1 Green monkey (*Cercopithecus callitricus*).
 2 Houcheur monkeys (*Cercopithecus nictitans*).
 3 Celebes Black monkeys (*Cercopithecus niger*).
 4 Mona monkeys (*Cercopithecus mona*).
 12 Entellus monkeys (*Semnopithecus entellus*).
 10 Macaque monkeys (*Macacus cynomolgus*).
 13 Rhesus monkeys (*Macacus rhesus*).
 2 Brown stump-tailed monkeys (*Macacus arctoides*).
 3 Pig-tailed monkeys (*Macacus nemestrinus*).
 2 Lion-tailed monkeys (*Macacus silenus*).
 2 Bonnet monkeys (*Macacus sinicus*).
 4 Weeper capuchins (*Cebus capucinus*).
 2 Common marmosets (*Hapale jacchus*).
 2 Golden marmosets (*Midas chrysomelas*).
 1 Sooty Mangabey (*Cercocebus fuliginosus*).
 2 White-collared mangabeys (*Cercocebus collaris*).

Order Lemures.

- 5 Mongoose lemurs (*Lemur mongoz*).
 2 Black-headed lemurs (*Lemur brunneus*).
 3 Black lemurs (*Lemur macaco*).
 7 Ring-tailed lemurs (*Lemur catta*).

- 1 Ruffed lemur (*Lemur varius*).
- 1 Slow loris (*Nycticebus tardigradus*).
- 2 Garnett's Galagoes (*Galago garnetti*).

Order Carnivora.

- 5 African lions (*Felis leo*).
- 1 Indian lion (*Felis leo*).
- 10 Tigers (*Felis tigris*).
- 5 Leopards (*Felis pardus*).
- 3 Black leopards (*Felis pardus*).
- 2 Clouded leopards (*Felis nebulosa*).
- 1 Jaguar (*Felis onca*).
- 2 Pumas (*Felis concolor*).
- 1 Leopard cat (*Felis bengalensis*).
- 2 Fishing cats (*Felis viverrina*).
- 2 Jungle cats (*Felis chaus*).
- 1 Siamese cat (*Felis*).
- 5 Himalayan bears (*Ursus torquatus*).
- 7 Sloth bears (*Melursus ursinus*).
- 2 Racoons (*Procyon lotor*).
- 1 Badger (*Meles taxus*).
- 1 Common genet (*Genetta vulgaris*).
- 1 Ring-tailed coati (*Nasua rufa*).
- 2 Hunting leopards (*Cynelurus jubatus*).
- 1 Large Indian civet (*Viverra zibetha*).
- 4 Small Indian civets (*Viverricula malaccensis*).
- 4 Himalayan palm civets (*Paradoxurus grayi*).
- 4 Indian jackals (*Canis aureus*).
- 1 Indian jackal (white) (*Canis aureus*).
- 1 Side-striped jackal (*Canis lateralis*).
- 3 Indian mungooses (*Harpestes mungo*).
- 1 Crab-eating mungoose (*Harpestes urva*).
- 6 Striped hyenas (*Hyena striata*).
- 2 Indian wild dogs (*Cyon dukhensis*).
- 3 Indian foxes (*Vulpes bengalensis*).
- 1 Indian ratel (*Mellivora indica*).
- 4 Common otters (*Lutra vulgaris*).
- 23 Cat bears (*Aelurus fulgens*).

Order Proboscidea.

- 1 Indian elephant (*Elephas indicus*).

Order Ungulata.

- 2 Indian Rhinoceroses (*Rhinoceros unicornis*).
 3 Malayan tapirs (*Tapirus indicus*).
 2 Hippopotamuses (*Hippopotamus amphibius*).
 2 English wild cattle (*Bos taurus*).
 3 Gayals (*Bos frontalis*).
 3 Bantengs (*Bos sondaicus*).
 1 Anoa (*Anoa depressicornis*).
 1 Wild ass (*Equus onager*).
 2 Zebras (*Equus burchelli*).
 3 Nilgais (*Boselaphus tragocamelus*).
 4 Indian Gazelles (*Gazella bennetti*).
 14 Indian antelopes (*Antelope cervicapra*).
 4 Four-horned antelopes (*Tetraceros quadricornis*).
 1 Musk deer (*Moschus moschiferus*).
 2 Brow-antlered deer (*Cervus eldi*).
 8 Hog deer (*Cervus porcinus*).
 3 Barking deer (*Cervus muntjac*).
 9 Sambur deer (*Cervus aristotelis*).
 12 Spotted deer (*Cervus axis*).
 6 Barasingha deer (*Cervus duvaucelli*).
 5 Javan mouse deer (*Tragulid javanicus*).
 3 Indian mouse deer (*Tragulid memmina*).
 1 Water-buck (*Cebus ellipsiprymnus*).
 2 White Llamas (*Lama glama*).
 1 Domestic goat (*Capra hircus*).
 4 Domestic sheep (*Ovis aries*).
 3 Burral wild sheep (*Ovis nahura*).
 1 Tahr (*Hemitragus jemlaicus*).
 11 Wild pigs (*Sus cristatus*).
 1 Andaman pig (*Sus andamanensis*).

Order Marsupialia.

- 4 Rufous kangaroos (*Macropus rufus*).
 2 Wallaroos (*Macropus robustus*).
 2 Wallabies (*Macropus bennetti*).

- 1 Wombat (*Phascolomys wombat*).
- 1 Rat kangaroo (*Potorous tridactylus*).
- 1 Opossum (*Didelphys virginian*).
- 1 Vulphine phalanger (*Phalangis vulpina*).
- 2 Tasmanian devil (*Sarcophilus ursinus*).

Order Rodentia.

- 4 Large Indian squirrels (*Sciurus indicus*).
- 1 Large Malayan squirrel (*Sciurus nigro-vittatus*).
- 4 Three-coloured squirrels (*Sciurus tricolor*).
- 4 Orange-bellied grey squirrels (*Sciurus blanfordi*).
- 6 Hoary-bellied Himalayan squirrels (*Sciurus lokroides*).
- 1 Tibetan marmot (*Arctomys hodgsoni*).
- 6 Indian porcupines (*Hystrix leucurus*).
- 1 Brush-tailed porcupine (*Atherura fasciculata*).
- 1 Hairy-rumped agouti (*Dasyprocta prymnolopha*).

CLASS AVES.

Order Passeres.

- 1 White crow (*Corvus splendens*).
- 1 Butcher crow (*Cracticus picatus*).
- 1 Greater Bird of Paradise (*Paradisea apoda*).
- 1 Lesser Bird of Paradise (*Paradisea minor*).
- 4 Red Birds of Paradise (*Paradisea rubra*).
- 1 Twelve-wired Bird of Paradise (*Seleucides niger*).
- 9 Red-billed blue magpies (*Urocissa occipitalis*).
- 3 Indian tree pies (*Dendrocitta rufa*).
- 4 Black-headed Jays (*Cyanocorax cyanomelas*).
- 2 Himalayan Jays (*Garrulus bispecularis*).
- 5 Red-billed Choughs (*Graculus eremita*).
- 6 White-crested laughing thrush (*Garrulax leucolophus*).
- 8 White-throated laughing thrush (*Garrulax albicularis*).
- 10 Striated laughing thrush (*Grammatoptila striata*).
- 1 Song thrush (*Turdus musicus*).
- 6 Horsfield's whistling thrush (*Myiophonus horsfieldi*).
- 4 Jungle babbler (*Crateropus canorus*).
- 2 Black-headed Sibia (*Lioptila capistrata*).

- 27 Bengal red-vented bulbuls (*Molpastes bengalensis*).
- 1 Red-whiskered bulbul (*Otocompsa jocosa*).
- 6 White-cheeked bulbul (*Molpastes leucogenys*).
- 2 Black drongo (*Dicrurus ater*).
- 5 Rose-coloured starlings (*Pastor roseus*).
- 17 Common Indian starlings (*Sturnus menzbieri*).
- 4 Black-headed mynas (*Temenuchus nigriceps*).
- 4 Grey-headed mynas (*Temenuchus malabaricus*).
- 5 Magpie robin (*Copsychus saularis*).
- 4 Black-naped orioles (*Oriolus indicus*).
- 4 Indian oriole (*Oriolus kändou*).
- 15 Weaver birds (*Ploceus baya*).
- 3 Crimson-crowned weaver bird (*Euplectes flammiceps*).
- 1 Masked weaver bird (*Hyphantornis personata*).
- 7 Red-headed cardinal (*Paroaria larvata*).
- 3 Paradise whydahs (*Vidua paradisæ*).
- 7 Black-naped blue fly-catcher (*Miagra azurea*).
- 65 Red munias (*Sporæginthus amandava*).
- 25 Java sparrows (*Padda oryzivora*).
- 8 Tree sparrows (*Passer montana*).
- 16 Bullfinches (*Pyrrhula erythrocephala*).
- 5 Rosefinches (*Carpodacus erythrinus*).
- 2 Chaffinches (*Fringilla caelebs*).
- 1 Goldfinch (*Carduelis elegans*).
- 12 Greenfinches (*Ligurinus chloris*).
- 3 Yellow buntings (*Emberiza citrinella*).
- 3 Cut-throats (*Amadina fasciata*).
- 1 Bush lark (*Mirafra assamica*).
- 2 Himalayan accentors (*Accentor altaicus*).
- 4 White-collared ouzels (*Merula albocincta*).
- 1 Grey-headed ouzel (*Merula castanea*).
- 2 Black-throated thrushes (*Planesticus atrogularis*).
- 1 Black bird (*Merula merula*).
- 3 Indian pittas (*Pitta brachyura*).

Order Scansores.

- 2 Gold-backed woodpecker (*Brachypternus aurantius*).
- 18 Blue-throated barbet (*Cyanops asiatica*).

Order *Upupae*.

- 2 Indian hoopoes (*Upupa indica*).

Order *Columbae*.

- 26 Rock pigeons (*Columba intermedia*).
 2 Wood pigeons (*Columba palumbus*).
 13 White-bellied pigeons (*Columba leuconota*).
 1 Bronze-winged pigeon (*Phaps chalcoptera*).
 16 Coral-billed pigeon or emerald doves (*Chalcophaps indica*).
 2 Wonga Wonga pigeons (*Leucosarcia picta*).
 9 Blood-breasted pigeons (*Phlogaenas cruentata*).
 9 Common Crowned pigeons (*Goura coronata*).
 4 Victoria Crowned pigeons (*Goura victoria*).
 5 Nicobar Crowned pigeons (*Calaenas nicobarica*).
 4 Nicobar Imperial pigeons (*Carpophaga aenea insularis*).
 38 Bengal green pigeons (*Crocopus phanicopterus*).
 2 Kokla green pigeons (*Sphenocercus sphenurus*).
 1 Fruit pigeon (*Ptilopus superbus*).
 6 Magpie pigeons.

Order *Halcyones*.

- 3 White-breasted kingfishers (*Halcyon smyrnensis*).
 4 Brown-winged kingfishers (*Halcyon amauropterus*).
 4 Laughing kingfishers (*Dacelo gigantea*).

Order *Coraciae*.

- 4 Indian rollers (*Coracias indica*).

Order *Bucerotes*.

- 4 Pied hornbills (*Anthracoceros albirostris*).
 1 Javan hornbill (*Buceros rhinoceros*).
 1 Rufous-necked hornbill (*Aceros nepalensis*).
 3 Sulphur-breasted toucans (*Ramphastos carinatus*).

Order *Psittaci*.

- 6 Greater Sulphur-crested cockatoos (*Cacatua galerita*).
 3 Lesser Sulphur-crested cockatoos (*Cacatua sulphurea*).
 15 Roseate cockatoos (*Cacatua roseicapilla*).

- 7 Bare-eyed cockatoos (*Cacatua gymnopsis*).
 3 Rosy-crested cockatoos (*Cacatua moluccensis*).
 1 Leadbeater's cockatoo (*Cacatua leadbeateri*).
 5 Rosella cockatoos (*Platycercus eximius*).
 5 Pale-headed parrakeets (*Platycercus palliceps*).
 2 Scaly-breasted parrakeets (*Trichoglossus chlorolepidotus*).
 3 Blossom-headed parrakeets (*Palæornis cyanocephala*).
 7 Alexandrine parrakeets (*Palæornis eupatrius*).
 4 Red-rumped parrakeets (*Platycercus hæmatonotus*).
 2 Yellow-collared parrots (*Platycercus semi-torquatus*).
 1 Red-winged parrakeet (*Platycercus erythropterus*).
 2 Red and Blue macaws (*Ara macao*).
 2 Blue and Yellow macaws (*Ara ararauna*).
 2 Hyacinthine macaws (*Anodorhynchus hyacinthinus*).
 2 Glaucous macaws (*Anodorhynchus glaucus*).
 2 Illiger's macaws (*Ara maracana*).
 1 Yellow-fronted amazon (*Chrysotis ochrocephala*).
 2 Many-coloured parrots (*Platycercus multicolor*).
 25 Java parrots (*Palæornis alexandri*).
 10 Ring-necked parrots (*Palæornis torquata*).
 2 Great-billed parrakeets (*Tanygnathus megalorhynchus*).
 1 Black-capped lory (*Lorius lori*).
 4 Red-headed lorries (*Lorius rubra*).
 1 Red-sided eclectus (*Eclectus pectoralis*).
 1 Ornamental lory (*Trichoglossus ornatus*).
 13 Undulated grass parrakeets (*Melopsittacus undulatus*).
 1 Undulated grass parrakeet (yellow variety).
 13 Cockateels (*Calopsittacus novæhollandiæ*).

Order Striges.

- 5 Indian barn owls (*Strix javanica*).
 1 Rock-horned owl (*Bubo bengalensis*).
 2 Brown hawk-owls (*Ninox scutellatus*).
 1 Brown fish owl (*Ketupa ceylonensis*).

Order Accipitres.

- 2 Crestless hawk eagles (*Nisaetus bonelli*).
 1 American vulture (*Catharista atrata*).
 1 King vulture (*Otogyys calous*).
 1 Black vulture (*Cathartes atratus*).

- 1 Common brown vulture (*Gyps bengalensis*).
- 5 White-tailed sea eagles (*Poliocætus ichhyætus*),
- 1 Pallas sea eagle (*Haliætus leucoryphus*).
- 1 Andaman serpent eagle (*Spilornis elegne*).
- 2 Indian House kite (*Milvus govinda*).
- 2 Peregrine falcon (*Falco peregrinus*).

Order *Platalea*.

- 2 Spoonbills (*Platalea leucorodia*).
- 34 Black-headed Ibises (*Ibis melanocephalus*).
- 1 Glossy Ibis (*Plegadis falcinellus*).
- 3 Scarlet Ibis (*Eudocemus ruber*).
- 2 Straw-necked Ibises (*Geronticus spinicollis*).
- 2 Black Ibises (*Inocolis papillosus*).

Order *Odontoglossæ*.

- 1 Flamingo (*Phanicopterus antiquarum*).

Order *Herodiones*.

- 1 Common heron (*Ardea cinerea*).
- 2 Lesser egrets (*Herodias intermedia*).
- 3 Cattle egrets (*Bubulcus coromandus*).
- 2 Pond herons (*Ardeola grayi*).
- 2 Night herons (*Nyctiardea nycticorax*).
- 3 Adjutants (*Leptoptilus argala*).
- 3 Lesser adjutants (*Leptoptilus javanicus*).
- 17 Black-necked storks (*Xenorhynchus asiaticus*).
- 2 White-necked storks (*Dissura episcopus*).
- 15 White storks (*Ciconia alba*).
- 1 Black stork (*Ciconia nigra*).
- 2 Japanese storks (*Ciconia boyciana*).
- 4 Jabiru stork (*Pseudotantalus leucocephalus*).

Order *Stegapopodes*.

- 2 Little cormorants (*Phalacrocorax pygmaeus*).
- 1 Indian snake bird (*Plotus melanogaster*).
- White pelicans (*Pelecanus onocrotalus*).

Order *Anseres*.

- 1 Pied goose (*Anser melanoleucas*).
 13 Wild or grey-lag geese (*Anser cinereus*).
 11 Pink-footed geese (*Anser brachyrhynchus*).
 52 Bar-headed geese (*Anser indicus*).
 1 Spur-winged goose (*Plectropterus gambensis*).
 29 Cotton teals (*Nettapus coromandelianus*).
 2 Egyptian sacred geese (*Chenalopez aegyptiacus*).
 1 Canada goose (*Bergia canadensis*).
 1 Cereopsis goose (*Cereopsis nova-hollandia*).
 6 Black swans (*Cygnus atratus*).
 16 Mute swans (*Cygnus olor*).
 1 Black-necked swan (*Cygnus nigrocollis*).
 23 Comb ducks (*Sarcidiornis melanonota*).
 79 Brahminy ducks (*Tadorna casarca*).
 11 Mallard (*Anas boschas*).
 1 Shell drake (*Tadorna cornuta*).
 18 Spotted-bill ducks (*Anas pæulorhyncha*).
 43 Lesser whistling teals (*Dendrocygna javanica*).
 19 Baikal teals (*Nettion formosum*).
 20 Common teals (*Querquedula crecca*).
 54 Gargeny teals (*Querquedula ciricia*).
 53 Pin-tailed ducks (*Dafila acuta*).
 5 Shovellers (*Spatula clypeata*).
 7 Wigeons (*Mareca penelope*).
 7 Summer ducks (*Æx sponza*).
 20 Mandarin ducks (*Æx galericulata*).
 7 Muscovy ducks (*Cairina moschata*).
 7 Pochards (*Fuligula ferina*).
 4 White-eyed pochards (*Nyroca africana*).
 14 Red-headed pochards (*Aythya ferina*).
 4 Tufted pochards (*Fuligula cristata*).
 2 Variegated sheldrake (*Tadorna variegata*).

Order *Gavida*.

- 2 Brown-headed gulls (*Larus brunneicephalus*).
 2 Black-headed gulls (*Kroikocephalus ichthyætus*).
 2 Stone plovers (*Isacus recurvirostris*).
 6 Bronze-winged Jacana (*Metopidius indicus*).

Order Grallæ.

- 20 Common sandgrouse (*Pterocles exustus*).
- 4 Large sandgrouse (*Pterocles arenarius*).
- 35 Saras cranes (*Grus antigone*).
- 12 Common cranes (*Grus communis*).
- 3 Large white cranes (*Grus leucogeranus*).
- 1 White-necked crane (*Grus leucauchen*).
- 10 Demoiselle cranes (*Grus virgo*).
- 3 Balearic cranes (*Balearica pavonina*).
- 1 Cape-crowned crane (*Balearica chrysopelargus*).
- 2 Stanley cranes (*Anthropoides paradisea*).

Order Fulicariæ.

- 8 Purple coots (*Porphyrio poliocephalus*).
- 2 Coots (*Fulcia atra*).
- 1 Moorhen (*Gallinula chloropus*).
- 11 White-breasted waterhens (*Erythra phœnicura*).
- 1 Black-tailed waterhen (*Tribonyx ventralis*).
- 1 Australian rail (*Rallus pectoralis*).
- 9 Indian water-rail (*Rallus indicus*).
- 38 Little crakes (*Porzana parva*).
- 1 Baillon's crake (*Porzana bailloni*).
- 1 Ruddy crake (*Porzana fusca*).

Order Gallinæ.

- 31 Common quails (*Coturnix communis*).
- 2 Californian quails (*Callipepla californica*).
- 26 Chukar partridges (*Caccabis chukar*).
- 3 Swamp partridges (*Ortygornis gularis*).
- 3 Brown-breasted partridges (*Arboricola brunneopectus*).
- 2 Hill partridges (*Arboricola torqueola*).
- 7 Rufous-throated Hill partridges (*Arboricola rufogularis*).
- 2 See-See partridges (*Ampoperdix bonhami*).
- 3 Black partridges (*Francolinus vulgaris*).
- 4 Monaul pheasants (*Lophophorus impeyanus*).
- 4 Ring-necked pheasants (*Phasianus torquatus*).
- 1 Cheer pheasant (*Phasianus wallichii*).
- 1 Gold pheasant (*Thaumalea picta*).
- 6 Silver pheasants (*Euplocamus nycthemerus*).

- 4 Amherst pheasants (*Thaumalea amherstiae*).
- 2 Japanese pheasants (*Phasianus versicolor*).
- 1 Vieillot's Fireback (*Euplocamus vieilloti*).
- 1 Bornean Fireback (*Euplocamus nobilis*).
- 7 Kaleege pheasants (*Euplocamus horsfieldi*).
- 1 Red Jungle fowl (*Gallus ferrugineus*).
- 1 Javan Jungle fowl (*Gallus varius*).
- 4 Sonnerat's Jungle fowl (*Gallus sonnerati*).
- 3 Red Spur fowl (*Colloperdix spadiceus*).
- 2 Domestic fowl (*Gallus domesticus*).
- 2 Tragopan pheasants (*Ceriornis satyra*).
- 3 Temminck's tragopan pheasants (*Ceriornis temmincki*).
- 6 Common peafowl (*Pavo cristatus*).
- 2 Common peafowl (white) (*Pavo cristatus*).
- 2 Burmese peafowl (*Pavo muticus*).
- 1 Black shouldered peafowl (*Pavo nigripennis*).
- 3 Peacock pheasants (*Polyplectron chinques*).
- 1 Argus pheasant (*Argus giganteus*).
- 1 Reeve's pheasant (*Phasianus reevesi*).
- 1 Mexican curassow (*Crax globicera*).
- 1 Common curassow (*Crax alector*).
- 1 Wattled guans (*Aburria carunculata*).

Order Casuarii.

- 2 Two-wattled cassowary (*Casuarius bicarunculatus*).
- 2 Emus (*Dromæus naevæ-hollandæ*).

Order Struthiones.

- 3 Ostriches (*Struthio camelus*).
- 1 Common Rhea (*Rhea americana*).

CLASS REPTILIA.

Order Emydosauria.

- 5 Gharials (*Gavialis gangeticus*).
- 2 Sharp-nosed crocodiles (*Crocodylus porosus*).
- 9 Marsh crocodiles (*Crocodylus palustris*).
- 1 Mississippi alligator (*Alligator mississippiensis*).

Order Chelonia.

- 1 European pond tortoise (*Emys orbicularis*).
- 2 Elephantine tortoises (*Testudo elephantina*).
- 4 Horsfield's tortoises (*Testudo horsfieldi*).
- 1 Starred tortoise (*Testudo elegans*).
- 1 Bloodstained terrapin (*Cinosternum cruentatum*).
- 1 Hamilton's terrapin (*Damonie hamiltoni*).

Order Sauria.

- 15 Geckoes (*Gecko verticillatus*).
- 11 Yellowish monitors (*Varanus flavescens*).
- 2 Bengal monitors (*Varanus bengalensis*).
- 3 Common chameleon (*Chamaleon vulgaris*).

Order Ophidia.

- 6 Indian pythons (*Python molurus*).
- 2 Indian eryx (*Eryx johnii*).
- 2 Conical eryx (*Eryx conicus*).
- 5 Grass snakes (*Tropidonotus stolatus*).
- 14 Water snakes (*Tropidonotus piscator*).
- 24 Indian rat snakes (*Zamenis mucosus*).
- 18 *Xenocrophis cerasogaster*.
- 1 Ornamental snake.
- 4 Tree snakes (*Dryophis pictus*).
- 40 Green snakes (*Dryophis mycterizans*).
- 1 *Lycodon aulicus*.
- 20 Cobras (*Naia tripudians*).
- 21 Russell's vipers (*Vipera russellii*).
- 1 Banded krait (*Bungarus fasciatus*).
- 1 Common krait (*Bungarus caeruleus*).

CLASS ARACHIDA.

Order Scorpiones.

- 5 Scorpions (*Buthus tamulus*).



REPORT
OF
THE HONORARY COMMITTEE
FOR THE
MANAGEMENT OF THE ZOOLOGICAL
GARDEN, CALCUTTA, 1914-15.

THE Honorary Committee have the honour to submit their report for the year ending 31st March 1915, the contents of which, as usual, include, among other items,—

- (1) The Superintendent's report upon the menagerie.
- (2) Monthly returns of visitors and a list of donors and their donations.
- (3) Abstract of accounts of ordinary and extraordinary receipts and expenditure.
- (4) A list of animals in the Garden.

1. THE COMMITTEE.

The Committee consisted of—

President :

The Hon'ble Sir F. W. Duke, K.C.I.E., C.S.I., I.C.S.,
from 1st April to 6th December 1914.

The Hon'ble Mr. C J. Stevenson-Moore, C.V.O., I.C.S.,
from 7th December 1914 to 31st March 1915.

Vice-President :

P. L. Buckland, Esq., F.Z.S., F.L.S.

Honorary Secretary and Treasurer.

Lieut.-Col. E. H. Brown, M.D., I.M.S. (retired), D.P.H.,
F.Z.S., F.R.C.S.E.

Superintendent :

Mr. Bijay Krishna Basu, G.B.V.C., C.M.Z.S.

Assistant Superintendent :

Babu Somadev Ganguli.

Members of the Committee :

Roostumjee Dhunjeehoy Mehta, Esq., C.I.E.

Lieut.-Col. R. Bird, M.D., C.I.E., M.V.O., M.S., F.R.C.S.,
I.M.S.

Dr. Nelson Annandale, B.A., D.Sc., C.M.Z.S.

The Hon'ble Mr. W. R. Gourlay, I.C.S.

H. J. McIntosh, Esq., I.C.S.

Ihtisham-ul-Mulk Rais-ud-Daula Amir-ul-Umara
Nawab Sir Asif Kadr Saiyid Wasif Ali Mirza Khan
Bahadur, Mahabat Jang, Nawab Bahadur of Murshid-
dabad, K.C.S.I., K.C.V.O.

John George Dean, Esq.

Lieut.-Col. Charles Robert Mortimer Green, M.D.,
F.R.C.S., I.M.S.

David Ezra, Esq.

Ambica Charan Law, Esq.

G. Girard, Esq., I.S.O., F.R.H.S.

The Hon'ble Sir Bijay Chând Mahtab, K.C.S.I.,
K.C.I.E., I.O.M., Maharajadhiraj Bahadur of Burdwan.

Shirley Tremearne, Esq.

W. K. Dods, Esq.

Nawab A. F. M. Abdur Rahman, Khan Bahadur.

J. C. R. Johnston, Esq., from 1st April 1914 to 22nd
March 1915.

C. J. Elton, Esq.

Lieut.-Col. Sir L. Rogers, KT., C.I.E., M.D., I.M.S.

Lieut.-Col. C. R. Stevens, M.D., I.M.S.

C. J. Kerr, Esq.

R. S. Highet, Esq.

Ex-officio Members:

The Commissioners of Divisions in Bengal.

The Executive Engineer of the Public Works
Department of the Division in which the Garden is
placed.

The Sanitary Commissioner with the Government
of Bengal.

The President of the Asiatic Society of Bengal.

The Director of Public Instruction, Bengal.

The Natural History Secretary of the Asiatic
Society of Bengal.

The Director of Land Records.

The Superintendent, Civil Veterinary Department,
Bengal.

The Professor of Comparative Anatomy and
 ogy, Medical College, Bengal.

The Superintendent of the Royal Botanic Garden,
 pur.

The Chairman of the Calcutta Corporation.

The Principal of the Bengal Veterinary College,
 cutta.

The following member resigned his membership
 ring the year:—

J. C. R. Johnston, Esq.

2. STAFF AND ESTABLISHMENT.

Mr. Bijay Krishna Basu continued in charge of the
 rden as Superintendent throughout the year and
 bu Somadev Ganguli as Assistant Superintendent.

The following is a list of the superior staff of the
 rden at the end of 1914-15:—

Superintendent :

Mr. Bijay Krishna Basu, G.B.V.C., C.M.Z.S.

Assistant Superintendent :

Babu Somadev Ganguli.

Store-keeper and Typist :

Babu Jugal Kishore Roy.

Overseer :

Babu Niranjan Mukherji.

Clerk :

Babu Profulla Chandra Mitter.

Gate Clerk :

Babu Panchanan Mukherji.

The following is a list of the menial staff of the Garden at the end of 1914-15:—

2 Jamadars.	14 Gardeners.
8 Durwans.	3 Sweepers.
1 Head-keeper.	1 Chaprasi.
19 Keepers.	1 Carpenter.
3 Bhistis.	2 Cartmen.
1 Cook.	1 Syce.
1 Head Gardener.	1 Scytheman.

Besides these, a number of temporary labourers were engaged during the year.

3. BUILDINGS.

(1) *Refreshment Pavilion for Indian Visitors.*—The principal work during 1914-15 was the construction of a Refreshment Pavilion for the Indian visitors. Before this, refreshments were served in the open from wooden stalls which afforded no shelter. The want of a suitable refreshment room was keenly felt and it was decided to build a pucca one. A commodious brick-built hall was accordingly erected on the North-West corner of the Garden with all conveniences in the way of sanitation. The floor is laid with marble and suitable accommodation provided for Indian ladies.

The cost of the construction of the hall was met from a generous donation by Babu Ambica Charan Law, a member of the Committee of Management of the Garden.

(2) *Jhind House.*—Another important work was undertaken during the year. The old Jhind House containing birds was dismantled and a spacious and lofty circular aviary was erected. It is an ideal

en-air aviary. The floor was made rat-proof and
 ekeries and small streams and pools were constructed.
 rubs and creepers were planted and clumps of
 mboos and other shady trees improved the aspect
 the place. It now contains a large and varied
 llection of birds and they live here in perfect
 eedom of movement.

(3) *Gubbay House*.—The outer enclosures of this
 ouse containing apes and baboons were provided
 ith iron railing to prevent the animals being worried
 y visitors.

(4) *Ostrich Enclosure*.—The wire-netting round
 he Ostrich enclosure having perished was renewed.

(5) *Reptile House*.—The iron hand-railing round
 he water-tank and in front of the exhibition cages
 ould never be kept properly clean owing to corrosion.
 o it has been covered with brass sheeting which
 a decided improvement.

(6) *Big Lake*.—The old wire-netting fencing round
 he lake was renewed by a thicker wire-netting.

(7) *Monkey House*.—To prevent the food of the
 mall monkeys being eaten by the rats which have
 ecome a source of great trouble, the whole place
 as dug up and the floor laid with brick-on-edge.
 arth and sand were spread and shrubs and creepers
 lanted.

The annual repairs could not be carried out on
 n extensive scale. Only those houses which needed
 pairs very badly were attended to.

The main drive, roads and Garden paths were repaired as far as possible and kept in good order. The brick-edging of the paths was renewed and large number of petty works were carried out.

4. VISITORS.

There was a decrease in the attendance of paying visitors during the year, the turnstile record indicating a total of 559,759 visitors, thus showing a decrease of 143,223. This is attributed to the financial uncertainty following the outbreak of the War in Europe. The following is a comparative table of visitors for the last three years:—

Year.				Visitors.
1912-13	...	...	...	656,402
1913-14	...	...	...	704,982
1914-15	...	...	...	559,759

Corresponding with the decrease in the number of visitors the gate receipts decreased by Rs. 11,644- as will appear from the following statement:—

Year.				Receipts.	
				Rs.	A.
1912-13	...	...	...	50,499	0
1913-14	...	...	...	53,913	11
1914-15	...	...	...	42,269	1

The amounts of income and expenditure are summarised in Appendix A.

A large number of children under four years of age and school children attended by their teachers were admitted free. On the day of the Fancy Fair about 6,000 people entered the Garden. Besides these, 65,033 persons visited the Garden on the free days. A list of free days with the number of visitors is given in Appendix C.

5. GARDEN.

The decoration of trees and plants, both flowering and evergreen, maintained its high character. New paths and lawns were laid out and several parts of the Garden occupied by unsightly bushes were cleared and a large number of new shrubs and plants were planted. The display of flowering annuals was very successful. The Superintendent was awarded several first class certificates for some very excellent exhibits at the monthly shows held by the Agri-Horticultural Society of India.

CONCLUSION.

The thanks of the Committee are due to the ladies and gentlemen who have added to the collection of the Garden by their donations, a list of which is given in Appendix D. Thanks are also due to those who kindly offered to present animals to the Garden, but whose offers could not be accepted, either because the particular species of animals was already sufficiently well represented, or owing to the want of accommodation.

The Committee also desire to express their sincere thanks to the Officers Commanding, 16th Rajputs, for allowing their band to play on Sunday evenings without charge.

The thanks of the Committee are also due to Railway and Steamer Companies for conveying animals belonging to the Garden free of charge and in particular to the East Indian Railway Company, Eastern Bengal State Railway, Bengal-Nagpur Railway Company, Oudh and Rohilkhund Railway, Bengal and North-Western Railway Company, Darjeeling and Himalayan Railway, British India Steam Navigation Company, India General Steam Navigation and Railway Companies and River Steam Navigation Company.

S. C. BERRIDGE,
Honorary Secretary.

F. J. MONAHAN,
President.

SUPERINTENDENT'S REPORT.

I HAVE the honour to submit the following report on the existing condition and the progress of the management of the Garden.

The following comparative table shows how the various collections of animals in the Garden stood during the last four years:—

Year.	Mammals.	Birds	Reptiles.
1911-12	... 654	1,612	127
1912-13	... 341	1,188	150
1913-14	... 378	1,659	223
1914-15	... 334	1,893	246

A list of animals in the Garden on 31st March 1915 is given in Appendix E.

GENERAL CONDITION OF THE ANIMALS.

The general physical condition of the mammals is very satisfactory. There were no epidemics except Hem. Septicæmæa amongst the lemurs and squirrels, etc., and the important animals were kept in a perfect state of health.

In the department of birds no epidemics occurred except in the case of newly-purchased Monal and Nagapan pheasants and pigeons, where chicken cholera and avian pasteurellosis prevailed, but which were promptly suppressed before they could spread amongst other specimens.

ADDITIONS TO THE MENAGERIE DURING 1914-15.

Of the additions during the year the following deserve notice :—

- 2 Musk deer (*Moschus moschiferus*), presented by H. H. the Maharaja of Nepal.
- 1 Male ostrich (*Struthio camelus*), purchased.
- 7 Tiger and tiger cubs (*Felis tigris*), purchased.
- 1 Tiger (*Felis tigris*), presented by Nawab Bahadur of Murshidabad.
- 1 Malayan tapir (*Tapirus indicus*), purchased.
- 1 Pair Malayan bears (*Ursus malayanus*), purchased.
- 1 Pair clouded leopard cubs (*Felis nebulosa*), presented by Captain R. C. B. Williams.
- 1 Hunting leopard (female) (*Cynalurus jubatus*), purchased.
- 1 Golden cat (*Felis temmincki*), purchased.
- 4 Brow-antlered deer (*Cervus eldii*), born.
- 1 Coluber radiatus, presented by F. W. Middleton, Esq.
- 4 Ruffed lemurs (*Lemur varius*), purchased.
- 2 Hoolocks (*Hylobates hoolock*), purchased.
- 1 Hoolock (*Hylobates hoolock*), presented by F. H. Abbot, Esq.
- 1 Pair lion cubs (*Felis leo*), purchased.
- 4 Snow leopards (*Felis uncia*), purchased.
- 2 Blood pheasants (*Ithaginis geoffroyi*), purchased.
- 1 Tibetan lynx (*Felis lynx*), purchased.
- 1 Goral (*Nemorhodus goral*), purchased.
- 2 Barasingh deer (*Cervus duvaucelli*), born.
- 1 Testudo travancorica, presented by Dr. N. Annandale, B.A., D.Sc., C.M.S.S.
- 2 Starred tortoises (*Testudo elegans*), presented by Miss Prestoff.
- 1 Pair Kangaroos (*Macropus giganteus*), purchased.
- 5 Red-winged parrakeets (*Platycercus erythropterus*).
- 6 King parrakeets (*Aprosmictus cyanopygius*), purchased.
- 1 Red-bellied Flying Squirrel (*Sciurus variegatus*), presented by H. E. the Governor.

The following animals were obtained through the good offices of Mr. F. E. Moller of Darjeeling :—

- 2 Snow leopards (*Felis uncia*).
- 14 Tragopan pheasants (*Ceriornis satyra*).
- 1 Burrhal sheep (*Ovis nahura*).

BIRDS.

The birth-rate during the year 1914-15 in the mammal collection has been very satisfactory.

The following is a list of animals that bred in the Garden in 1914-15 :—

- 1 Wild ass (*Equus onager*).
- 1 Hanuman (*Semnopithecus entellus*).
- 2 Hog deer (*Cervus porcinus*).
- 4 Brow-antlered deer (*Cervus eldii*).
- 4 Leopard cubs (*Felis pardus*).
- 2 Three-colored squirrels (*Sciurus tricolor*).
- 1 Grivet monkey (*Cercopithecus griseoviridis*).
- 3 Indian antelopes (*Antelope cervicapra*).
- 3 Hoary-bellied Himalayan squirrels (*Sciurus lokroides*).
- 2 Sambar deer (*Cervus aristotelis*).
- 2 Spotted deer (*Cervus axis*).
- 2 Indian foxes (*Canis bengalensis*).
- 2 Barasingha deer (*Cervus duvaucelli*).
- 1 Nilgai (*Boselaphus tragocamelus*).

BIRDS.

- 1 Imperial Nicobar pigeon (*Carpophaga aenea insularis*).
- 4 Carolina ducks (*Anas sponza*).

The following is a list of animals that bred in the Garden in a wild state :—

- Indian squirrel (*Sciurus palmarum*).
- Flying fox (*Pteropus medius*).
- Common Pariah kite (*Milvus govinda*).
- Indian House crow (*Corvus splendens*).
- Indian Tree pie (*Dendrocitta rufa*).
- Pied myna (*Sturnopastor contra*).
- Common myna (*Acridotheres tristis*).
- Jungle babbler (*Crateropus conorus*).
- Bengal Red-whiskered bulbul (*Otocompsa emeria*).
- Black-naped oriole (*Oriolus indicus*).

- Indian coel (*Eudynamis honorata*).
 Magpie robin (*Capsychus saularis*).
 House sparrow (*Passer domesticus*).
 Common kingfisher (*Alcedo bengalensis*).
 Indian Rock pigeon (*Columba intermedia*).
 Muscovy duck (*Cairira moschata*).
 White-breasted waterhen (*Erythra phanicura*).

A number of aquatic birds, Indian crakes, rails, coots, terns and white-breasted waterhens were introduced in the islands of the lake for breeding purposes.

The following birds bred in the bird chummery on the island in the big lake :—

- Little cormorant (*Phalacrocorax pygmaeus*).
 Indian snake bird (*Plotus melanogaster*).
 Night heron (*Nycticorax griseus*).

Eggs were laid but not hatched by the following birds :—

- Cheer pheasant (*Phasianus wallichii*).
 Amherst pheasant (*Thaumalea amherstia*).
 Silver pheasant (*Euplocamus nyctemerus*).
 Ostrich (*Struthio camelus*).

DEATHS.

Aside from the usual loss of small and short-lived animals the deaths during the year were quite insignificant. The only losses worthy of note consisted of the following :—

- 1 Two-wattled cassowary (*Casuarius bicarunculatus*).
 1 Gold marmoset (*Midas chrysomelas*).
 1 Wild ass (*Equus onager*).
 1 Tigress (*Felis tigris*).
 1 Gayal bull (*Bos frontalis*).
 1 Red Bird of Paradise (*Paradisaea rubra*).
 3 Orang-utans (*Simia satyrus*).
 2 Musk deer (*Moschus moschiferus*).

- 1 Twelve-wired Bird of Paradise (*Seleucides niger*).
- 1 Cape-crowned crane (*Balearica chrysopterygus*).
- 1 Sulphur-breasted toucan (*Ramphastos carinatus*).
- 1 Malayan Tapir (*Tapirus indicus*).
- 1 White peafowl (*Pavo muticus*).
- 2 Snow leopards (*Felis uncia*).
- 1 Black leopard (*Felis pardus*).

The following animals were destroyed as considered unfit for exhibition :—

- 1 African lion (*Felis leo*).
- 1 Wombat (*Phascolomys wombat*).
- 1 Lioness (*Felis leo*).
- 1 Tiger (*Felis tigris*).

PATHOLOGICAL DEPARTMENT.

The work in this Department was carried on as usual with kind assistance from Lieutenant-Colonel A. Smith, F.R.C.V.S., Principal, Bengal Veterinary College, in important cases.

Post mortem examinations were made of almost all the animals that died during the year. A list of the more important cases which presented the principal subjects for pathological diagnosis is given below :—

Number of cases.	Subjects.
Apoplexy ...	1 Gold marmoset, 1 White llama, 3 Cat bears, 1 Snow leopard.
Avian pasteurellosis ...	4 Crown pigeons, 2 Scaly-breasted parakeets, 1 Blood-breasted pigeon, 1 White-bellied pigeon.
Accident ...	1 Saras crane, 1 Indian antelope, 1 Indian Pitta, 1 Mute swan, 1 Black buck, 1 Pin-tailed duck.
Cholera, Fowl ...	1 Sonnerat's Jungle fowl, Tragopan pheasants and Monal pheasants.
Congestion of the liver ...	1 Leadbeater's cockatoo, 1 Pin-tailed duck, 1 Sand grouse, 1 Leopard cub.

Number of cases-	Subjects.
Cirrhosis of the liver ...	1 Indian wolf, 1 Palm civet.
Debility brought on by old age ...	1 Jungle cat.
Debility, General ...	1 Mongl pheasant, 1 Snow pigeon, 1 Vieillot's fireback, 1 Grass owl, 1 Indian gazelle, 2 Slender lorises, 1 Pied hornbill.
Dysentery ...	1 Himalayan bear, 2 Cat bears.
Diarrhœa ...	1 Cat bear, 1 Wild dog.
Epilepsy ...	1 Cat bear.
Enteritis ...	1 Black lemur, 1 Indian gazelle, 1 Sloth bear, 1 Snow leopard.
Egg bound ...	1 Pea-hen.
Fatty degeneration of the liver ...	1 Tibetan marmot, 1 Sulphur-breasted toucan.
Gastritis ...	1 Sloth bear, 1 Indian wild pig.
Gastro-enteritis ...	1 Indian gazelle, 1 Four-horned antelope, 1 Indian wild boar, 1 Lion cub.
Hemorrhagic septicæmia ...	2 Large Indian squirrels, 1 Singapur squirrel, 1 Coati, 6 Ring-tailed lemurs, 1 Ruffed lemur, 1 Cat bear.
Hepatitis ...	1 Malayan bear.
Intestinal catarrh ...	1 Black stork, 1 Black lemur.
Injury ...	1 Musk deer.
Leucocythæmia ...	1 Rosy-crested cockatoo.
Metritis (acute) ...	3 Indian antelopes.
Metro-peritonitis ...	1 Indian antelope.
Mange ...	1 Llama.
Obstruction of the bowels (twisted gut) ...	1 Tiger.
Paralysis ...	1 Barasingha deer.
Pneumonia ...	1 Australian eagle, 1 Cassowary, 1 Monal pheasant, 1 Crab-eating mongoose, 1 Wallaby, 1 Twelve-wired Bird of Paradise, 1 Silver pheasant.
Pneumonia (Traumatic) ...	1 Crow pheasant, 1 Fishing cat.
Pericarditis ...	1 Rufous-throated hornbill.
Phthisis ...	1 Weeper capuchin.
Peritonitis ...	1 Orang-utan.
Rinderpest ...	1 Gayal.
Tetanus ...	1 Ferret.
Tuberculosis ...	1 Grey gibbon.

Mr. T. Southwell, Deputy Director of Fisheries, Bengal, examined and arranged the parasites collected from animals which were sent to the Indian Museum for *post mortem* examination. Excellent results were obtained and the following statement made by him the Superintendent, Indian Museum, will be of interest:—

About two years ago arrangements were made with the kind permission of the Directors of the Zoological Gardens) to the effect that animals which died in the Zoological Gardens should be sent to the Indian Museum where careful examinations would be made for internal parasites. The excellent results obtained have far exceeded my expectations, and the time now has arrived when a short statement is due to the Governing Body of the Zoological Gardens.

Excepting human parasites and a few that cause disease, and often death, amongst common domestic animals, practically nothing is known regarding the occurrence and distribution of parasites in Indian animals.

The writer has been engaged for many years collecting such parasites (principally from birds and fish) with the hope of being able at some future time to complete a volume dealing with such parasites in the fauna of British India. It will be many years however, before such a hope can be materialised, but in the meantime, the material derived from the Zoological Gardens is of the first importance, inasmuch as it enables us to examine a multitude of animals which would otherwise be inaccessible.

The demands of my work frequently prevent me from being able to examine all the animals received.

Under these circumstances, I am obliged to you for deputing a man to undertake the examinations in my absence. I am aware of the trouble involved in bringing these animals to the Museum, but the results obtained have been of such signal importance that in the interests of science I strongly recommend a continuance of the examinations, otherwise the excellent material available would be merely thrown away. A great improvement would be effected, were it possible for me or some other officer to visit the Zoological Gardens daily for the purpose of carrying out the examinations. This, however, is unfortunately impossible at present.

Three kinds of parasites have been obtained, viz.,

- (1) Trematodes. | (2) Nematodes.
(3) Cestodes.

The Trematodes collected have been very few, not more than two or three species.

On the other hand, the Nematodes have been remarkably numerous, and the Museum now possesses a very fine collection. At present there is some difficulty in obtaining an expert to name and describe them, but the great point is that the collections have been made, and are available. There are in all about 47 species. One curious feature was apparent early, namely, that the biggest animals harboured the smallest parasites and *vice versa*. Thus those from a lion only measured 5 m.m., whilst over 20 parasites each 7 to 10 inches long were taken from a young antelope, and other large ones have been obtained from quite small birds.

My immediate interest, however, is with the Cestodes. Up to the present we have collected, from

animals supplied by the Superintendent of the Zoological Gardens, no less than 61 species. I have been unable up to the present, to describe more than about 15 or 16 species. I have no doubt whatever but that many of the species collected are new to science. Out of those examined up to the present four (five?) are new.

The opportunity of examining animals rare in nature and difficult to obtain is not only fully appreciated but reflects credit on the authorities concerned. It has enabled me not only to merely collect parasites, but in some cases to obtain data relating to their rate of growth, and the abnormal infection, apparently due to a change in the normal diet of the animals. Those are all points on which it is difficult to obtain any definite information except in the present circumstances. Moreover in very many cases I have been able to examine the parasites alive, and this fact is of the greatest importance. I have carried out these examinations for the simple reason that I am in love with the work. When the opportunity comes for publishing the results in proper form, the sympathy and generosity of the Board of Directors (in providing the necessary means without which the valuable collection could not have been made) will be suitably acknowledged with gratitude."

PROVISIONS.

The following table shows the quantity of provisions consumed during the year:—

			Mbs.	s.	CH.
Gram	...	...	1,053	28	0
Bran	...	...	532	30	0
Paddy	...	...	346	32	0

			Mds.	s.	CH.
Rice	...	...	266	0	0
Wheat	...	...	94	5	8
Barley	...	...	48	0	0
Indian corn	...	...	123	18	8
Flour	...	...	105	1	0
Peas	...	...	13	30	8
Patatoes	...	...	211	35	0
Paddy-straw	...	...	2,115	0	0
Bazra	...	...	159	32	8
Kelai	...	...	20	35	0
Linseed	...	...	45	27	8
Oilcake	...	...	83	10	0
Oats	...	...	531	30	0
Worms	...	...	19	36	14
				lbs.	
Canary seed	...	...	1,286	$\frac{1}{2}$	
			Mds.	s.	CH.
Kangney	...	...	4	14	4
Hempseed	...	...	1	6	12
Gur	...	...	22	29	12
Black salt	...	...	11	17	8
Table salt	...	...	22	26	0
Onion	...	...	9	32	0
Garlic	...	...	1	6	8
Beef	...	...	896	14	8
Mutton	...	...	72	13	8
Milk	...	...	77	37	0
Bread	...	...	71	0	5
Biscuits	...	...	77	19	1
Fish	...	...	38	30	0
Raisin	...	...	2	11	0
Date	...	...	8	22	0
Urhar dal	...	...	14	19	0
Sugar	...	...	2	15	12
Ghee	...	...	0	32	0
Nut	...	...	1	37	8
Black pepper	...	...	0	8	0
Honey	...	...	0	5	0

			Mds. s. CH.		
Green grass	...	...	98	18	0
Vegetables, such as, cauliflowers, carrots, lettuce, cabbages, brinjals, a knolkhol, cucumber, beet, radish, tomato, etc., etc.	...	...	85	35	0
Janera	...	...	3	28	0
Curd	...	...	20	21	0
Shuttoo	...	...	95	32	8
Fowls	...	...	1,874		
Leaves	...	...	184½	cart-load.	
Sugarcane	...	...	610		
Tea	...	...	10	tips.	
Smaller birds	...	...	624		
Snakes	...	...	344		
Ducks	...	...	139		
Frogs	...	...	5,781		
Goats	...	...	63		
Miscellaneous fruits, such as, papaya, oranges, apple, pomegranate, etc., etc.	...	...	4,819		
Ducks' eggs	...	...	6,781		
Fowls' "	...	...	1,356		
Rat	...	...	292		
Tin milk	...	...	96		
Plantain	...	...	119	kahans 12 pauns 10 gandas.	
Hay	...	...	65,400.		

The following table gives the chief items of expenditure under "Food of animals" for the year 1914-15 :—

			Rs.	A.	P.
Beef	...	...	3,682	3	9
Mutton	...	...	1,075	12	6
Plantain	...	...	485	1	9
Fish	...	...	291	12	6
Worms	...	...	229	5	0
Bread	...	...	654	9	9
Grains, such as gram, bran, paddy, wheat, etc., etc.	...	...	16,993	8	0

		Rs.	A.	P.
Miscellaneous food, such as canary, kangney gur, etc., etc.		838	3	3
Shuttoo		182	12	0
Miscellaneous food, such as fowls, goats, curd, ducks, snakes, etc., etc. ...		3,237	3	0
Grasshoppers		45	15	6
Biscuits		35	7	6
Milk		301	5	0
Tin milk		98	4	9
		<hr/>		
Total		28,151	8	3
		<hr/>		

APPENDIX A.

I.—Comparative Statement of Receipts for
1913-14 and 1914-15.

	1913-14.			1914-15.		
	Rs.	A.	P.	Rs.	A.	P.
Opening balance	9,896	8	8	21,791	9	1
Interest	163	3	4	284	11	1
Donations and subscriptions	5,193	0	0	212	0	0
Entrance receipts	53,913	11	0	42,269	1	0
Rent	4,903	0	0	4,195	5	8
Carriage, rickshaw, elephant ride, etc., etc.	767	8	0	564	12	0
Fishing	691	0	0	250	0	0
Picnic	195	0	0	156	0	0
Rhino urine	2,145	0	0	2,106	0	0
Miscellaneous receipts	13,242	12	8	6,358	11	6
Government contribution	20,000	0	0	20,000	0	0
Total	1,11,110	11	8	98,188	2	4
<i>Add—</i>						
Receipts of 27th to 31st March 1913, which were included in 1913-14.	818	10	0	.....	
Receipts of 31st March 1914, which will be included in 1914-15. ... ..	.....			111	5	0
	1,11,929	5	8	98,299	7	4
<i>Deduct—</i>						
Receipts of 31st March 1914, which are included in 1914- 15.	111	5	0	.....	
Receipts of 31st March 1915, which will be included in 1915-16. ... ..	.....			96	14	0
GRAND TOTAL	1,11,818	0	8	98,202	9	4

*II.—Comparative Statement of Expenditure for
1913-14 and 1914-15.*

	1913-14.			1914-15.		
	Rs.	A.	P.	Rs.	A.	P.
Establishment	8,430	2	11	8,459	1	0
Food of animals	28,236	0	0	28,151	8	3
Purchase of animals	22,308	4	0	14,482	12	6
Transport of animals	1,353	12	9	470	0	9
Miscellaneous contingencies	10,927	15	11	7,273	8	5
Repairs of roads	2,120	13	6	1,086	7	0
Do. of buildings	8,533	5	6	9,175	13	0
Original construction	4,209	6	3	10,053	13	6
Garden ditto	3,897	10	9	4,578	8	9
Tools and plant ... ..	.....			.....
Total	90,026	7	7	83,731	9	2
Closing balance	21,791	9	1	14,471	0	2
GRAND TOTAL	1,11,818	0	8	98,202	9	4

APPENDIX B.

*Summary of Visitors and Gate receipts during
1914-15.*

Month and Year.				Number of visitors.	Receipts.	
					Rs.	A.
April	1914	...	...	44,312	3,424	13
May	"	...	...	36,456	2,941	11
June	"	...	...	55,603	4,066	1
July	"	...	...	39,567	2,975	11
August	"	...	...	56,306	4,160	2
September	"	...	...	75,225	5,132	2
October	"	...	...	35,863	2,780	1
November	"	...	...	35,002	2,883	13
December	"	...	...	47,434	3,708	4
January	1915	...	...	50,809	3,900	2
February	"	...	...	42,440	3,269	15
March	"	...	...	40,742	3,026	6
Total				5,59,759	42,269	1

APPENDIX C.

A list of Free days showing free visitors during the year 1914-15.

6th April	1914	...	...	5,702
4th May	"	..	...	5,417
1st June	"	...	...	6,167
6th July	"	...	...	5,965
3rd August	"	...	...	7,604
7th September	"	...	...	7,357
5th October	"	...	...	5,340
9th November	"	...	...	3,128
14th December	"	...	...	3,150
11th January	1915	...	...	5,617
8th February	"	...	...	5,073
8th March	"	...	...	4,513
				<hr/>
		Total	...	65,033
				<hr/>

APPENDIX D.

List of Donors, 1914-15.

A

Annandale, Dr. N., B.A., D. sc., C.M.Z.S.	1 Emyda granosa, 1 Green snake, 1 Testudo travancorica.
Alken, Mrs. ...	1 Young marsh crocodile.
Abbott, Mr. T. H. ...	1 White-browed gibbon.
Anderson, Mr. E. D. ...	1 Leopard cub.
Ariff, Mr. Y. C. ...	1 Marsh crocodile.

B

Beni Pershad, Mr. ...	3 Emyda granosa, 1 Kaobuga tectum.
Bengal Veterinary College, Principal.	1 Russell viper.
Banerji, Babu-Subodh Ch. ...	1 Fishing cat.
Best, Mr. S. H. ...	1 Sulphur-crested cockatoo.
Bamji, Mr. P. D. ...	1 Black buck.
Bantleman, Mr. V. R. ...	1 Hanuman.
Balasore, Collector of ...	1 Python.
Brenton, Mrs. ...	2 Starred tortoises.

C

Curlender, Mrs. ...	2 Leopard cubs, 1 Indian antelope.
Chatterji, Babu Sarat Ch. ...	1 Python.
Coryton, Mr. R. ...	1 Civet cat.
Connell, Miss Colin ...	1 Ring-necked parrot.

D

Dods, Mr. W. K. ...	1 Brown-breasted king-fisher, 1 Indian robin, 6 Bronze-winged jacanas, 3 Pheasant-tailed jacanas, 1 Cotton teal, 4 Ruddy crakes, 1 Indian rail, 29 Corn crakes.
De, Babu J. N. ...	1 Civet.

E

Evans, Mr. E. A. ...	1 Grass owl.
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F

- Forest Officer, Gorakhpur ... 1 Wild dog.
Francis, Mr. B. ... 1 Russell viper, 1 Cobra.

G

- Girard, Mr. G., F.R.H.S., I.S.O. ... 1 Marsh crocodile, 2 Honey suckers, 1 Golden oriole, 4 Indian treepies, 1 Grass owl, 2 Slender lorises, 2 Brown-breasted king-fishers.
Gooptu, D & Co. ... 1 Typhlops porrectus.

H

- Harvey, Mr. C. H. ... 1 Rhesus monkey.

J

- Joscelyne, Mr. H. A. ... 1 Leopard cub.
Jardine, Mr. D. ... 1 Nilgai.
Jail, Superintendent of Barisal 9 Spotted deer.

K

- Kier, Mr. W. J. ... 1 White-tailed sea-eagle.
Keelan, Mr. D. H. ... 1 Small Indian civet.

L

- Lewis, Mr. R. F. ... 3 Andaman paradoxures.
LeMesurier, Mr. H. P. ... 1 Leopard, 4 Polecat ferrets.

M

- Michael, Mr. A. E. ... 1 Javan mouse deer.
Middleton, Mr. F. D. ... 1 Coluber radiatus.
Mohammad Ali, Maulvi ... 1 Leopard cat.
Monda, Raja of ... 3 Leopards.
Mee, Mr. A. H. ... 1 Leopard cat.
Murshidabad, Nawab Bahadur of 1 Tiger.
Mukerji, Rai Bahadur Bepin Behari 1 Indian antelope.
Mills, Mr. H. G. ... 1 Chameleon.

N

- Nepal, H. H. the Maharaja of ... 2 Musk deer.
Norman, Miss ... 1 Canary.
Nadia, Maharaja of ... 2 Leopards.

P

Penny, Mr. W.	...	...	1 Python.
Price, Mr. J. H.	...	...	1 Sambar deer, 1 Palm civet.

R

Roy Chowdhury, Babu Sarat Ch.		1 Black swan, 1 Mute swan.
Rouse, Mr. W. H.	...	1 Indian gazelle.
Roy Chowdhury, Babu Jitendra Nath		1 Common peafowl.

S

Singh, Babu Tejendra Narain	...	1 Fishing cat.
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T

Taylor, Capt. M. H.	...	1 Himalayan bear.
Thompson, Mr. C. W.	...	2 Macaque monkeys.
Taylor, Mr. J.	...	1 Spotted deer (alb.).

V

Vaughan, Lt.-Col. J. C.	...	3 Bar-headed geese.
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W

Williams, Capt. R. C. B.	...	1 Pair clouded leopards.
Weston, Mr. W. Val	...	1 Slow loris, 2 Indian civets.
Williams, Mr. C. Addams	...	1 Fishing cat.
H. E. the Governor of Bengal	...	1 Himalayan bear cub, 1 Civet cat, 1 Red-bellied squirrel.

APPENDIX E.

LIST OF ANIMALS IN THE GARDEN ON 31ST MARCH 1915.

CLASS MAMMALIA.

Order Primates.

- 1 Orang-utan (*Simia satyrus*).
- 2 Hoolock gibbons (*Hylobates hoolock*).
- 2 Mandrills (*Cynocephalus mormon*).
- 1 Drill (*Cynocephalus leucophaeus*).
- 1 Yellow baboon (*Cynocephalus babouin*).
- 2 Arabian baboons (*Cynocephalus lamadryas*).
- 1 Chacma baboon (*Cynocephalus porcarius*).
- 1 Anubis baboon (*Cynocephalus anubis*).
- 5 Grivet monkeys (*Cercopithecus griseo-viridis*).
- 1 Moustached monkey (*Cercopithecus cephus*).
- 1 Green monkey (*Cercopithecus callitricus*).
- 3 Houcheur monkeys (*Cercopithecus nictitans*).
- 2 Celebes black monkeys (*Cercopithecus niger*).
- 2 Mona monkeys (*Cercopithecus mona*).
- 10 Entellus monkeys (*Semnopithecus entellus*).
- 8 Macaque monkeys (*Macacus cynomolgus*).
- 6 Rhesus monkeys (*Macacus rhesus*).
- 2 Brown stump-tailed monkeys (*Macacus arctoides*).
- 3 Pig-tailed monkeys (*Macacus nemestrinus*).
- 2 Lion-tailed monkeys (*Macacus silenus*).
- 2 Bonnet monkeys (*Macacus sinicus*).
- 3 Weeper capuchins (*Cebus capucinus*).
- 2 Common marmosets (*Hapale jacchus*).
- 1 Golden marmoset (*Midus chrysomelas*).
- 1 Sooty Mangabey (*Cercocebus fuliginosus*).
- 1 White-collared mangabey (*Cercocebus collaris*).

Order Lemures.

- 1 Mongoose lemur (*Lemur mongoz*).
- 2 Black-headed lemurs (*Lemur brunneus*).
- 1 Black lemur (*Lemur macaco*).
- 4 Ruffed lemurs (*Lemur varius*).

- 5 Slow lorises (*Nycticebus tardigradus*).
 2 Garnett's galagoes (*Galago garnetti*).

Order Carnivora.

- 4 African lions (*Felis leo*).
 1 Indian lion (*Felis leo*).
 12 Tigers (*Felis tigris*).
 10 Leopards (*Felis pardus*).
 1 Black leopard (*Felis pardus*).
 4 Clouded leopards (*Felis nebulosa*).
 1 Jaguar (*Felis onca*).
 2 Pumas (*Felis concolor*).
 1 Leopard cat (*Felis bengalensis*).
 3 Fishing cats (*Felis viverrina*).
 1 Tibetan lynx (*Felis lynx*).
 1 Siamese cat.
 1 Domestic cat.
 5 Himalayan bears (*Ursus torquatus*).
 1 Sloth bear (*Melursus ursinus*).
 2 Racoons (*Procyon lotor*).
 1 Badger (*Meles taxus*).
 1 Common genet (*Genetta vulgaris*).
 3 Hunting leopards (*Cynalurus jubatus*).
 1 Large Indian civet (*Viverra zibetha*).
 4 Small Indian civets (*Viverricula malaccensis*).
 1 Indian palm civet (*Paradoxurus niger*).
 3 Himalayan palm civets (*Paradoxurus grayi*).
 2 Polecats (*Mustela putorius*).
 4 Indian jackals (*Canis aureus*).
 1 Indian jackal (white) (*Canis aureus*).
 1 Side-striped jackal (*Canis lateralis*).
 1 Indian mongoose (*Harpestes mungo*).
 4 Striped hyænas (*Hyæna striata*).
 4 Indian foxes (*Vulpes bengalensis*).
 1 Indian ratel (*Mellivora indica*).
 4 Common otters (*Lutra vulgaris*).
 10 Cat bears (*Aelurus fulgens*).

Order Proboscidea.

- 1 Indian elephant (*Elephas indicus*).

Order Ungulata.

- 2 Indian rhinoceroses (*Rhinoceros unicornis*).
- 3 Malayan tapirs (*Tapirus indicus*).
- 2 Hippopotamæ (*Hippopotamus amphibius*).
- 2 English wild cattle (*Bos taurus*).
- 3 Bantengs (*Bos sonadaicus*).
- 1 Anoa (*Anoa depressicornis*).
- 2 Zebras (*Equus burchelli*).
- 4 Nilgais (*Boselaphus tragocamelus*).
- 1 Indian gazelle (*Gazella bennetti*).
- 8 Indian antelopes (*Antelope cervicapra*).
- 4 Four-horned antelopes (*Tetraceros quadricornis*).
- 6 Brow-antlered deer (*Cervus eldii*).
- 7 Hog deer (*Cervus porcinus*).
- 3 Barking deer (*Cervus muntjac*).
- 12 Sambur deer (*Cervus aristotelis*).
- 24 Spotted deer (*Cervus axis*).
- 6 Barasingha deer (*Cervus duvaucelli*).
- 4 Javan mouse deer (*Tragulus javanicus*).
- 2 Indian mouse deer (*Tragulus memmina*).
- 1 Water-buck (*Cebus ellipsiprymnus*).
- 3 Domestic sheep (*Ovis aries*).
- 1 Burral wild sheep (*Ovis nahura*).
- 1 Tahr (*Hemitragus jemlaicus*).
- 9 Wild pigs (*Sus cristatus*).
- 1 Andaman pig (*Sus andamanensis*).

Order Marsupialia.

- 2 Great kangaroos (*Macropus giganteus*).
- 1 Great Kangaroo (White var.) (*Macropus giganteus*).
- 4 Rufous kangaroos (*Macropus rufus*).
- 2 Wallaroos (*Macropus robustus*).
- 1 Wallaby (*Macropus bennetti*).
- 1 Tasmanian devil (*Sarcophilus ursinus*).

Order Rodentia.

- 3 Large Indian squirrels (*Sciurus indicus*).
- 1 Large Malayan squirrel (*Sciurus bicolor*).
- 11 Three-coloured squirrels (*Sciurus tricolor*).

- 4 Orange-bellied grey squirrels (*Sciurus blanfordi*).
- 6 Hoary-bellied Himalayan squirrels (*Sciurus lokroides*).
- 1 Red-bellied flying squirrel (*Pteromys magnicus*).
- 5 Indian porcupines (*Hystrix leucurus*).
- 1 Brush-tailed porcupine (*Atherura fasciculata*).
- 1 Hairy-rumped agouti (*Dasyprocta prymnolopha*).

CLASS AVES.

Order Passeres.

- 1 White crow (*Corvus splendens*).
- 1 Butcher crow (*Cracticus picatus*).
- 1 Piping crow (*Gymnorhina organica*).
- 1 Greater Bird of Paradise (*Paradisea apoda*).
- 1 Lesser Bird of Paradise (*Paradisea minor*).
- 3 Red Birds of Paradise (*Paradisea rubra*).
- 13 Red-billed blue magpies (*Urocissa occipitalis*).
- 6 Green magpies (*Cissa chinensis*).
- 2 Indian tree pies (*Dendrocitta rufa*).
- 11 Black-headed jays (*Cyanocorax cyanomelas*).
- 2 Himalayan jays (*Garrulus bispecularis*).
- 4 White-crested laughing thrush (*Garrulax leucolophus*).
- 3 White-throated laughing thrush (*Garrulax albigularis*).
- 10 Striated laughing thrush (*Grammatoptila striata*).
- 3 Horsfield's whistling thrush (*Myiophonus horsfieldi*).
- 4 Jungle babbler (*Crateropus canorus*).
- 3 Black-headed sibia (*Lioptila capistrata*).
- 27 Bengal red-vented bulbuls (*Molpastes bengalensis*).
- 1 Red-wiskered-bulbul (*Otocompsa jocosus*).
- 10 White-cheeked bulbuls (*Molpastes leucogenys*).
- 19 Yellow-vented bulbuls (*Pycnonotus analis*).
- 5 Rose-coloured starlings (*Pastor roseus*).
- 16 Common Indian starlings (*Starnus menzbieri*).
- 4 Black-headed mynas (*Temenuchus nigriceps*).
- 4 Grey-headed mynas (*Temenuchus malabaricus*).
- 5 Magpie robins (*Copsychus saularis*).
- 6 Pekin robins (*Erythacas philomela*).
- 2 Black-naped orioles (*Oriolus indicus*).
- 4 Indian orioles (*Oriolus kundoo*).
- 18 Weaver birds (*Ploceus bayu*).

- 12 Weaver birds (yellow-crested).
 3 Crimson-crowned weaver birds (*Euplectes flammeus*).
 1 Masked weaver bird (*Hyphantornis personata*).
 7 Red-headed cardinals (*Paroaria larvata*).
 6 Paradise whydahs (*Vidua paradisica*).
 7 Black-naped blue fly-catchers (*Miagra azurea*).
 1 Purple Honey sucker (*Arachnechthra asiatica*).
 65 Red munias (*Sporæginthus amandava*).
 1 Canary (*Serinus canarius*).
 31 Java sparrows (*Padda oryziogora*).
 7 Tree sparrows (*Passer montana*).
 6 Bullfinches (*Pyrrhula erythrocephala*).
 6 Rosefinches (*Carpodacus erythrinus*).
 2 Chaffinches (*Fringilla caelebs*).
 1 Shama (*Cittocinclla macrura*).
 16 Green finches (*Ligurinus chloris*).
 2 Chestnut finches (*Munia rubro-nigra*).
 3 Yellow buntings (*Emberiza citrinella*).
 4 Crested buntings (*Melophus melanicterus*).
 23 Yellow-headed buntings.
 10 Cut-throats (*Amadina facitata*).
 2 Himalayan accentors (*Accentor altaicus*).
 4 White-collared ouzels (*Merula albocincta*).
 1 Grey-headed ouzel (*Merula castanea*).
 2 Black-throated thrushes (*Planesticus atrogularis*).
 2 Indian pittas (*Pitta brachyura*).

Order Scansores.

- 2 Gold-backed woodpeckers (*Brachypternus aurantius*).
 10 Blue-throated barbets (*Cyanops asiatica*).
 1 Crimson-breasted barbet (*Xantholæma hæmacephala*).

Order Columbæ.

- 26 Rock pigeons (*Columba intermedia*).
 1 Wood pigeon (*Columba palumbus*).
 8 White-bellied pigeons (*Columba leuconota*).
 1 Bronze-winged pigeon (*Phaps chalcoptera*).
 16 Coral-billed pigeon or emerald doves (*Chalcophaps indica*).
 2 Wonga Wonga pigeons (*Leucosarcia picta*).
 17 Blood-breasted pigeons (*Phlogaenas cruentata*).

- 5 Common Crowned pigeons (*Goura coronata*).
- 4 Victoria Crowned pigeons (*Goura victoria*).
- 14 Nicobar Crowned pigeons (*Calaenas nicobaria*).
- 5 Nicobar Imperial pigeons (*Carpophaga aenea insularis*).
- 51 Bengal green pigeons (*Crocopus phaniapterus*).
- 2 Fruit pigeons (*Ptilopus superbus*).
- 6 Magpie pigeons.
- 4 Bronze-winged pigeons (*Phaps chalcoptera*).
- 25 Ringdoves (*Columba palumbus*).

Order *Halcyones*.

- 3 White-breasted kingfishers (*Halcyon smyrnensis*).
- 5 Brown-winged kingfishers (*Halcyon amauropterus*).
- 2 Laughing kingfishers (*Dacelo gigantea*).

Order *Coraciæ*.

- 3 Indian rollers (*Coraciüs indica*).

Order *Bucerotes*.

- 4 Pied hornbills (*Anthracoceros albirostris*).
- 1 Rufous-necked hornbill (*Aceros nepalensis*).
- 1 Common grey hornbill (*Lophoceros birostris*).

Order *Psittaci*.

- 5 Greater Sulphur-crested cockatoos (*Cacatua galerita*).
- 3 Lesser Sulphur-crested cockatoos (*Cacatua sulphurea*).
- 14 Roseate cockatoos (*Cacatua roseicapilla*).
- 7 Bare-eyed cockatoos (*Cacatua gymnopsis*).
- 2 Rosy-crested cockatoos (*Cacatua moluccensis*).
- 1 Leadbeater's cockatoo (*Cacatua leadbeateri*).
- 4 Rosella cockatoos (*Platyercus eximius*).
- 5 Pale-headed parrakeets (*Platyercus palliceps*).
- 2 Blossom-headed parrakeets (*Palæornis cyanocephala*).
- 7 Alexandrine parrakeets (*Palæornis eupatrius*).
- 4 Red-rumped parrakeets (*Platyercus hamatonotus*).
- 5 Red-winged parrakeets (*Platyercus erythropterus*).
- 2 Red and Blue macaws (*Ara macao*).
- 2 Blue and Yellow macaws (*Ara ararauna*).
- 2 Hyacinthine macaws (*Anodorhynchus hyacinthinus*).
- 2 Glaucous macaws (*Anodorhynchus glaucus*).

- 2 Illiger's macaws (*Ara maracana*).
- 1 Yellow-fronted amazon (*Chrysotis ochrocephala*).
- 2 Many-coloured parrots (*Platycercus multicolor*).
- 25 Java parrots (*Palæornis alexandri*).
- 11 Ring-necked parrots (*Palæornis torquata*).
- 2 Great-billed parrakeets (*Tanygnathus megalorhynchus*).
- 2 Red-headed lories (*Lorius rubra*).
- 2 Ornamental lories (*Trichoglossus ornatus*).
- 14 Undulated grass parrakeets (*Melopsittacus undulatus*).
- 3 Undulated grass parrakeets (yellow variety).
- 2 Pale-headed parrakeets (*Platycercus palliceps*).
- 12 Cockateels (*Calopsittacus novahollandia*)

Order Striges.

- 5 Indian barn owls (*Strix javanica*).
- 1 Brown hawk-owl (*Ninox scutellatus*).
- 1 Brown fish owl (*Ketupa ceylonensis*).

Order Accipitres.

- 2 Crestless hawk eagles (*Nisaetus bonelli*).
- 2 King vultures (*Otogyys calous*).
- 1 Black vulture (*Cathartes atratus*).
- 1 Common brown vulture (*Gyps bengalensis*).
- 4 White-tailed sea eagles (*Haliaeetus ichthyatus*).
- 1 White-bellied sea-eagle (*Haliaeetus leucogaster*).
- 1 Pallas sea eagle (*Haliaeetus leucorophus*).
- 1 Andaman serpent eagle (*Spilornis elegne*).
- 2 Indian House kites (*Mileus govinda*).
- 2 Peregrine falcon (*Falco peregrinus*).

Order Platalea.

- 1 Spoonbill (*Platalea leucorodia*).
- 34 Black-headed ibises (*Ibis melanocephalus*).
- 1 Glossy ibis (*Plegadis falcinellus*).
- 3 Scarlet ibises (*Eudocemus ruber*).
- 2 Straw-necked ibises (*Geronticus spinicollis*).
- 2 Black ibises (*Anocolis papillosus*).
- 1 Shell ibis (*Anastomus oscitans*).

Order *Odontoglossæ*.

- 10 Flamingo (*Phœnicopterus antiquarum*).

Order *Herodiones*.

- 1 Common heron (*Ardea cinerea*).
 3 Cattle egret (*Bubulcus coromandus*).
 4 Pond herons (*Ardeola grayi*).
 2 Night herons (*Nyctiardea nycticorax*).
 5 Adjutants (*Leptoptilus argala*).
 3 Lesser adjutants (*Leptoptilus javanicus*).
 18 Black-necked storks (*Xenorhynchus asiaticus*).
 1 White-necked stork (*Dissura episcopus*).
 14 White storks (*Ciconia alba*).
 1 Black stork (*Ciconia nigra*).
 3 Japanese storks (*Ciconia boyciana*).
 1 Jabirû stork (*Pseudotantalus leucocephalus*).

Order *Stegapodes*.

- 2 White pelicans (*Pelecanus onocrotalus*).

Order *Anseres*.

- 1 Pied goose (*Anser melanoleucas*).
 13 Wild or grey-lag geese (*Anser cinereus*).
 11 Pink-footed geese (*Anser brachyrhynchus*).
 52 Bar-headed geese (*Anser indicus*).
 1 Spur-winged goose (*Plectropterus gambensis*).
 28 Cotton teals (*Nettapus coromandelianus*).
 2 Egyptian sacred geese (*Chenalopez ægyptiacus*).
 2 Egyptian nungeese.
 4 Canada geese (*Bernicla canadensis*).
 1 Cereopsis goose (*Cereopsis noræ-hollandiæ*).
 1 White-fronted goose (*Anser albifrons*).
 6 Black swans (*Cygnus atratus*).
 15 Mute swans (*Cygnus olor*).
 1 Black-necked swan (*Cygnus nigrocollis*).
 21 Comb ducks (*Sarcidiornis melanonota*).
 77 Brahminy ducks (*Tadorna casarca*).
 9 Mallard (*Anas boschas*).
 6 Shell drakes (*Tadorna cornuta*).

- 19 Spotted-bill ducks (*Anas pectorhynga*).
 41 Lesser whistling teals (*Dendrocygna javanica*).
 19 Baikal teals (*Nettion formosum*).
 19 Common teals (*Querquedula crecca*).
 54 Gargeny teals (*Querquedula circea*).
 52 Pin-tailed ducks (*Dasila acuta*).
 4 Shovellers (*Spatula clypeata*).
 8 Wigeons (*Mareca penelope*).
 11 Summer ducks (*Ex sponza*).
 20 Mandarin ducks (*Ex galericulata*).
 6 Muscovy ducks (*Cairira moschata*).
 7 Pochards (*Fuligula ferina*).
 2 White-eyed pochards (*Nyroca africana*).
 14 Red-headed pochards (*Aythya ferina*).
 4 Tufted pochards (*Fuligula cristata*).
 2 Variegated sheldrake (*Tadorna variegata*).

Order *Gavida*.

- 3 Brown-headed gulls (*Larus brunneicephalus*).
 2 Black-headed gulls (*Kroikocephalus ichthyatus*).
 9 Common terns (*Sterna fluvialis*).
 2 Stone plovers (*Isacus recurvirostris*).
 6 Bronze-winged jacana (*Metopidius indicus*).
 8 Pheasant-tailed jacanas (*Hydrophasianus chirurgus*).

Order *Grallæ*.

- 14 { Common sandgrouse (*Pterocles exustus*).
 { Large sandgrouse (*Pterocles arenarius*).
 35 Saras cranes (*Grus antigone*).
 18 Common cranes (*Grus communis*).
 3 Large white cranes (*Grus leucogeranus*).
 1 White-necked crane (*Grus leucauchen*).
 9 Demoiselle cranes (*Grus virgo*).
 3 Balearic cranes (*Balgarica paronina*).
 2 Stanley cranes (*Anthropoides paradisea*).

Order *Fulicariæ*.

- 10 Purple coots (*Porphyrio porhyriocephalus*).
 2 Coots (*Fulcia atra*).
 1 Moorhen (*Gallinula chloropus*).

- 24 White-breasted waterhens (*Erythra phœnicura*).
 1 Australian rail (*Rallus pectoralis*).
 17 Indian water-rail (*Rallus indicus*).
 67 Little crakes (*Porzana parva*).
 1 Baillon's crane (*Porzana bailloni*).
 11 Ruddy crakes (*Porzana fusca*).

Order Gallinæ.

- 31 Common quails (*Obturnix communis*).
 2 Californian quails (*Callipepla californica*).
 25 Chukar partridges (*Caccabis chukar*).
 2 Swamp partridges (*Ortygornis gularis*).
 2 Brown-breasted partridges (*Arboricola brunneopectus*).
 2 Hill partridges (*Arboricola torqueola*).
 10 Rufous-throated Hill partridges (*Arboricola rufogularis*).
 2 See-See partridges (*Ammodendix bonhami*).
 3 Black partridges (*Francolinus vulgaris*).
 10 Bamboo partridges (*Bambusicola thoracica*).
 1 Partridge (not identified).
 31 Monal pheasants (*Lophophorus impeyanus*).
 10 Ring-necked pheasants (*Phasianus torquatus*).
 1 Cheer pheasant (*Phasianus wallichii*).
 2 Gold pheasants (*Thaumalea picta*).
 5 Silver pheasants (*Euplocamus nyctemerus*).
 3 Amherst pheasants (*Thaumalea amherstii*).
 2 Japanese pheasants (*Phasianus versicolor*).
 1 Bornean fireback (*Euplocamus nobilis*).
 7 Kaleegee pheasants (*Euplocamus horsfieldi*).
 1 Red Jungle fowl (*Gallus ferrugineus*).
 1 Javan Jungle fowl (*Gallus varius*).
 9 Sonnerat's Jungle fowl (*Gallus sonnerati*).
 5 Red Spur fowl (*Galloperdix spadiceus*).
 3 Tragopan pheasants (*Cerionis satyra*).
 2 Crow pheasants (*Centropus rufipennis*).
 8 Common peafowl (*Pavo cristatus*).
 1 Common peafowl (white) (*Pavo cristatus*).
 2 Burmese peafowl (*Pavo muticus*).
 1 Black shouldered peafowl (*Pavo nigripennis*).
 3 Peacock pheasants (*Polyplectron chinques*).
 1 Argus pheasant (*Argus giganteus*).

- 1 Reeve's pheasant (*Phasianus reevesi*).
- 1 Mexican curassow (*Craz globicera*).
- 1 Common curassow (*Craz alector*).
- 1 Wattled guan (*Aburria carunculata*).

Order Casuarii.

- 1 Two-wattled cassowary (*Casuarius bicarunculatus*).
- 2 Emus (*Dromæus novaehollandæ*).

Order Struthiones.

- 4 Ostriches (*Struthio camelus*).
- 1 Common rhea (*Rhea americana*).

CLASS REPTILIA.

Order Emydosauria.

- 4 Gharials (*Gavialis gangeticus*).
- 2 Sharp-nosed crocodiles (*Crocodylus porosus*).
- 12 Marsh crocodiles (*Crocodylus palustris*).
- 1 Mississippi alligator (*Alligator mississippiensis*).

Order Chelonia.

- 1 European pond tortoise (*Emys orbicularis*).
- 2 Elephantine tortoises (*Testudo elephantina*).
- 4 Horsfield's tortoises (*Testudo horsfieldi*).
- 3 Starred tortoise (*Testudo-elegans*).
- 1 Testudo tranvancorica.
- 2 Bloodstained terrapin (*Cinosternum cruentatum*).
- 1 Hamilton's terrapin (*Damonia hamiltoni*).
- 4 Emyda granosa.

Order Sauria.

- 14 Geckoes (*Gecko verticillatus*).
- 14 Yellowish monitors (*Varanus flavescens*).
- 4 Bengal monitors (*Varanus bengalensis*).
- 2 Two-banded monitors (*Varanus salvator*).
- 1 Common Skink (*Mabaia carinata*).

Order Ophidia.

- 4 Indian pythons (*Python molurus*).
- 1 Indian cryx (*Eryx johnii*).

- 8 Grass snakes (*Tropidonotus stolatus*).
 14 Water snakes (*Tropidonotus piscator*).
 24 Indian rat snakes (*Zamenis mucosus*).
 1 Brown rat snake (*Coluber heleni*).
 18 (*Xenocrophis cerasogaster*).
 2 Ornamented Tree-snake (*Chrysopelea ornata*).
 6 Tree snakes (*Dryophis pictus*).
 45 Green snakes (*Dryophis mycterizans*).
 1 *Lycodon aulicus*.
 15 Cobras (*Naia tripudians*).
 1 Snake-eating cobra (*Naia bungarus*).
 16 Russell's vipers (*Vipera russellii*).
 6 Banded krait (*Bungarus fasciatus*).
 1 Common krait (*Bungarus caeruleus*).

CLASS ARACHIDA.

Order Scorpiones.

- 11 Scorpions (*Buthus tamulus*).

1915-1916

**REPORT OF THE HONORARY COMMITTEE
FOR THE MANAGEMENT OF THE
ZOOLOGICAL GARDEN, CALCUTTA,
1915-16.**

THE Honorary Committee have the honour to submit their report for the year ending 31st March 1916, the contents of which, as usual, include, among other items:—

- (1) The Superintendent's report upon the menagerie.
- (2) Monthly returns of visitors and a list of donors and their donations.
- (3) Abstract of accounts of ordinary and extraordinary receipts and expenditure.
- (4) A list of animals in the Garden.

1. THE COMMITTEE.

The Committee consisted of:—

President:

The Hon'ble Mr. C. J. Stevenson-Moore, C.V.O., I.C.S., from 1st April 1915 to 15th July 1915.

The Hon'ble Mr. F. J. Monahan, I.C.S., from 16th July 1915 to 31st March 1916.

Vice-President:

P. L. Buckland, Esq., F.Z.S.

Honorary Secretary and Treasurer :

Lieut.-Col. E. H. Brown, M.D., I.M.S. (retired),
D.P.H., F.Z.S., F.R.C.S.E., from 1st April 1915 to 16th
May 1915.

S. C. Berridge, Esq., from 17th May 1915 to
31st March 1916.

Superintendent :

Mr. Bijay Krishna Basu, G.B.V.C., C.M.Z.S.

Assistant Superintendent ?

Babu Somadev Ganguli.

Members of the Committee :

Roostumjee Dhunjeebhoy Mehta, Esq., C.I.E.

Lieut.-Col. R. Bird, M.D., C.I.E., M.V.O., M.S.,
F.R.C.S., I.M.S.

Dr. Nelson Annandale, B.A., D.S.C., C.M.Z.S.

W. R. Gourlay, Esq., I.C.S.

H. J. McIntosh, Esq., I.C.S.

Ihtisham-ul-Mulk Rais-ud-Daula Amir-ul-Umara
Nawab Sir Asif Kadr Saiyid Wasif Ali Mirza Khan
Bahadur, Mahabat Jang, Nawab Bahadur of Murshi-
dabad, K.C.S.I., K.C.V.O.

Lieut.-Col. Charles Robert Mortimer Green, M.D.
F.R.C.S., I.M.S.

David Ezra, Esq.

Ambica Charan Law, Esq.

G. Girard, Esq., I.S.O., F.R.H.S.

The Hon'ble Sir Bijay Chand Mahtab, K.C.S.I.,
K.C.I.E., I.O.M., Maharajadhiraj Bahadur of Burdwan.

Shirley Tremearne, Esq.

W. K. Dods, Esq.

Nawab A. F. M. Abdur Rahman, Khan Bahadur.
 Lieut.-Col. Sir L. Rogers, Kt., C.I.E., M.D., I.M.S.
 Lieut.-Col. C. R. Stevens, M.D., I.M.S.
 Sir R. S. Highet.
 E. G. L. Laird McGregor, Esq., I.C.S.
 Lieut.-Col. E. H. Brown, I.M.S. (retired), M.D.,
 D.P.H., F.R.C.S.E.

Ex-officio Members :

- The Commissioners of Divisions in Bengal.
 The Executive Engineer of the Public Works
 Department of the Division in which the garden is
 placed.
 The Sanitary Commissioner with the Govern-
 ment of Bengal.
 The President of the Asiatic Society of Bengal.
 The Director of Public Instruction, Bengal.
 The Natural History Secretary of the Asiatic
 Society of Bengal.
 The Director of Land Records.
 The Superintendent, Civil Veterinary Depart-
 ment, Bengal.
 The Professor of Comparative Anatomy and
 Zoology, Medical College, Bengal.
 The Superintendent of the Royal Botanic Garden,
 Sibpur.
 The Chairman of the Calcutta Corporation.
 The Principal of the Bengal Veterinary College,
 Calcutta.
 The following members resigned their member-
 ship during the year :—
 J. O. Dean, Esq.
 C. J. Elton, Esq.
 C. J. Kerr, Esq.

The following new members were appointed during the year:—

E. G. L. Laird McGregor, Esq., I.C.S.

Lieut.-Col. E. H. Brown, M.D., I.M.S. (retired).

On, 16th May 1915 Lieut.-Colonel E. Harold Brown resigned his appointment as Honorary Secretary and Treasurer. In accepting his resignation, the Committee of Management recorded the following resolution:—

“The Committee have received Lieut.-Colonel Brown's resignation with much regret and desire to place on record their appreciation of the services which he has rendered to the Zoological Garden during the 15 years that he has held the appointment.”

2. STAFF AND ESTABLISHMENT.

Mr. Bijay Krishna Basu continued in charge of the garden as Superintendent throughout the year and Babu Somadev Ganguli as Assistant Superintendent.

Babu Praphulla Chandra Mitter resigned his appointment as Clerk and Babu Tarak Chandra Chatterjee was appointed in his place.

The following is a list of the superior staff of the garden at the end of 1915-16:—

Superintendent :

Mr. Bijay Krishna Basu, G.B.V.C., C.M.Z.S.

Assistant Superintendent :

Babu Somadev Ganguli.

Storekeeper and Typist :

Babu Jugal Kishore Roy.

Overseer :

Babu Niranjar Mukherji: . . .

Clerk :

Babu Tarak Chandra Chatterji. . .

Gate Clerk :

Babu Panchanan Mukherji.

The following is a list of the menial staff of the garden at the end of 1915-16 :—

2 Jamadars.	14 Gardeners.
8 Durwans.	3 Sweepers.
1 Head Keeper.	1 Chaprasi.
19 Keepers.	1 Carpenter.
3 Bhistis.	2 Cartmen.
1 Cook.	1 Syce.
1 Head Gardener.	1 Scythe-man.

Besides these, a number of temporary labourers were engaged during the year.

3. BUILDINGS.

During the year under report various improvements were carried out, the most important of which comprised the following :—

(1) *Retiring rooms for Indian visitors*—The want of proper retiring rooms for Indian visitors to the garden was keenly felt for a long time and it was decided to build up-to-date retiring rooms for Indian ladies and gentlemen. The rooms have been built on approved lines with all sanitary improvements and will meet the requirements of the visitors,

The cost of construction was met from a generous donation by Babu Ambica Charan Law, a member of the Committee of Management of the Garden.

(2) *Roofing of deer paddock*—The wooden roofing of one of the houses of the deer paddock overlooking the public road having become rotten, it was thoroughly overhauled and galvanised sheeting was put over the planks.

(3) *Crocodile Pool*—The gravel path round the Crocodile Pool became a cause of considerable trouble and annoyance to the inmates of the pool. Mischievous visitors used to take a handful of gravel and threw them on the reptiles and every morning a basketful of gravel was collected. To put a stop to this state of things, the path was covered with patent stone and the inmates are now safe from further molestation.

(4) *Murshidabad House*—The brick-on-edge flooring and the side walls of the outer enclosure of the Murshidabad House settled down, being situated in close proximity to the big lake and it was apprehended that the northern portion would collapse. It was, therefore, decided that steps should be taken to prevent this. The foundation of the wall was laid deeper and blocks of stone were set and brick stays were constructed. The bank of the lake was lined with trees and earthwork done. The floor was dismantled and a 4-ft. concrete was laid and brick-on-edge floor over a brick flat was provided for.

(5) *Drainage*—Much drainage work was undertaken during the year. The northern portion of the garden and the main drive could not be kept in an up-to-date condition for want of proper drainage. It was decided to construct hydrants along the main

drive from the small Carnivora house to the Burdwan House. The unfiltered water-supply in the Burdwan House circle was also far from satisfactory. The whole system was thoroughly overhauled and new pipes were laid.

(6) *Birch Hill Park, Darjeeling*—The aviary which had been erected at Darjeeling for the reception of Himalayan animals prior to their despatch to Calcutta was removed to Birch Hill Park from "Rockwood," the residence of late Mr. F. E. Moller, Vice-Chairman, Darjeeling Municipality. It is a spacious aviary, being 20' x 10', divided into three portions. Thanks are due to the Conservator of Forests and the Forest Department, Darjeeling, for kindly taking charge of it.

As the repairs to the buildings could not be taken in hand last year, they needed repairs badly during the year under report. They were therefore carried out on an extensive scale.

The following is a list of the more important repairs executed :—

(1) *Entrance lodge and office*—The office rooms were whitewashed—the ceiling was repainted and woodwork repaired and repainted. The gates were repainted. There are considerable repairs to be done to the roofing which is leaking and which will cost a good deal of money. It is hoped to take the work in hand next year.

(2) *Dumraon House*—Inside walls were lime-washed and outside colour-washed. Iron and woodwork was painted. The iron gratings of some of the inner cages require renewing and the work will be taken in hand next year.

(3) *Crocodile Pool*—The railing round the pool was painted.

(4) *Peafowl Pavilion*—Wire-netting was repaired and ironwork repainted.

(5) *Lalgola House*—Inside walls were lime-washed and outside colour-washed. The iron partition fencing of one of the enclosures which was broken down by a falling tree after a storm was repaired and wire-netting repaired in many places.

(6) *Paddocks*—The iron fencing of the paddocks and partitions were repaired and coal-tarred. The kiosks were repaired and repainted.

(7) *Barking deer Enclosure*—The ground being low was under water during the rainy season. It was raised and the shed was thoroughly overhauled and painted and a dwarf wall was built round it.

(8) *Sonebursa Enclosure*—Inside walls were lime-washed and outside colour-washed. Repairs were done to the surface drain and the ground was raised. The woodwork was repaired where necessary and was painted.

(9) *Rhinoceros Enclosure*—The house was repaired and colour-washed and the dwarf wall and fencing painted.

(10) *Cranz Enclosure*—The wooden sheds were absolutely worn out and required thorough overhauling. They were accordingly repaired and repainted and the iron and wire-fencing repainted.

(11) *Murshidabad House*—Inside walls were lime-washed and outside colour-washed. Some of the glass panes were replaced and wire-netting repaired.

(12) *Sarnomoyi House*—Thorough repairs were done to this house. The sand plaster and the woodwork of the inner houses were considerably damaged by mischievous parrots and roseate cockatoos. These were repaired. The wire-netting of the outer and inner enclosures became weak at places, due to corrosion and it was repaired.

(13) *Antelope House*—Iron and woodwork was repainted and wire-netting repaired and portions renewed.

(14) *Small Carnivora House*—The inside walls were lime-washed and ironwork repainted. The iron gratings of some of the cages were weak at the bottom and it was thought advisable to replace them, which was done. The iron partitions between the cages having corroded at the bottom, the bottom pieces were changed.

(15) *Bird of Prey House*—The ironwork was repainted.

(16) *New Bear House*—Inner walls were lime-washed and outside colour-washed.

(17) *Wild Dog House*—The front grating was replaced by a new one. The house was repainted.

(18) *Cooch Behar House*—Repaired and lime-washed. The iron gratings of the cages were repainted.

(19) *Hippo Enclosure*—The house was repaired and repainted and the outer enclosure colour-washed.

(20) *Tapir Enclosure*—Inside lime-washed and outside colour-washed.

(21) *Ezra House*—Inner portion was lime-washed and outside colour-washed. The iron and woodwork repainted.

(22) *Burdwan House*—Extensive repairs were done to the Burdwan House. The outer and inner dens were repaired and lime-washed and outside walls colour-washed. The iron and woodwork was repainted. The broken glass panes were replaced by new ones.

(23) *Schwendler House*—Inside walls were lime-washed and outside colour-washed. Iron and woodwork repainted.

(24) *Refreshment Pavilion*—Woodwork and ceiling painted. The tiled roof which was leaking was repaired. The furniture was polished.

(25) *Rodent House*—Inside walls were lime-washed and outside colour-washed. The ridges over the tiles were repaired. The wire-nettings of the outer enclosure were renewed at the bottom.

(26) *Retiring rooms*—Inside walls were lime-washed and woodwork repainted and furniture polished.

Besides the above, petty repairs of smaller houses, sheds and enclosures were attended to. The repairs of roads were carried out as usual. The main drive was remetalled at places and roads and garden paths were repaired and gravelled.

4. VISITORS.

There was a slight increase in the attendance of paying visitors during the year, the turnstile records indicating a total of 598,024 visitors, and showing an increase of 38,265 over the figures for 1914-15. The following is a comparative table of visitors for the last three years:—

Year.		Visitors.
1913-14	...	704,982
1914-15	...	559,759
1915-16	...	598,024

5. FINANCE.

Corresponding with the increase in the number of visitors, the gate receipts increased by Rs. 2,063-12 as will appear from the following statement:—

Year.	Receipts.	
	Rs.	A.
1913-14	53,913	11
1914-15	42,269	1
1915-16	44,332	12

The financial condition of the garden has been on the whole satisfactory, though the cost of food grains, etc., has considerably risen and though the gate receipts have come down on account of the European war.

The amounts of income and expenditure are summarised in Appendix A.

A large number of children under 4 years of age and school children attended by their teachers were admitted free. On the day of the Fancy Fair about 7,900 people entered the garden. Besides these, 60,546 persons visited the garden on the free days. A list of free days with the number of visitors is given in Appendix C.

6. GARDEN.

The Floricultural Department was carefully attended to and the display of flowering plants and evergreens continued to be a most attractive feature. The ornamental part of the garden, such as lawns, flower beds, shrubberies, etc., was kept in the best possible condition. Flowering annuals were exhibited at the monthly shows held by the Agri-Horticultural Society

of India and the Superintendent was awarded a bronze medal for some very fine exhibits.

CONCLUSION.

The thanks of the Committee are due to the ladies and gentlemen who have added to the collection of the garden by their donations, a list of which is given in Appendix D. Thanks are also due to those who kindly offered to present animals to the garden, but whose offers could not be accepted, either because the particular species of animals was already sufficiently well represented, or owing to the want of accommodation.

The Committee also desire to express their sincere thanks to various Railway and Steamer Companies for conveying animals belonging to the garden free of charge and in particular to the East Indian Railway Company, Eastern Bengal Railway, Bengal-Nagpur Railway Company, Oudh and Robilkhund Railway, Bengal and North-Western Railway Company, Darjeeling-Himalayan Railway, British India Steam Navigation Company, India General Steam Navigation and Railway Company and the Rivers Steam Navigation Company.

S. C. BERRIDGE,
Honorary Secretary.

F. J. MONAHAN,
President.

SUPERINTENDENT'S REPORT.

I HAVE the honour to submit the following report on the existing condition and the progress of the menagerie of the garden.

The following comparative table shows how the various collection of animals in the garden stood during the last four years :—

Year.	Mammals.	Birds.	Reptiles.
1912-13	... 341	1,188	150
1913-14	... 378	1,659	223
1914-15	... 334	1,893	246
1915-16	... 351	1,940	198

A list of animals in the garden on 31st March 1916 is given in Appendix E.

GENERAL CONDITION OF THE ANIMALS.

The health of the animals was entirely satisfactory and there was no epidemic of any kind during the year. The larger carnivores were also healthy and the Himalayan animals, such as, Uryal, Burrhel and Tahr, Catbear and Binturong did remarkably well.

The following are important additions to the collection :—

- 2 Red-collared whydahs (*Penthetria ardens*), presented by E. W. Harper, Esq.
- 2 Bronze-capped teals (*Eunetta falcata*), purchased.
- 1 *Polyodontophis subpunctatus*, presented by P. C. Chattopadaya, Esq.

- 1 Pink-headed duck (*Rhodonessa caryophyllacea*), purchased.
- 1 Large swallow plover (*Glareola orientalis*), presented by D. Ezra, Esq.
- 1 Baby elephant (*Elephas indicus*) presented by Chief Commissioner of Assam.
- 1 Great kangaroo (*Macropus giganteus*), born.
- 1 Golden cat (*Felis temminckii*), presented by C. N. Grimshaw, Esq.
- 2 Orang-outangs (*Simia satyrus*), purchased.
- 1 Tiger (*Felis tigris*), presented by Raja of Mahisadal.
- 1 Malayan bear (*Ursus malayanus*), purchased.
- 1 Grey parrot (*Psittacus erithacus*), presented by Kumar Nagendra Mullick.
- 3 Black swans (*Cygnus atratus*), born.
- 1 *Eublepharis hardwickii*, presented by Dr. J. Newport Kilner.
- 3 Barasingha deer (*Cervus duvaucelli*), born.
- 2 Gayals (*Bos frontalis*), purchased.
- 2 Uryals (*Ovis cycloceros*), purchased.
- 2 Binturongs (*Arctictis binturong*), purchased.
- 2 Tiger cubs (*Felis tigris*), purchased.
- 7 Snake-eating cobras (*Naja bungarus*), purchased.
- 6 Brown-rat snakes (*Coluber helena*), purchased.
- 2 Gayals (*Bos frontalis*), born.
- 2 Indian martens (*Mustela flavigula*), purchased.
- 11 Bornean firebacks (*Euplocamus nobilis*), purchased.
- 2 Cassowaries (*Casuaris bicarunculatus*), purchased.
- 1 Bengal florikin (*Sypheotides bengalensis*), purchased.
- 1 Dusky langur (*Semnopithecus obscurus*), purchased.
- 2 Snow leopards (*Felis uncia*), purchased.
- 1 Carolina duck (*Æs sponza*), born.
- 2 Moor monkeys (*Semnopithecus maurus*), purchased.
- 3 Hoolocks (*Hylobates hoolock*), purchased.
- 1 Longtailed sibia (*Sibia picaoides*), purchased.
- 2 Niltava finches (*Niltava sundara*), purchased.
- 1 Tapir (*Tapirus indicus*), born.

The following were received from the Giza Zoological Gardens on exchange account:—

- 2 Lion cubs (*Felis leo*).
- 1 Rufifrons gazelle (*Gazella rufifrons*).
- 1 Nubian ibex (*Capra sinaitica*).

Births.

The following is a list of animals that bred in the garden in 1915-16 :—

- 1 Tapir (*Tapirus indicus*).
- 1 Summer duck (*Æx sponza*).
- 5 Leopards (*Felis pardus*).
- 4 Four-horned antelopes (*Tetracerps quadricornis*).
- 2 Gayals (*Bos frontalis*).
- 1 Nilgai (*Boselaphus tragocamelus*).
- 1 Great kangaroo (*Macropus giganteus*).
- 3 Black swans (*Cygnus atratus*).
- 1 Nicobar imperial pigeon (*Carpophaga ænea insularis*).
- 2 Yellow budgregars (*Melopsittacus undulatus*).
- 1 Barasingha deer (*Cervus duvaucelli*).
- 1 Hanuman (*Semnopithecus entellus*).
- 1 Hog deer (*Cervus porcinus*).
- 2 Spotted deer (*Cervus axis*).
- 1 Sambur deer (*Cervus aristotelis*).
- 2 Indian antelopes (*Antelope cervicapra*).

The following birds bred in the bird chummery on the island in the big lake :—

- Little cormorant (*Phalacrocorax pygmaeus*).
- Indian snake bird (*Plotus melanogaster*).
- Night heron (*Ncticorax griseus*).

Eggs were laid but not hatched by the following birds :—

- Indian peafowl (*Pavo cristatus*).
- Silver pheasant (*Euplocamus nycthemerus*).
- Ostrich (*Struthio camelus*).
- Crown pigeon (*Goura coronata*).
- Nicobar pigeon (*Caloenas nicobaria*).
- Ring-necked parrot (*Palæornis torquata*).

Deaths.

The following is a list of important deaths during the year :—

- 1 Ostrich (*Struthio camelus*).
- 1 Brow-antlered deer (*Cervus eldii*).
- 1 Rufous kangaroo (*Macropus rufus*).
- 1 Binturong (*Arctictis binturong*).
- 2 Wonga wonga pigeons (*Leucosarcia picta*).
- 1 Hunting leopard (*Cynelurus jubatus*).
- 2 Tiger cubs (*Felis tigris*).
- 2 Tigers (*Felis tigris*).
- 1 Indian ratel (*Mellivora indica*).
- 1 Tasmanian devil (*Sarcophilus ursinus*).
- 1 Rufifrons gazelle (*Gazella rufifrons*).
- 1 Moor monkey (*Semuopithecus maurus*).
- 1 Lioness (*Felis leo*).
- 3 Hoolocks (*Hyllobates hoolock*).
- 1 Gayal bull (*Bos frontalis*).
- 1 Snow leopard (*Felis uncia*).

PATHOLOGICAL DEPARTMENT.

THE work in this Department was carried on as usual with kind assistance from Lieutenant-Colonel A. Smith, F.R.C.V.S., Principal, Bengal Veterinary College, in important cases.

Post-mortem examinations were made of almost all the animals that died during the year. A list of the more important cases which presented the principal subjects for pathological diagnosis is given below :—

Number of cases.	Subjects.
Anasarca 	1 Malayan bear, 1 Tiger cub, 1 Monal pheasant.
Apoplexy 	1 Horabill, 1 Cat-bear, 1 White-breasted pigeon, 1 Indian fox, 1 Ruffed lemur, 1 Binturong, 1 King parrot.

Number of cases.		Subjects.
Accident	...	1 King parrot, 1 Rufous kangaroo, 1 Nicobar pigeon.
Caries	...	1 Red-winged parakeet.
Broncho-pneumonia	...	1 Brown-headed seagull, 1 Two-wattled cassowary.
Congestion of the liver	...	1 Indian rafe!, 1 Pelican.
Congestion of the lungs	...	1 Tragopan pheasant, 1 Flamingo.
Cirrhosis of the liver	...	1 Mute swan.
Debility brought on by old age	...	1 Blue and yellow macaw, 1 Tasmanian devil, 1 Blossom-headed parakeet, 1 Slow loris.
Debility, General	...	1 Flamingo, 1 Monal pheasant, 1 Cat-bear.
Dysentery	...	1 Slow loris, 1 Hog deer, 1 common otter.
Diarrhoea	...	2 Indian gazelles.
Destroychia	...	1 Indian antelope.
Epilepsy	...	1 Pig-tailed monkey.
Enteritis	...	1 Spotted deer, 1 Indian gazelle, 1 Leopard, 1 Tiger cub, 1 Snow leopard.
Egg-bound	...	1 Ostrich, 1 Nicobar pigeon.
Fatty degeneration of the liver	...	1 Black swan, 1 Black ibis, 2 Comb ducks, 1 Egyptian goose, 1° Baikal teal.
Fatty degeneration of the heart	...	1 Carolina duck, 1 Nicobar pigeon.
Gastritis	...	2 Leopard cubs, 1 Wild boar.
Gastro-enteritis	...	1 Sambur, 1 Spotted deer.
Hemorrhagic septicaemia	2	Large Indian squirrels, 1 Singapore squirrel, 1 Coati, 6 Ring-tailed lemurs, 1 Ruffed lemur, 1 Cat-bear.
Hepatitis	...	1 Mute swan.
Intestinal catarrh	...	1 Monal pheasant, 1 Comb duck, 1 Black-headed ibis.
Injury	...	1 Brow-antlered deer, 1 Woodpecker, 1 Hog deer.
Leucocythæmia	...	1 Rosy-crested cockatoo.

Number of cases.	Subjects.
Metritis (Acute) ...	3 Indian antelopes.
Metro-peritonitis ...	1 Indian antelope.
Necrosis of the jaw ...	1 Common otter, 1 Fishing cat, 1 Large Indian civet.
Mange ...	1 Leopard.
Obstruction of the bowels (twisted gut) ...	1 Tiger.
Paralysis ...	1 Indian fox, 1 Flamingo, 1 Side-striped jackal.
Pneumonia ...	1 Mona monkey, 1 Canadian goose, 1 Blossom-headed parrakeet, 1 Black-headed gull, 1 Cat-bear, 1 Hoolock, 1 Tiger, 1 Monal pheasant, 1 Sheldrake, 1 Hunting leopard, 1 Adelaide parrakeet, 2 Ruffed lemurs, 1 Lioness, 1 Flying squirrel, 1 Gayal bull, 1 Semnopithecus maurus, 1 Leopard cub, 1 Hoolock.
Pleuro-pneumonia ...	1 Mallard, 1 Sambur deer.
Pneumonia (traumatic) ...	1 Crow pheasant, 1 Fishing cat.
Pericarditis ...	1 Black-necked stork, 1 Spotted deer.
Phthisis ...	1 Weeper capuchin.
Peritonitis ...	1 Tiger.
Rinderpest ...	1 Gayal.
Septicæmæa ...	1 Himalayan bear.
Tetanus ...	1 Ferret.
Tuberculosis ...	1 Weeper capuchin.

PROVISIONS.

The following table shows the quantity of provisions consumed during the year:—

	Mds.	s.	CH.
Gram ...	942	20	0
Bran ...	508	30	0
Paddy ...	315	10	0
Rice ...	292	35	0
Wheat ...	93	30	0
Indian corn ...	125	5	8

			MDS.	S.	CH.
Flour	...	...	109	12	8
Peas	...	...	13	30	0
Potatoes	...	...	212	13	0
Oilcake	...	...	70	0	0
Paddy-straw	...	...	1,809	0	0
Bajra	...	...	160	7	8
Crushed oats	...	...	446	30	0
Linseed	...	...	30	7	8
				lbs.	
Canary seed	...	...	578	$\frac{1}{2}$	

			MDS.	S.	CH.
Kangney	...	...	6	37	4
Hempseed	...	...	1	7	0
Gur	...	...	28	26	0
Shattoo	...	...	96	3	0
Rahar dal (pulse)	...	...	18	10	0
Mutton	...	...	73	10	12
Milk	...	...	65	24	6
Biscuits	...	...	55	0	0
Farley	...	...	48	0	0
Beef	...	...	1,146	25	0
Black pepper	...	...	0	12	0
Green grass	...	...	25	35	0
Raisin	...	...	2	34	4
Janera	...	...	17	32	0
Sugar	...	...	3	11	4
Fish	...	...	37	21	4
Worms	...	...	21	14	8
Black salt	...	...	3	18	12
Table salt	...	...	31	10	8
Onion	...	...	11	17	8
Ghee	...	...	1	14	0
Garlic	...	...	1	6	8
Curd	...	...	27	18	0
Dates	...	...	5	33	4
Nut	...	...	3	33	0

	Nos.
Goats	138
Cast horse	54
Swiss milk	55 tins.
Tea	9 „ (1 lb. tin.)
Ducks	379
Bread	10,976 loaves
Plantains	99 kahons 10 pauns.
Eggs	4,590
Fowls	1,333
day	43,100 bundles.
Grasshoppers	36,600
Jack-fruit leaves	183 cart loads.
Miscellaneous fruits, such as papayas, etc.	2,554
Pigeons	8
Snakes	767
Frogs	8,345
Smaller birds	857
Rats	557

Besides the above, a large amount of vegetables was grown in the garden and supplied to the animals throughout the year.

The following table gives the chief items of expenditure under "Food of animals" for the year 1915-16:—

	Rs.	A.	P.
Beef	4,531	11	0
Mutton	1,083	4	3
Bread	554	12	6
Worms	214	4	9
Live fish	292	7	9
Plantains	485	7	6
Biscuits	99	5	9
Grasshoppers	36	0	0

		Rs.	A.	P.
Grains, such as, gram, bran, wheat, etc. ... ..	...	17,852	10	0
Shattoo ... ..	...	183	0	0
Miscellaneous food, such as, leaves, fowls, canary, kangney, etc. ... ..	...	4,221	2	6
Milk ... ..	...	10	4	0
Total ... ..	...	29,564	6	0

APPENDIX A.

I.—Comparative Statement of Receipts for 1914-15
and 1915-16.

	1914-15.			1915-16.		
	Rs.	A.	P.	Rs.	A.	P.
Opening balance	21,791	9	1	14,471	0	2
Interest	284	11	1	231	3	4
Donation and subscription	212	0	0	654	0	0
Entrance receipts	42,269	1	0	44,332	13	0
Rent	4,195	5	8	5,988	11	0
Carriage, rickshaw, elephant ride, etc., etc.	564	12	0	867	10	0
Fishing	250	0	0	288	0	0
Pic-nic	156	0	0	175	0	0
Rhino urine	2,106	0	0	1,968	0	0
Miscellaneous receipts	6,358	11	6	6,631	4	8
Government contribution	20,000	0	0	20,000	0	0
Total	98,188	2	4	95,607	10	2
<i>Add—</i>						
Receipts of 31st March 1914, which were included in 1914-15.	111	5	0	.....	
Receipts of 31st March 1915, which are included in 1915-16.	.....			96	14	0
	98,299	7	4	95,704	8	2
<i>Deduct—</i>						
Receipts of 31st March 1915, which are included in 1915-16.	96	14	0	.....	
Receipts of 31st March 1916, which will be included in 1916-17.	.....			125	4	0
GRAND TOTAL	98,202	9	4	95,579	4	2

*II.—Comparative Statement of Expenditure for
1914-15 and 1915-16.*

	1914-15.			1915-16.		
	Rs.	A.	P.	Rs.	A.	P.
Establishment ...	8,459	1	0	8,539	7	10
Food of animals ...	28,151	8	3	29,564	6	0
Purchase of animals ...	14,482	12	6	6,219	13	6
Transport of animals ...	470	0	9	869	12	6
Miscellaneous contingencies ...	7,272	8	5	5,488	2	1
Repairs of roads ...	1,086	7	0	1,500	0	0
Do. of buildings ...	9,175	13	0	7,218	15	9
Original construction ...	10,053	13	6	3,939	13	9
Garden ditto ...	4,578	8	9	2,446	0	0
Total ...	83,731	9	2	65,786	7	5
Closing balance ...	14,471	0	2	29,792	12	9
GRAND TOTAL ...	98,202	9	4	95,579	4	2

APPENDIX C.

A list of free days, showing free visitors during the year 1915-1916.

12th April	1915	...	...	2,703
3rd May	"	...	...	5,696
7th June	"	...	...	4,915
5th July	"	...	...	5,612
2nd August	"	...	...	6,330
6th September	"	...	...	7,396
4th October	"	...	...	6,495
1st November	"	...	...	10,652
20th December	"	...	..	2,951
17th January	1916	...	...	2,751
21st February	"	...	...	2,914
20th March	"	...	...	2,131
				—
		Total	...	60,546
				—

APPENDIX D.

List of Donors, 1915-16.

A.

A. S. ...	...	...	1 Young common peafowl.
Alkin, Mrs. F. W. ...	...	...	1 Indian antelope.
Anderson, Lt.-Col. A., I.M.S. ...	...	...	1 Mud snake.
Assam, Chief Commissioner of...	;		Baby elephant.

B.

Brown, Dr. R., I.S.M.D. ...	...	...	1 Four-horned antelope, 1 Leopard cub.
Basu, Mr. B. K. ...	...	...	1 Indian antelope.
Bannerji, Mr. N. ...	...	...	1 Spotted deer.
Bose, Babu Haricharan ...	...	...	1 Indian antelope.
Bray, Mrs. ...	...	...	1 Bare-eyed cockatoo.
Boureau, Mr. J. ...	...	...	1 Sloth bear cub.

C.

Caldwell, Mr. J. M. ...	...	...	1 Hog deer.
Cobden-Ramsay, Mr. D. ...	...	...	1 Sloth bear cub, 1 Chameleon.
Cuzen, Mr. J. C. ...	...	...	1 Indian antelope.
Chattopadhyay, Mr. P. C., M.A. ...	...	...	1 Poliodontophis subpunctatus.
Camell, Mr. J. ...	...	...	2 Java sparrows, 1 Banteng.
Customs, Collector of ...	...	...	2 Rhesus monkeys.
Carter, Mr. A. C. ...	...	...	2 Nilgais, 1 Sambur deer.

D.

Dods, Mr. W. K. ...	...	...	1 Bronze-winged dove, 7 Egrets, 10 Herons, 20 Purple coots, 1 Cotton teal, 1 Ruddy crane, 21 Corn crakes, 7 Water cocks, 6 Indian rails, 3 Bronze-winged jacanas, 2 White-breasted water-hens.
Dhenkanal, Raja of ..	..	..	4 Sloth bears.
Dhar, Babu Rashbehari	1 Indian antelope.
Dhudhoria, Raja B. S.	1 Bengal monitor.

E.

Ezra, Mr. David	1 Swallow plover.
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F.

Focus, Mrs. L. C. 1 Wolf cub.

G.

Ghosh, Babu Radhika Prosad, 1 Banded krañ.

M.B.

Girard, Mr. G., F.R.H.S., I.S.O. ... 1 Egret, 2 White-breasted king-fishers.

Galstaun, Mr. J. ... 1 Sambur deer.

Gray, Mr. F. C. ... 1 Indian antelope.

Grieve, Mr. ... 1 Two banded monitor, 1 Cobra.

Grimshaw, Mr. C. M. ... 1 Golden cat.

Gourlay, Mr. W. R., I.C.S. ... 1 Fishing cat.

H.

Harper, Mr. E. W. ... 2 Crimson-ringed whydahs.

Hossein, Mr. M. ... 1 Scorpion.

K.

Kerrow, Mr. James ... 1 Blossom-headed parrakeet.

Kearns, Mrs. ... 1 Spotted deer.

Kalikote and Atagada Estates, 1 Burmese peafowl, 2 Common peafowls.
Manager of.

Kilner, Dr. J. N. ... 1 Eublepharis hardwickii.

L.

Lauder, Mr. P. ... 2 Shamas.

Lucas, Mr. L. ... 2 Sambur deer.

LaTouche, Commander S. H. S. 1 Sloth bear cub.

M.

Murray, Miss ... 1 Spotted deer.

Mashood, Mr. C. ... 2 Brown owls.

Macdonald, Mr. S. ... 2 Saras cranes, 1 Indian antelope.

Majid, Messrs. Md. R. & Co. 1 Lycodon aulicus.

Mahisadal, Raja of ... 1 Tiger.

Mitter, Babu Bijoyendra Lal ... 1 Indian antelope.

Mullick, Kumar Nagendra ... 1 Grey parrot.

Marriott, M. R. G. ... 5 Wild dog pups.

N

Natore, Maharaj-kumar Bahadur 2 Barking deer, 3 Hog deer, 1 Indian
of. antelope.

Nahata, Mr. P. C. ... 1 Lycodon aulicus.

O.

Oates, Mrs. R. E. ... 1 Indian civet.

P.

Pooler, Mr. H. G. ... 1 Barking deer.

Police Sub-Inspector of Bishnupur. 3 Cobras.

R.

Roy, Babu Narendra Krishna ... 1 Common peafowl.

Roy, Mr. S. K., G.B.V.C. ... 2 Geckoes, 1 Centipede.

Ricks, Mr. S. H. ... 3 Shell ibises, 7 Herons.

S.

Salim, Mr. R. C. ... 1 Sambur deer.

St. Yves, Mr. J. ... 1 Gharial.

Sneyd-Hutchinson, Mr. E. ... 1 Black-naped oriole.

Simpson, Mrs. J. ... 1 Hog deer, 1 Indian antelope.

Sen, Mr. A. N. ... 1 Red-bellied flying squirrel.

Sibold, Mrs. M. D. ... 1 Common civet.

Smith, Mr. C. O. ... 1 Centipede.

Scott-Smith, Mrs. ... 1 Eclectus.

T.

Thurston, Mrs. E. ... 1 Hog deer.

V.

Vallis, Mr. F. M. ... 1 Barking deer.

W.

Whiffin, Mr. T. D. ... 1 Sloth bear.

Whiteside, Mr. E. ... 1 Banded krait.

Walker, Mr. H. E. ... 1 Fishing cat.

Wright, Mr. ... 1 Sloth bear.

Walsh, Mr. C. W. ... 1 Three-coloured squirrel.

Y.

Yogabinod, Swami ... 1 Spotted deer.

ettie, Mrs. H. A. ... 1 Indian antelope.

APPENDIX E.

LIST OF

ANIMALS IN THE GARDEN ON 31ST MARCH 1916.

CLASS MAMMALIA.

Order Primates.

- 3 Orang-outangs (*Simia satyrus*).
- 2 Hoolock gibbons (*Hylobates hoolock*).
- 2 Mandrills (*Cynocephalus mormon*).
- 1 Drill (*Cynocephalus leucophaeus*).
- 1 Yellow baboon (*Cynocephalus babouin*).
- 2 Arabian baboons (*Cynocephalus hamadryas*).
- 1 Chacma baboon (*Cynocephalus porcarius*).
- 1 Anubis baboon (*Cynocephalus anubis*).
- 6 Grivet monkeys (*Cercopithecus griseo-viridis*).
- 1 Moustached monkey (*Cercopithecus cephus*).
- 1 Green monkey (*Cercopithecus callitricus*).
- 3 Houchenr monkeys (*Cercopithecus nictitans*).
- 4 Celebes black monkeys (*Cercopithecus niger*).
- 1 Dusky monkey (*Semnopithecus obscurus*).
- 1 Mona monkey (*Cercopithecus mona*).
- 11 Entellus monkeys (*Semnopithecus entellus*).
- 8 Macaque monkeys (*Macacus cynomolgus*).
- 6 Rhesus monkeys (*Macacus rhesus*).
- 3 Brown stump-tailed monkeys (*Macacus arctoides*).
- 2 Pig-tailed monkeys (*Macacus nemestrinus*).
- 2 Lion-tailed monkeys (*Macacus silenus*).
- 2 Bonnet monkeys (*Macacus sinicus*).
- 2 Weeper capuchins (*Cebus capucinus*).
- 2 Common marmosets (*Hapale jacchus*).
- 1 Golden marmoset (*Midas chrysomelas*).
- 1 Sooty mangabey (*Cercocebus fuliginosus*).
- 1 White-collared mangabey (*Cercocebus collaris*).

Order Lemures.

- 1 Mongoose lemur (*Lemur mongoz*).
- 2 Black-headed lemurs (*Lemur brunneus*).

- Black lemur (*Lemur macaco*).
 Ruffed lemur (*Lemur varius*).
 Garnett's galagoes (*Galago garnetti*).

Order Carnivora.

- African lions (*Felis leo*).
 Indian lion (*Felis leo*).
 Tigers (*Felis tigris*).
 Leopards (*Felis pardus*).
 Black leopard (*Felis pardus*).
 Clouded leopards (*Felis nebulosa*).
 Snow leopards (*Felis uncia*).
 Jaguar (*Felis onca*).
 Pumas (*Felis concolor*).
 Fishing cats (*Felis viverrina*).
 Tibetan lynx (*Felis lynx*).
 Jungle cats (*Felis chaus*).
 Siamese cat (*Felis domestica siamensis*).
 Domestic cat (*Felis domestica*).
 Himalayan bears (*Ursus torquatus*).
 Sloth bears (*Melursus ursinus*).
 Malayan bear (*Ursus malayanus*).
 Racoons (*Procyon lotor*).
 Badger (*Meles taxus*).
 Common genet (*Genetta vulgaris*).
 Hunting leopards (*Cynelurus jubatus*).
 Small Indian civets (*Viverricula malaccensis*).
 Indian palm civet (*Paradoxurus niger*).
 Himalayan palm civet (*Paradoxurus grayi*).
 Polecats (*Mustela putorius*).
 Wild dogs (*Cyon dukhunensis*).
 Indian jackals (*Canis aureus*).
 Indian jackal (white) (*Canis aureus*).
 Indian wolf (*Cyon pallipes*).
 Indian mongoose (*Harpestes mungo*).
 Striped hyænas (*Hyæna striata*).
 Indian foxes (*Vulpes bengalensis*).
 Indian martens (*Mustela flavigula*).

- 2 Common otters (*Lutra vulgaris*).
- 13 Cat bears (*Ailurus fulgens*).
- 2 Binturongs (*Arctictis binturong*).

Order Proboscidea.

- 2 Indian elephants (*Elephas indicus*).

Order Ungulata.

- 2 Indian rhinoceroses (*Rhinoceros unicornis*).
- 3 Malayan tapirs (*Tapirus indicus*).
- 2 Hippopotami (*Hippopotamus amphibius*).
- 3 English wild cattle (*Bos taurus*).
- 3 Bantengs (*Bos sonadaicus*).
- 4 Gayals (*Bos frontalis*).
- 1 Anoa (*Anoa depressicornis*).
- 2 Zebras (*Equus burchelli*).
- 6 Nilgais (*Boselaphus tragocamelus*).
- 3 Indian gazelles (*Gazella bennetti*).
- 14 Indian antelopes (*Antelope cervicapra*).
- 5 Four-horned antelopes (*Tetracerus quadricornis*).
- 5 Brow-antlered deer (*Cervus eldii*).
- 7 Hog deer (*Cervus porcinus*).
- 5 Barking deer (*Cervus muntjac*).
- 14 Sambur deer (*Cervus aristotelis*).
- 19 Spotted deer (*Cervus aris*).
- 5 Barasingha deer (*Cervus duvaucelli*).
- 3 Javan mouse deer (*Tragululus javanicus*).
- 3 Indian mouse deer (*Tragululus memmina*).
- 1 Water-buck (*Cebus ellipsiprymnus*).
- 1 Nubian ibex (*Capra sinaitica*).
- 3 Domestic sheep (*Ovis aries*).
- 1 Burral wild sheep (*Ovis nahura*).
- 1 Tahr (*Hemitragus jemlaicus*).
- 2 Uryals (*Ovis cyclóceos*).
- 7 Wild pigs (*Sus cristatus*).
- 1 Andaman pig (*Sus andamanensis*).

Order Marsupialia.

- 3 Great kangaroos (*Macropus giganteus*).
- 1 Great kangaroo (White var) (*Macropus giganteus*).

- 3 Rufous kangaroos (*Macropus rufus*).
- 2 Wallaroos (*Macropus robustus*).
- 1 Wallaby (*Macropus bennetti*).

Order Rodentia.

- 1 Large Indian squirrel (*Sciurus indicus*).
- 1 Large Malayan squirrel (*Sciurus bicolor*).
- 15 Three-coloured squirrels (*Sciurus tricolor*).
- 4 Orange-bellied grey squirrels (*Sciurus blanfordi*).
- 6 Hoary-bellied Himalayan squirrels (*Sciurus lokroides*).
- 1 Red-bellied flying squirrel (*Pteromys magnificus*).
- 4 Indian porcupines (*Hystrix leucurus*).
- 1 Brush-tailed porcupine (*Atherura fasciculata*).
- 1 Hairy-rumped agouti (*Dasyprocta prymnolopha*).

CLASS AVES.

Order Passeres.

- 1 White crow (*Corvus splendens*).
- 1 Butcher crow (*Cracticus picatus*).
- 1 Piping crow (*Gymnorhina organica*).
- 1 Greater Bird of Paradise (*Paradisea apoda*).
- 1 Lesser Bird of Paradise (*Paradisea minor*).
- 3 Red Birds of Paradise (*Paradisea rubra*).
- 11 Red-billed blue magpies (*Urocissa occipitalis*).
- 1 Yellow-billed magpie (*Urocissa flavirostris*).
- 9 Black-headed jays (*Cyanocorax cyanomelas*).
- 1 Himalayan jay (*Garrulus hispancularis*).
- 15 White-crested laughing thrushes (*Garrulax leucolophus*).
- 1 Striated laughing thrush (*Grammatoptila striata*).
- 5 Horsfield's whistling thrushes (*Myiophonus horsfieldi*).
- 4 Jungle babblers (*Crateropus canorus*).
- 3 Black-headed sibilias (*Lioptila capistrata*).
- 1 Longtailed sibia (*Sibia picaoides*).
- 26 Bengal red-vented bulbuls (*Molpastes bengalensis*).
- 1 Red-whiskered bulbul (*Otocornis jocosa*).
- 7 White-cheeked bulbuls (*Molpastes leucogenys*).
- 19 Yellow-vented bulbuls (*Pycnonotus analis*).
- 5 Rose-coloured starlings (*Pastor roseus*).
- 14 Common Indian starlings (*Sturnus menchieri*).

- 4 Black-headed mynas (*Temenuchus nigriceps*).
 4 Andaman mynas (*Sturnia andamanensis*).
 1 Magpie (*Pica rustica*).
 5 Magpie robins (*Copsychus saularis*).
 25 Pekin robins (*Erythacus philomela*).
 2 White-winged robins (*Pratincola caprata*).
 2 Black-naped orioles (*Oriolus indicus*).
 1 Black-headed oriole (*Oriolus melanophthalmus*).
 14 Weaver birds (*Ploceus baya*).
 22 Common weaver birds (*Ploceus baya*).
 1 Crimson-crowned weaver bird (*Euplectes flammiceps*).
 5 Red-headed cardinals (*Paroaria larvata*).
 5 Paradise whydahs (*Vidua paradisea*).
 6 Black-naped blue fly-catchers (*Miagra azurea*).
 1 Purple honey-sucker (*Arachnechthra asiatica*).
 65 Red munias (*Sporæginthus amandava*).
 33 Java sparrows (*Padda oryzivora*).
 7 Tree sparrows (*Passer montana*).
 1 Bullfinch (*Pyrrhula erythrocephala*).
 3 Rosefinches (*Carpodacus erythrinus*).
 1 Shama (*Cittocinclia macrura*).
 1 Black shama (*Cittocinclia nigra*).
 15 Green finches (*Ligurinus chloris*).
 4 Niltava finches (*Niltava sundara*).
 10 Brown-headed buntings (*Euspiza aureola*).
 7 Cut-throats (*Amadina facitata*).
 2 Himalayan accentors (*Accentor altaicus*).
 3 White-collared ouzels (*Merula albocincta*).
 1 Grey-headed ouzel (*Merula castanea*).
 2 Black-throated thrushes (*Planesticus atrogularis*).
 2 Indian pittas (*Pitta brachyura*).

Order Scansores.

- 2 Gold-backed woodpeckers (*Brachypternus aurantius*).
 4 Blue-throated barbets (*Cyanops asiatica*).
 1 Crimson-breasted barbet (*Xantholama hamacephala*).

Order Columbæ.

- 26 Rock pigeons (*Columba intermedia*).
 1 Wood pigeon (*Columba palumbus*).

- 6 White-bellied pigeons (*Columba leuconota*).
- 5 Bronze-winged pigeons (*Phaps chalcoptera*).
- 16 Coral-billed pigeons or emerald doves (*Chalcophaps indica*.)
- 16 Blood-breasted pigeons (*Phlogoenas cruentata*).
- 4 Pied Imperial pigeons (*Carpophaga bicolor*).
- 4 Common crowned pigeons (*Goura coronata*).
- 4 Victoria crowned pigeons (*Goura victoria*).
- 12 Nicobar crowned pigeons (*Calenas nicobarica*).
- 6 Nicobar Imperial pigeons (*Carpophaga aenea insularis*)
- 41 Bengal green pigeons (*Crocopus phœnicopterus*).
- 2 Fruit pigeons (*Ptilopus superbus*).
- 5 Magpie pigeons.
- 1 Bronze-winged pigeon (*Phaps chalcoptera*).
- 25 Ringdoves (*Columba palumbus*).

Order Halcyones.

- 5 White-breasted kingfishers (*Halcyon smyrnensis*).
- 5 Brown-winged kingfishers (*Halcyon amauropterus*).
- 2 Laughing kingfishers (*Dacelo gigantea*).

Order Bucerotes.

- 5 Pied hornbills (*Anthracoceros albirostris*).
- 1 Rufous-necked hornbill (*Aceros nepalensis*).
- 1 Rhinoceros' hornbill (*Buceros rhinoceros*).

Order Psittaci.

- 4 Greater sulphur-crested cockatoos (*Cacatua galerita*).
- 3 Lesser sulphur-crested cockatoos (*Cacatua sulphurea*)
- 14 Roseate cockatoos (*Cacatua roseicapilla*).
- 8 Bare-eyed cockatoos (*Cacatua gymnopsis*).
- 2 Rosy-crested cockatoos (*Cacatua moluccensis*).
- 1 Leadbeater's cockatoo (*Cacatua leadbeateri*).
- 1 Rosella cockatoo (*Platycercus eximius*).
- 5 Pale-headed parrakeets (*Platycercus palliceps*).
- 1 King parrakeet (*Aprosmictus scapulatus*).
- 7 Alexandrine parrakeets (*Palæornis eupatrius*).
- 4 Red-rumped parrakeets (*Platycercus hæmatotus*).
- 1 Red-winged parrakeet (*Aprosmictus erythropterus*).
- 1 Scaly-breasted parrakeet (*Trichoglossus chlorolepidotus*).

- 2 Red and blue macaws (*Ara macao*).
 1 Blue and yellow macaw (*Ara ararauna*).
 2 Hyacinthine macaws (*Anodorhynchus hyacinthinus*).
 2 Glaucous macaws (*Anodorhynchus glaucus*).
 3 Red-sided eclectus (*Eclectus pectoralis*).
 2 Illiger's macaws (*Ara maracana*).
 1 Yellow-fronted amazon (*Chrysotis ochrocephala*).
 1 Grey parrot (*Psittacus erythacus*).
 2 Many-coloured parrots (*Platycercus multicolor*).
 8 Java parrots (*Palæornis alexandri*).
 10 Ring-necked parrots (*Palæornis torquata*).
 25 Moustached parrots (*Palæornis fasciatus*).
 1 Great billed parrakeet (*Tanygnathus megalorhynchus*).
 7 Red-headed lorries (*Lorius rubra*).
 2 Ornamental lorries (*Trichoglossus ornatus*).
 2 Blue mountain lorries (*Trichoglossus novæ hollandæ*).
 13 Undulated grass parrakeets (*Melopsittacus undulatus*).
 3 Undulated grass parrakeets (yellow variety).
 2 Pale-headed parrakeets (*Platycercus palliceps*).
 10 Cockateels (*Calopsittacus novæ hollandæ*).
 15 Blue crowned hanging parrakeets (*Loriculus galgulus*).
 1 Lory (*Lorius rubra*).

Order Striges.

- 6 Indian barn owls (*Strix javanica*).
 1 Brown hawk-owl (*Ninox scutellatus*).
 1 Brown fish-owl (*Ketupa ceylonensis*).

Order Accipitres

- 2 Crestless hawk-eagles (*Nisaetus bonelli*).
 3 Australian eagles (*Uroæetus australianus*).
 2 King vultures (*Otogyps calvus*).
 1 Black vulture (*Cathartes atratus*).
 1 Common brown vulture (*Gyps bengalensis*).
 3 White-tailed sea-eagles (*Poliobuteo ichthyæus*).
 1 White-bellied sea-eagle (*Haliaeetus leucogaster*).
 1 Pallas sea-eagle (*Haliaeetus leucorhynchus*).
 2 Indian house kites (*Milvus govinda*).
 2 Peregrine falcons (*Falco peregrinus*).

Order *Platalea*.

- Spoonbill (*Platalea leucorodia*).
 Black-headed ibises (*Ibis melanocephalus*).
 Scarlet ibises (*Eudocemus ruber*).
 Straw-necked ibises (*Geronticus spinicollis*).
 Black ibises (*Inocolis papillosus*).
 Shell ibises (*Anastotus oscitans*).

Order *Ontoglossæ*.

- Flamingoes (*Phænicopterus antiquorum*).

Order *Herodiones*.

- Common herons (*Ardea cinerea*).
 Lesser egrets (*Herodias intermedia*).
 Cattle egrets (*Bubulcus coromandus*).
 Pond herons (*Ardeola grayi*).
 Night herons (*Nyctiardea nycticorax*).
 Adjutants (*Leptoptilus argala*).
 Lesser adjutants (*Leptoptilus javanicus*).
 Black-necked storks (*Xenorhynchus asiaticus*).
 White-necked stork (*Dissura episcopus*).
 White storks (*Ciconia alba*).
 Black stork (*Ciconia nigra*).
 Japanese storks (*Ciconia boyciana*).
 Jabiru storks (*Pseudotantalus leucocephalus*).

Order *Stegapopodes*.

- White pelican (*Pelecanus onocrotalus*).

Order *Anseres*.

- Wild or grey-leg geese (*Anser cinereus*).
 Pink-footed geese (*Anser brachyrhynchus*).
 Bar-headed geese (*Anser indicus*).
 Spur-winged goose (*Plectropterus gambensis*).
 Cotton teals (*Nettapus coromandelianus*).
 Egyptian sacred goose (*Chenalopex ægyptiacus*).
 Canada geese (*Bernicla canadensis*).
 White-fronted goose (*Anser albifrons*).

- 8 Black swans (*Cygnus atratus*).
 11 Mute swans (*Cygnus olor*).
 1 Black-necked swan (*Cygnus nigrocollis*).
 26 Comb ducks (*Sarcidiornis melanotos*).
 76 Brahminy ducks (*Tadorna casarca*).
 16 Mallard (*Anas boschas*).
 1 Sheldrake (*Tadorna cornuta*).
 1 Pink-headed duck (*Rhodonessa caryophyllacea*).
 14 Spotted-bill ducks (*Anas pectorhynga*).
 40 Lesser whistling teals (*Dendrocygna javanica*).
 17 Baikal teals (*Nettion formosum*).
 2 Bronze-capped teals (*Eunetta falcata*).
 18 Common teals (*Querquedula crecca*).
 52 Gargeny teals (*Querquedula ciria*).
 48 Pin-tailed ducks (*Dafla acuta*).
 4 Shovellers (*Spatula clypeata*).
 5 Wigeons (*Mareca penelope*).
 9 Summer ducks (*Ex sponza*).
 39 Mandarin ducks (*Ex galericulata*).
 16 Muscovy ducks (*Cairira moschata*).
 7 Pochards (*Fuligula ferina*).
 1 White-eyed pochard (*Nyroca africana*).
 9 Red-headed pochards (*Aythya ferina*).
 4 Tufted pochards (*Fuligula cristata*).
 2 Variegated sheldrake (*Tadorna variegata*).

Order *Gavidae*.

- 6 Brown-headed gulls (*Larus brunneicephalus*).
 1 Black-headed gull (*Kroikocephalus ichthyatus*).
 9 Common terns (*Sterna flurialis*).
 2 Stone plovers (*Isacus recurvirostris*).
 8 Bronze-winged jacanas (*Metopidius indicus*).
 8 Pheasant-tailed jacanas (*Hydrophasianus chirurgus*).

Order *Grallae*.

- 2 Common sandgrouse (*Pterocles exustus*).
 3 Large sandgrouse (*Pterocles arenarius*).
 28 Saras-cranes (*Grus antigone*).
 16 Common cranes (*Grus communis*).
 3 Large white cranes (*Grus leucogeranus*).

- White-necked crane (*Grus leucauchen*).
 Demoiselle cranes (*Grus virgo*).
 Balearic cranes (*Balearica pavonina*).
 Stanley cranes (*Antaropoides paradisea*).

Order *Fulicariæ*.

- Purple coots (*Porphyrio poliocephalus*).
 Coots (*Fulcia atra*).
 Moorhen (*Gallinula chloropus*).
 Water cocks (*Gallicrex cinerea*).
 White-breasted waterhens (*Erythra phenicura*).
 Australian rail (*Rallus pectoralis*).
 Indian water-rails (*Rallus indicus*).
 Little crakes (*Porzana parva*).
 Baillon's crake (*Porzana bailloni*).
 Ruddy crakes (*Porzana fusca*).

Order *Gallinæ*.

- Common quails (*Coturnix communis*).
 Chukar partridges (*Caccabis chukar*).
 Swamp partridges (*Ortygornis gularis*).
 Brown-breasted partridges (*Arboricola brunnepectus*).
 Hill partridges (*Arboricola torqueola*).
 Rufous-throated hill partridges (*Arboricola rufogu*).
 See-See partridges (*Ammoperdix bonhami*).
 Black partridges (*Francolinus vulgaris*).
 Bamboo partridges (*Bambusicola thoracica*).
 Redcrested wood partridge (*Rollulus roulroul*).
 Partridge (not identified).
 Bengal florikin (*Syphatides bengalensis*).
 Monaul pheasants (*Lophophorus impeyanus*).
 Ring-necked pheasants (*Phasianus torquatus*).
 Cheer pheasant (*Phasianus wallichii*).
 Gold pheasants (*Thaumalea picta*).
 Silver pheasants (*Euplocamus nyctemerus*).
 Amherst pheasants (*Thaumalea amherstiae*).
 Japanese pheasants (*Phasianus versicolor*).
 Bornean firebacks (*Euplocamus nobilis*).
 Kaleege pheasants (*Euplocamus horzfieldi*).
 Red jungle fowl (*Gallus ferrugineus*).

- 2 Javan jungle fowls (*Gallus varius*).
- 9 Sonnerat's jungle fowls (*Gallus sonnerati*).
- 5 Red spur fowls (*Galloperdix spadiceus*).
- 3 Tragopan pheasants (*Cerionix satyra*).
- 7 Crow pheasants (*Centropus rufipennis*).
- 11 Common peafowl (*Pavo cristatus*).
- 1 Common peafowl (white) (*Pavo cristatus*).
- 3 Burmese peafowl (*Pava muticus*).
- 3 Peacock pheasants (*Polyplectron chinques*).
- 1 Argus pheasant (*Argus giganteus*).
- 1 Reeve's pheasant (*Phasianus reevesi*).
- 1 Mexican curassow (*Crax globicera*).
- 1 Common curassow (*Crax alector*).
- 1 Wattled guan (*Aburria carunculata*).

Order Casuarii.

- 2 Two-wattled cassowaries (*Casuarus bicarunculatus*).
- 2 Emus (*Dromæus nova-hollandæ*).

Order Struthiones.

- 3 Ostriches (*Struthio camelus*).
- 1 Common rhea (*Rhea americana*).

CLASS REPTILIA.

Order Emydosauria.

- 5 Gharials (*Gavialis gangeticus*).
- 2 Sharp-nosed crocodiles (*Crocodylus porosus*).
- 13 Marsh crocodiles (*Crocodylus palustris*).
- 1 Mississippi alligator (*Alligator mississippiensis*).

Order Chelonia.

- 2 Elephantine tortoises (*Testudo elephantina*).
- 4 Horsfield's tortoises (*Testudo horsfieldi*).
- 3 Starred tortoises (*Testudo-elegans*).
- 1 Hamilton's terrapin (*Damonia hamiltoni*).
- 3 *Emyda granosa*.

Order Sauria.

- 9 Geckoes (*Gecko verticillatus*).
- 2 Yellowish monitors (*Varanus flavescens*).

- 2 Bengal monitors (*Varanus bengalensis*).
 3 Two-banded monitors (*Varanus salvator*).

Order Ophidia.

- 1 *Typhlops porrectus*.
 6 Indian pythons (*Python molurus*).
 7 Indian eryx (*Eryx jehni*).
 9 Grass snakes (*Tropidonotus stolatus*).
 7 *Hypsirhina enhydria*
 4 Water snakes (*Tropidonotus piscator*).
 9 Indian rat-snakes (*Zamenis mucosus*).
 4 Brown rat-snakes (*Coluber helena*).
 7 (*Xenocrophis cerasoga-ter*).
 2 Ornamented Tree-snakes (*Chrysopelea ornata*).
 2 Tree snakes (*Dryophis pictus*).
 6 Green snakes (*Dryophis mycterizans*).
 4 *Lycodon aulicus*.
 7 Cobras (*Naia tripudians*).
 6 Snake-eating cobras (*Naia bungarus*).
 12 Russell's vipers (*Vipera russellii*).
 4 Banded kraits (*Bungarus fasciatus*).
 1 Common krait (*Bungarus caeruleus*).

CLASS ARACHIDA.

Order Scorpiones.

- 10 Scorpions (*Buthus tamulus*).

1916-1917

**REPORT OF THE HONORARY COMMITTEE
FOR THE MANAGEMENT OF THE
ZOOLOGICAL GARDEN, CALCUTTA
1916-17.**

THE Honorary Committee have the honour to submit their report for the year ending 31st March 1917, the contents of which, as usual, include among other items:—

- (1) The Superintendent's report upon Zoological collection.
- (2) Monthly returns of visitors and a list of donors and their donations.
- (3) Abstract of accounts of ordinary receipts and expenditure.
- (4) A list of animals in the Garden.

1. THE COMMITTEE.

The Committee consisted of:—

President:

The Hon'ble Mr. F. J. Monahan, I.C.S., from 1st April 1916 to 14th November 1916.

The Hon'ble Mr. C. J. Stevenson-Moore, I.C.S., from 15th November 1916.

Vice-President:

P. L. Buckland, Esq., F.Z.S.

Honorary Secretary and Treasurer :

S. C. Berridge, Esq., to 2nd February 1917.

W. K. Dods, Esq., from 3rd February 1917.

Superintendent :

Mr. Bijay Krishna Basu, G.B.V.C., C.M.Z.S.

Assistant Superintendent :

Babu Somadev Ganguli.

Members of the Committee :

R. D. Mehta, Esq., C.I.E.

Lieut.-Col. R. Bird, M.D., C.I.E., M.V.O., M.S.,
I.C.S., I.M.S.

Dr. Nelson Annandale, B.A., D.Sc., C.M.Z.S.

W. R. Gourlay, Esq., C.I.E., I.C.S.

H. J. McIntosh, Esq., I.C.S.

Ihtisham-ul-Mulk Rais-ud-Daula Amir-ul-Umara
Nawab Sir Asif Kadr Saiyid Wasif Ali Mirza,
Khan Bahadur, Mahabat Jang, Nawab Bahadur of
Mirshidabad, K.C.S.I., K.C.V.O.

Lieut.-Col. Charles Robert Mortimer Green, M.D.,
I.C.S., I.M.S.

David Ezra, Esq.

Ambica Charan Law, Esq.

G. Girard, Esq., I.S.O., F.R.H.S.

The Honourable Sir Bijay Chand Mahtab, K.C.S.I.,
C.I.E., I.O.M., Maharajahdiraj Bahadur of Burdwan.

Shirley Tremearne, Esq.

W. K. Dods, Esq.

Nawab A. F. M. Abdur Rahman, Khan Bahadur.

Lieut.-Col. Sir L. Rogers, K.T., C.I.E., M.D., I.M.S.

Lieut.-Col. C. R. Stevens, M.D., I.M.S.

Sir R. S. Highet, KT.

E. G. L. Laird McGregor, Esq., I.C.S., from 1st April 1916 to 15th December 1916.

C. W. E. Cotton, Esq., I.C.S., from 19th December 1916.

Lieut.-Col. E. H. Brown, I.M.S. (retired.) M.D., D.P.H., F.R.C.S.E.

Ex-officio Members:

The Commissioners of Divisions in Bengal.

The Executive Engineer of the Public Works Department of the Division in which the Garden is placed.

The Sanitary Commissioner with the Government of Bengal.

The President of the Asiatic Society of Bengal.

The Director of Public Instruction, Bengal.

The Natural History Secretary of the Asiatic Society of Bengal.

The Director of Land Records.

The Superintendent, Civil Veterinary Department, Bengal.

The Professor of Comparative Anatomy and Zoology, Medical College, Bengal.

The Superintendent of the Royal Botanic Garden, Sibpur.

The Chairman of the Calcutta Corporation.

The Principal of the Bengal Veterinary College, Calcutta.

The following member resigned his membership during the year:—

E. G. L. Laird McGregor, Esq., I.C.S.

The following new member was appointed during the year:—

C. W. E. Cotton, Esq., I.C.S.

2. STAFF AND ESTABLISHMENT.

Mr. Bijay Krishna Basu continued in charge of the Garden as Superintendent throughout the year and Babu Somadev Ganguli as Assistant Superintendent.

The following is a list of the superior staff of the Garden at the end of 1916-17:—

Superintendent :

Mr. Bijay Krishna Basu, G.B.V.C., C.M.Z.S.

Assistant Superintendent :

Babu Somadev Ganguli.

Store-keeper :

Babu Jugal Kishore Roy.

Overseer :

Babu Niranjan Mukherji.

Clerk :

Babu Tarak Chandra Chatterji.

Gate Clerk :

Babu Panchanan Mukherji.

The menial staff of the Garden at the end of 1916-17 consisted of the following:—

2 Jamadars.	14 Gardeners.
8 Durwans.	3 Sweepers.
1 Head Keeper.	1 Chaprasi.
19 Keepers.	1 Carpenter.
3 Bhistis.	2 Cartmen.
1 Cook.	1 Syce.
1 Head Gardener.	1 Scythe-man.

In addition temporary labourers were engaged during the year from time to time as required.

3. THE NEW EXTENSION.

The transfer by the Government of Bengal to the Zoological Gardens of a portion of the site of the old Cavalry Lines was the most noteworthy event of the year under review. The area, which comprises about 11 bighas, adjoins the Gardens on the south and extends to Sterndale Road, and should not only prove a most valuable addition but greatly relieve the congestion from which the Gardens have suffered on their southern boundary.

The transfer was effected on the 4th May 1916 and work was immediately taken in hand to adapt the land to its new purpose. A considerable surface had to be raised, and a tank on the western boundary was filled up. The entire area was enclosed by a wall, and pipes were laid down for the purpose of providing a supply of unfiltered water. A plan for the general lay-out was designed by Mr. A. de Bois Shrosbree, F.S.I., to whom the Committee are greatly indebted for his valuable assistance. In accordance with this plan roads and paths were

made throughout the extension which is now in condition in which it is possible for gardening operations such as the planting of trees and shrubs and the laying of turf to be undertaken.

The quantity and nature of the work which has yet to be undertaken prevents the Committee from anticipating at present any definite date when it will be possible to open the extension to the public, though the work is being carried on with all possible despatch.)

4. IMPROVEMENTS.

Remodelling of the Mullick House.—This house which is used to contain otters, etc., was a substantial structure when built but the wood work and roof had suffered considerably from the ravages of time. The Committee therefore caused it to be remodelled on approved lines so as to give the inmates more air and opportunities of exercise. Kumar Nagendra Mullick Bahadur contributed Rs. 2,500 towards the cost, and the Committee's thanks are due to him for his donation.

(2) *Roadside stalls.*—For many years a number of sweetmeat sellers have been in the habit of stationing themselves by the side of the public road to the north of the main entrance to the Gardens. They were subject to no control, and their ever increasing numbers added to the ugliness and disfigurement of the approach to the Gardens. This nuisance has now been abated by the erection, with the sanction of the Government of Bengal, Public Works Department, of four moveable stalls. These are placed on the same site and are let by the Committee to approved

holders at a nominal rent and they provide every facility for the requirements of the public.

B. ANNUAL REPAIRS.

The annual repairs to the buildings of the Garden were done departmentally so far as possible, and by these means considerable savings were effected which were devoted to other improvements. The prices of paint and other materials have increased to a considerable extent, but as it is essential that all iron-work should be given a coat of paint annually to prevent deterioration, it has not been considered advisable to attempt to effect economy by the reduction of the quantity of paint-work undertaken.

The following is a list of more important repairs executed during the year:—

(1) *Burdwan House*—This house was thoroughly renovated. The roof was overhauled and made watertight and the sandplaster was scraped off where necessary and new sandplaster substituted. The recreation enclosure, the wooden posts of the hand rail and the building itself were repainted.

(2) *Sarnomoyi House*—The wire-netting of the outer aviaries and of some of the inner cages was renewed and the wood-work was repaired. The house was colourwashed and the inner walls were limewashed and the wood and iron work were painted.

(3) *Small Carnivora House*—The verandah was thoroughly repaired and the ceiling was limewashed, the exterior walls being pointed with rule joints. The inner dens were sandplastered

limewashed and the iron gratings of the were repainted. The outer enclosure was also

Dumraon House—Portions of wire-netting repaired. The inner walls were repaired and washed and the outer walls were coloured. The iron gratings of the cages were

Gubbay House—The inner walls were limed and the wire-netting of the Orang-utan's was renewed. The outer walls were coloured and all the cages were repainted.

Boundary Wall—The whole wall was scraped the sand plaster was renewed where necessary the entire length of wall was then coloured.

Bird of Prey House—The wire-netting of all cages was taken out and the iron-posts and were scraped, two coats of paint were and the wire-netting was fixed and fitted.

Sonebursa House—The inner walls were washed and the outer walls were coloured. The wooden roof was repaired and re-

The following buildings were repaired and

Entrance Lodge and Office.

Durbhanga House.

Refreshment Pavilion.

New Antelope House.

Abdul Gani House.

Jhind House.

(10) *Bear House*—This was repaired and the iron gratings of the cages were repainted.

(11) The following buildings were repaired, colourwashed and repainted:—

Schwendler House.

Old Hospital.

Cooch Behar House.

Rhinocero's Enclosure.

Mandrill House.

Petty repairs of smaller houses, sheds and enclosures were, as usual, attended to, the iron fencing of the paddocks was coal-tarred, roads and paths were thoroughly repaired and the drainage put in order.

6. VISITORS.

The Committee observe with satisfaction that the reduction in the attendance of visitors which was very marked for the year after the outbreak of war has not again occurred, and though pre-war figures have not yet been attained, there is a steady annual increase in the number of visitors as in the years before the war. The turnstile records show a total of 671,495 visitors, and an increase of 73,471 over the figures for 1915-16. The following is a comparative table of visitors for the last three years:—

Year.	...	Visitors.
1914-15	...	559,759
1915-16	...	598,024
1916-17	...	671,495

7. FINANCE.

The receipts from visitors amount to 50,021-11 which is an increase of Rs. 5,691-14 on the figure for the preceding year.

The following is a comparative statement of receipts from visitors for the last three years:—

Year.	Receipts.	
	Rs.	A.
1914-16	42,269	1
1915-16	44,332	13
1916-17	50,024	11

In comparing these figures with the figures given in the previous paragraph it must be borne in mind that a large number of children under five years of age and school children attended by their teachers were admitted free. On the day of the Fancy Fair when visitors are not charged individually about 9,000 people entered the Garden. In addition 28,619 persons visited the Garden on free days, of which a list with the number of visitors, is to be found in Appendix C.

The financial condition of the Garden during the year under review was very satisfactory. The amounts of income and expenditure are summarised in Appendix A.

Economy has been to a large extent enforced, owing partly to the high prices for materials now prevailing and partly to the fact that under present conditions none of the larger and more expensive materials, other than those obtainable in Asia, are to

be had. But this enforced economy has been most opportune in that it has rendered a substantial sum available for the development of the new extension in regard to which during the year under review out of the total disbursements, a sum of about Rs. 18,500 has been expended.

8. GARDEN.

The Gardens have maintained their high standard of horticulture and the display of annuals and their artistic arrangement has been greatly appreciated by the public. More attention has been given to the state of the trees, many of which were unsightly or a source of danger to neighbouring buildings. Some were removed and from others branches were lopped off, by which timely action serious damage was averted as a few days subsequently a severe storm passed over Calcutta causing considerable damage. The Zoological Gardens fortunately came off lightly and the damage sustained was very slight.

CONCLUSION.

The Committee desire to express their thanks to the Corporation of Calcutta for their continued generosity in remitting the consolidated rates in respect of the Gardens.

The thanks of the Committee are also due to those ladies and gentlemen who have added to the Zoological collection by donations, a list of which is given in Appendix D. Thanks are also due to those who kindly offered to present animals to the Garden, but whose offers could not be accepted.

because the particular species of animals
already sufficiently well represented, or owing
to want of accommodation.

Committee also desire to express their
thanks to various Railways and Steamer Companies
for the conveyance of animals belonging to the
Committee free of charge.

BERRIDGE,

Honorary Secretary.

F. J. MONAHAN,

President.

SUPERINTENDENT'S REPORT.

I HAVE the honor to submit the following report of the existing condition and the progress of the Zoological collection.

The following comparative table shows how the various collection of specimens in the Garden has stood during the last four years :—

Year.	Mammals.	Birds.	Reptiles.
1913-14	... 378	1,659	223
1914-15	... 334	1,893	246
1915-16	... 351	1,940	198
1916-17	.. 318	1,975	263

ACQUISITIONS.

Among other acquisitions the following deserve special notice :—

- 1 One-wattled cassowary (*Casuarus uniappendiculatus*), purchased.
- 1 Malayan tapir (*Tapirus indicus*), purchased.
- 2 Zebra-ass hybrids, presented by E. W. Harper, Esq.
- 1 Tiger (*Felis tigris*), presented by J. C. Carrol, Esq.
- 2 Proboscis monkeys (*Semnopithecus Nasalis larvatus*), purchased.
- 1 Orang-utan (*Simia satyrus*), purchased.
- 1 Diana monkey (*Cercopithecus diana*), purchased.
- 2 Anoa (*Anoa depressicornis*), purchased.
- 2 Hoolock gibbons (*Hylobates hoolock*), purchased.
- 1 Hoolock gibbon (*Hylobates hoolock*) presented by Mrs. Curlender.
- 1 Serow (*Nemorhaedus bubalinus*), purchased.
- 2 Wild asses (*Equus onager*), purchased.
- 1 Siamang (*Hylobates syndactylus*), purchased.
- 2 White-handed gibbons (*Hylobates lar*), purchased.
- 1 Lynx (*Felis lynx*), purchased.

- at fox (*Vulpes alopec*), purchased.
 as cat (*Felis manul*), purchased.
 asingha deer (*Cervus duvaucelli*), born.
 als (bulls) (*Bos frontalis*), purchased.
 at kangaroo (*Macropus giganteus*), born.
 ry-bellied Himalayan squirrels (*Sciurus lokroides*), born.
 len cat (*dark variety*) (*Felis nigrescens*), presented by His
 xcellency the Governor,
 phant (*Elephas indicus*), presented by United Provinces Govern-
 ment.
 at Indian barbet (*Megalaema marshallorum*), presented by J.
 aldwell, Esq.
 at Kangaroo (*Macropus giganteus*), born.

Births.

following animals were born in the Gardens
 the year :—

- r-horned antelopes (*Tetraceros quadricornis*).
 king deer (*Cervus muntjac*).
 w-antlered deer (*Cervus eldii*).
 lish wild calf (*Bos taurus*).
 ted deer (*Cervus axis*).
 deer (*Cervus porcinus*).
 et monkey (*Cercopithecus griseo-viridis*).
 bar deer (*Cervus aristotelis*).
 llas monkeys (*Semuopithecus entellus*).
 singha deer (*Cervus duvaucelli*).
 an antelopes (*Antilope cervicapra*).
 t kangaroo (*Macropus giganteus*).
 ry-bellied Himalayan squirrels (*Sciurus lokroides*).
 an jackals (*Canis aureus*).
 k swans (*Cygnus atratus*).
 k-headed ibises (*Ibis melanocephalus*).
 ard (*Felis pardus*).
 erial pigeon (*Carpophaga aenea aenea*).
 l-billed pigeons or emerald doves (*Chalcophaps indica*).

The following is a list of birds that bred in the Gardens in a wild state :—

- Indian house crow (*Corvus splendens*).
- Indian treepie (*Dendrocitta rufa*).
- Bengal red-whiskered bulbul (*Otocompsa emeria*).
- Common myna (*Acridotheres tristis*).
- Pied myna (*Sturnopastor contra*).
- Indian tailor-bird (*Orthotomus sutorius*).
- House sparrow (*Passer domesticus*).
- Magpie robin (*Copsychus saularis*).
- Black-headed oriole (*Oriolus melanocephalus*).
- Red-backed woodpecker (*Brachyternus aurantius*).
- Common kingfisher (*Alcedo bengalensis*).
- Indian koel (*Eudynamis honorata*).
- Common pariah kite (*Milvus govinda*).
- Indian blue rock pigeon (*Columba intermedia*).
- Night heron (*Nycticorax griseus*).
- Little cormorant (*Phalacrocorax javanicus*).
- Indian snake bird (*Plotus melanogaster*).

Eggs were laid but not hatched by the following birds :—

- Indian peafowl (*Pavo cristatus*).
- Crown pigeon (*Goura coronata*).
- Nicobar pigeon (*Calaenas nicobarica*).

Deaths.

As in previous years the number of deaths is swelled to a disproportionate extent by the large number of common indigenous animals which has been presented to the Garden. The majority are brought in a miserable condition induced by exposure on long journey or by previous ill-treatment and they die within a short time after arrival.

Of the losses by death attention should be drawn
be following :—

- 1 Indian lion (*Felis leo*).
- 2 Brow-antlered deer (*Cervus eldii*).
- 1 Tapir (*Tapirus indicus*).
- 1 Banteng (*Bos sonadaicus*).
- 1 Mandrill (*Cynocephalus mormon*).
- 1 Rufous kangaroo (*Macropus rufus*).
- 1 Great kangaroo (*Macropus giganteus*).
- 1 Waterbuck (*Cebus ellipsiprymnus*).
- 2 Clouded leopards (*Felis nebulosa*).
- 1 Snow leopard (*Felis uncia*).
- 1 White-haired Gibbon (*Hylobates lar*).

PATHOLOGICAL DEPARTMENT.

The work in this department was carried on as usual. Thanks are due to the Principal, Bengal Veterinary College, for his kind help in important cases.

The results of the *post-mortem* examinations during the year have been entered in the *post-mortem* book of the garden.

Subjoined is a list of the more important cases which presented the principal subjects for pathological diagnosis :—

Number of cases.	Subjects.
... .. 2	Wild dogs.
... .. 1	White-tailed Sea-Eagle, 1 Nilgai, 1 Leopard.

Number of cases.		Subjects.
Apoplexy	... 3	Cat ^s bears, 2 Monal pheasants, 2 leopards.
Cirrhosis of the liver	... 1	Wild dog.
Congestion of the lungs	... 1	Common Himalayan fox.
Congestion of the liver	... 1	Gold pheasant, 1 Leopard cub.
Debility	... 1	Leopard, 1 Common genet, 1 T colored squirrel, 1 Clouded leopard.
Destrochia	... 1	Barking deer, 1 Hog deer.
Dysentery	... 1	Cat bear, 1 Kangaroo.
Diarrhoea	... 1	Hanuman.
Enteritis	... 1	Hoolock.
Epilepsy	... 1	Moor monkey.
Fatty degeneration of the liver	... 1	Mandarin duck, 1 Mute swan, 1 Him an bear, 1 Mexican Currasow, 1 pheasant.
Gastritis	... 1	Jungle cat, 1 Red lory.
Hepatitis	... 1	Burrhal sheep.
Hydrothorax consequent on chronic peritonitis	... 1	Three-colored squirrel.
Injury	... 1	Indian Gazelle, 1 Hornbill, 1 W stork.
Intestinal catarrh	... 1	Black-necked stork, 1 Cat bear.
Paralysis	... 1	Two-wattled Cassowary, 1 Black lem
„ (Cage)	... 1	Sloth bear.
Pneumonia	... 1	Ruffed lemur, 1 Hoolock, 1 Gold p sant, 2 Cat bears, 1 Silver phea 1 Rufous kangaroo, 1 Proboscis key, 1 Indian wolf.
Ditto (Acute)	... 1	Indian lion.
Broncho-pneumonia	... 1	Proboscis monkey, 1 Malayan Tapir.
Peritonitis	... 1	Arabian Ibex, 1 Javan Mouse deer.

Number of cases.	Subjects.
bite	1 Water buck, 1 Red and blue macaw, 1 Anoa.
matism	1 Indian antelope.
aptability to climate ...	1 Orang-utan, 1 Paradise whydah, 1 Monal pheasant, 1 Cat bear.

PROVISIONS.

The following table shows the quantity of provisions consumed during the year:—

		MDS.	S.	CH.
Gram	... ..	966	0	0
Bran	... ..	562	30	0
Paddy	... ..	389	30	0
Rice	... ..	389	25	0
Wheat	... ..	100	35	0
Indian corn	... ..	120	20	0
Flour	... ..	146	15	0
Barley	... ..	48	0	0
Peas	... ..	14	3	0
Potatoe	... ..	257	20	0
Oilcake	... ..	87	20	0
Paddystraw	... ..	1,880	0	0
Bazra	... ..	162	19	0
Linseed	... ..	37	25	0
Shattoo	... ..	95	32	8
Oats,	... ..	439	30	0
Worm	... ..	19	30	12
		lbs.		
Canary	... ..	570		
Kangney	... ..	6	36	4
Hempseed	... ..	1	8	0

Mds. S. CH.

Gur	...	...	37	11	8
Black salt	...	...	0	4	0
Table salt	...	...	35	7	0
Onion	...	...	11	18	8
Garlic	...	...	1	8	0
Beef	...	...	1,139	29	0
Mutton	...	...	74	0	4
Bread	...	...	61	15	8
Milk	...	...	61	11	0
Fish	...	...	38	28	8
Curd	...	...	27	15	0
Janera	...	...	27	23	0
Black pepper	...	...	0	12	0
Raisin	...	...	3	16	0
Date	...	...	6	34	0

Vegetables such as Cabages,
Cauliflowers, Lettuce,
Carrots, Pumpkin, &c., &c.,
&c. 113 37 8

Rahār dāl (Pulse) 18 10 0

Sugar 3 23 0

Ghee 1 14 0

Nut 7 35 0

Nos.

Fowls 1,430

Leaves 172 cart load

Tea 12 tins.

Birds (Smaller) 1,327

Frogs 6,000

	Nos.
Ducks	320
Goats	186
Miscellaneous fruits, such as papayas, &c.	2,782
Cast horses for feeding the Carnivorous animals	72
Snakes	568
Rats	1,507
Tinned milk	12
Plantains	107 kahans 4 paun.
Hay	31,700 bundles.
Grasshoppers	36,400
Eggs	5,387

The following table gives the chief items of expenditure under "Food of animals" for the year 1917:—

	Rs.	▲.	P.
Beef	4,279	12	0
Mutton	1,124	15	3
Bread	579	6	3
Worms	227	5	6
Live fish	291	15	9
Plantains	643	7	9
Grasshoppers	36	0	0
Grains, such as gram, bran, wheat, etc.	17,568	0	6
Shattoo	182	8	0
Miscellaneous food, such as leaves, fowls canary, kangney, etc.	4,909	8	0
Milk	340	10	0
Total	30,183	9	0

GENERAL CONDITION OF THE ANIMALS.

On the whole, the health of the animals has been satisfactory and the death rate normal. There has been no outbreak of any epidemic during the year. The larger carnivores thrived extremely well, and there were no important casualties amongst them except the deaths of one Indian lion due to old age and a lion cub from rickets. The ruminants maintained excellent health as is evidenced by the birth rate amongst them. The birds were in splendid condition and the Himalayan birds stood the heat remarkably well. There were cases of illness and deaths amongst the delicate birds but these were unavoidable.

APPENDIX A.

*Comparative Statement of Receipts for 1915-16
and 1916-17.*

	1915-16.			1916-17.		
	Rs.	A.	P.	Rs.	A.	P.
Opening balance	14,471	0	2	29,792	12	9
Interest	231	3	4	237	6	6
Donation and subscription	654	0	0	2,008	0	0
Advance receipts	44,332	13	0	50,024	11	0
... ..	5,988	11	0	5,644	0	0
Age, rickshaw, elephant ride,	867	10	0	982	10	0
... ..	288	0	0	176	0	0
... ..	175	0	0	175	0	0
... ..	1,968	0	0	2,106	0	0
... ..	6,631	4	8	4,005	3	0
... ..	20,000	0	0	20,000	0	0
Total	95,607	10	2	1,15,151	11	3
Receipts of 31st March 1915, which were included in 1915-16.	96	14	0	.....	
Receipts of 31st March 1916, which are included in 1916-17.	.....			125	4	0
Total	95,704	8	2	1,15,276	15	3
Receipts of 31st March 1916, which are included in 1916-17.	125	4	0	.....	
Receipts of 31st March 1917, which will be included in 1917-18.	.....			87	5	0
GRAND TOTAL	95,579	4	2	1,15,189	10	3

*II.—Comparative Statement of Expenditure for
1915-16 and 1916-17.*

	1915-16.			1916 17.		
	Rs.	A.	P.	Rs.	A.	P.
Establishment*	8,539	7	10	8,742	8	6
Food of animals	* 29,564	6	0	30,183	9	0
Purchase of animals	6,219	13	6	6,923	4	0
Transport of animals	869	12	6	981	5	9
Miscellaneous contingencies	5,488	2	1	8,895	6	5
Repairs of roads	1,500	0	0	2,566	14	6
" of buildings	7,218	15	9	9,844	14	0
Original construction	3,939	13	9	20,408	5	0
Garden construction	2,446	0	0	5,481	13	6
Total	65,786	7	5	94,028	0	8
Closing balance	29,792	12	9	21,161	9	7
GRAND TOTAL	95,579	4	2	1,15,189	10	3

APPENDIX B.

Summary of Visitors and Gate receipts during
1916-17.

Month and year.				Number of visitors.	Receipts.
					Rs. A.
	1916	...	...	39,518	3,180 10
	"	...	...	34,883	2,683 3
	"	...	...	46,137	3,390 13
	"	...	...	44,251	3,609 8
ust	"	...	...	57,730	4,105 14
ember	"	...	...	54,922	3,981 1
ber	"	...	...	120,356	8,241 4
ember	"	...	...	54,486	4,175 7
ember	"	...	...	62,807	4,975 11
ary	1917	...	...	62,862	4,636 12
uary	"	...	...	47,953	3,543 10
ch	"	...	...	45,590	3,500 14
	Total	...	...	671,495	50,024 11

APPENDIX C.

A list of free days showing free visitors during the year 1916-17.

17th April	1916	...	...	2,394
15th May	"	...	...	2,610
19th June	"	...	...	2,525
24th July	"	...	...	2,355
28th August	"	...	...	1,832
25th September	"	...	...	2,905
23rd October	"	...	...	1,111
27th November	"	...	...	2,021
18th December	"	...	...	3,514
15th January	1917	...	...	2,749
19th February	"	...	..	2,446
19th March	"	...	...	2,157
				<hr/>
				28,619
				<hr/>

APPENDIX D.

List of Donors, 1916-17.

A

Amans, Deputy Conservator		
Forests	... ..	1 Cobra, 8 Coral-billed pigeons.
Andale, Dr. N.	... ..	1 Spotted deer, 1 Testudo elongata. 1 Gæmyda tricarinata.
Arjya, Babu Salil Kumar	... ..	2 Brahminy ducks.
Begun S. E....	... ..	1 Leopard cub.

B

Babu Annadâ Charan	... ..	1 Nilgai.
ers, Rev. A. C.	... ..	1 Python.
erji, Babu Jagadish Chandra		1 Sloth bear cub.

C

ms, Mr. G. O.	... ..	1 Wild dog.
ol, M. J. C.	... ..	1 Tiger.
erat, Miss	... ..	1 Indian antelope.
ender, Mrs. H.	... ..	1 Indian antelope, 1 Hoolock.
well, Mr. J.	... ..	1 Great Himalayan barbet.
se, Master	... ..	1 Spotted deer.
imbazar, Maharaja of	... ..	1 Leopard.

D

s, Mr. W. K.	7 Brown-winged Jacanas, 11 Pheasant-tailed Jacanas, 16 Common herons, 10 Purple coots, 3 White-breasted kingfishers, 1 Red-crested pochard, 1 Crested pochard, 13 Corn crakes, 2 Common foxes, 4 Indian rails, 7 Black-tailed waterhen, 2 White-tailed Sea-eagles, 1 Gargeny teal.
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E

wn, Miss E. R.	1 Jungle cat.
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P

rego, Mr. T. G.	...	1 Peacock.
, Mrs.	...	1 Otter.
huele, Mr. J. A.	...	1 Leopard.
erson, Mr. A. L.	...	1 Python.
ikud, Raja Bahadur of	...	3 Barheaded geese, 7 Brahminy ducks, 1 Pin-tailed duck, 1 Gargeny teal, 1 Spotted-bill duck, 1 Wigeon.
tt, Miss	...	1 Hog deer.

R

erts, J. L.	...	1 Otter.
r, Mr. S. K.	...	1 Ornamental snake.
idell, Mr.	...	1 Green monkey.

S

rpe, Mr. P. A.	...	1 Slow loris.
th, Dr. S. H.	...	1 Hanuman.
azada Mahanmud Behroz lah	...	1 Python.

T

vers, Mr. W. L.	...	2 <i>Testudo elongata</i> .
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W

rdsworth, Mr. W.	...	1 Nilgai.
ite, Mr. E.	...	1 Cobra.

Y

e, Sir David	...	1 Ring-necked parrakeet, 1 Canary, 18 Muniahs, 1 Bulbul.
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Z

ab, Mrs. L. R.	...	1 Saras crane.
ological Survey of India, Director	...	1 <i>Emyda granosa</i> , 1 <i>Testudo elongata</i> .

HIS EXCELLENCY THE GOVERNOR.

- 1 Leopard cat, 1 Burchal sheep.
1 Golden cat, 2 Scorpions.

APPENDIX E.

LIST OF

ANIMALS IN THE GARDEN ON 31ST MARCH 1917.

CLASS MAMMALIA.

Order Primates.

- 4 Orang-outangs (*Simia satyrus*).
- 1 Siamang (*Hylobates syndactylus*).
- 1 Hoolock gibbons (*Hylobates hoolock*).
- 1 White-handed gibbon (*Hylobates lar*).
- 1 Mandrill (*Cynocephalus mormon*).
- 1 Drill (*Cynocephalus leucophaeus*).
- 1 Yellow baboon (*Cynocephalus babouin*).
- 2 Arabian baboons (*Cynocephalus hamadryas*).
- 1 Chacma baboon (*Cynocephalus porcarius*).
- 1 Anubis baboon (*Cynocephalus anubis*).
- 7 Grivet monkeys (*Cercopithecus griseo-viridis*).
- 1 Moustached monkey (*Cercopithecus cephus*).
- 3 Green monkeys (*Cercopithecus callitricus*).
- 2 Houcheur monkeys (*Cercopithecus nictitans*).
- 4 Celebes black monkeys (*Cercopithecus niger*).
- 1 Mona monkey (*Cercopithecus mona*).
- 1 Diana monkey (*Cercopithecus diana*).
- 10 Entellus monkeys (*Semnopithecus entellus*).
- 6 Macaque monkeys (*Macacus cynomolgus*).
- 4 Rhesus monkeys (*Macacus rhesus*).
- 2 Brown stump-tailed monkeys (*Macacus arctoides*).
- 2 Pig-tailed monkeys (*Macacus nemestrinus*).
- 2 Lion tailed monkeys (*Macacus silenus*).
- 2 Bonnet monkeys (*Macacus sinicus*).
- 2 Weeper capuchins (*Cebus capuchinus*).
- 1 Golden marmoset (*Midas chrysomelas*).
- 1 Sooty mangabey (*Cercocebus fuliginosus*).
- 1 White-collared mangabey (*Cercocebus collaris*).

Order Lemures.

- 1 Mongoose lemur (*Lemur mongoz*).
- 1 Black-headed lemur (*Lemur brunneus*).

- 1 Ring-tailed lemur (*Lemur catta*).
- 1 Garnett's galago (*Galago garnetti*).
- 2 Slow loris (*Nycticebus tardigradus*).

Order Carnivora.

- 3 African lions (*Felis leo*).
- 1 Tigers (*Felis tigris*).
- 8 Leopards (*Felis pardus*).
- 1 Black leopard (*Felis pardus*)
- 2 Clouded leopards (*Felis nebulosa*).
- 1 Jaguar (*Felis onca*).
- 2 Pumas (*Felis concolor*).
- 2 Fishing cats (*Felis viverrina*).
- 1 Golden cat (*Felis temmincki*).
- 2 Tibetan lynx (*Felis lynx*).
- 1 Leopard cat (*Felis bengalensis*).
- 1 Jungle cat (*Felis chaus*).
- 1 Siamese cat (*Felis domestica siamensis*).
- 1 Domestic cat (*Felis domestica*).
- 5 Himalayan bears (*Ursus torquatus*).
- 2 Sloth bears (*Melursus ursinus*).
- 1 Badger (*Meles taxus*).
- 2 Hunting leopards (*Cynelurus jubatus*).
- 3 Large Indian civets (*Viverra zibetha*).
- 6 Small Indian civets (*Viverricula malaccensis*).
- 1 Indian palm civet (*Paradoxurus niger*).
- 1 Himalayan palm civet (*Paradoxurus grayi*).
- 2 Spotted tiger civets (*Prionodon pardicolor*).
- 1 Polecat (*Mustela putorius*).
- 2 Wild dogs (*Cyon dukhunensis*).
- 8 Indian jackals (*Canis aureus*).
- 1 Indian jackal (white) (*Canis aureus*).
- 2 Indian wolves (*Cyon pallipes*).
- 1 Indian mongoose (*Herpestes mungo*).
- 4 Striped hyenas (*Hyæna striata*).
- 3 Indian foxes (*Vulpes bengalensis*).
- 1 Himalayan fox (*Vulpes alopez*).
- 1 Indian marten (*Mustela flavigula*)
- 3 Common otters (*Lutra vulgaris*).

- 10 Cat bears (*Aelurus fulgens*).
 2 Binturongs (*Arctictis binturong*).

* Order Proboscidea.

- 3 Indian elephants (*Elephas indicus*).

Order Ungulata.

- 2 Indian rhinoceroses (*Rhinoceros unicornis*).
 3 Malayan tapirs (*Tapirus indicus*).
 2 Hippopotami (*Hippopotamus amphibius*).
 3 English wild cattle (*Bos taurus*).
 2 Bantengs (*Bos sonadaicus*).
 5 Gayals (*Bos frontalis*).
 1 Anoa (*Anoa depressicornis*).
 2 Wild asses (*Equus onager*).
 2 Zebras (*Equus burchelli*).
 2 Zebra-ass hybrids.
 6 Nilgais (*Boselaphus tragocamelus*).
 1 Indian gazelle (*Gazella bennetti*).
 15 Indian antelopes (*Antilope cervicapra*).
 4 Four-horned antelopes (*Tetraceros quadricornis*).
 2 Brow-antlered deer (*Cervus eldi*).
 7 Hog deer (*Cervus porcinus*).
 3 Barking deer (*Cervus muntjac*).
 9 Sambar deer (*Cervus aristotelis*).
 17 Spotted deer (*Cervus axis*).
 5 Barasingha deer (*Cervus duvaucelli*).
 2 Indian mouse deer (*Tragulus memmina*).
 3 Domestic sheep (*Ovis aries*).
 1 Serow (*Nemorhædus bubalinus*).
 1 Tahr (*Hemitragus jemlaicus*).
 7 Wild pigs (*Sus cristatus*).
 1 Andaman pig (*Sus andamanensis*).

Order Marsupialia.

- 3 Great kangaroos (*Macropus giganteus*).
 1 Great kangaroo (White var.) (*Macropus giganteus*).
 2 Rufous kangaroos (*Macropus rufus*).

Wallaroos* (*Macropus robustus*).

Wallaby (*Macropus bennetti*).

Order Rodentia.

Large Indian squirrel (*Sciurus indicus*).

Three-coloured squirrels (*Sciurus tricolor*).

Orange-bellied grey squirrels (*Sciurus blanfordi*).

Hoary-bellied Himalayan squirrels (*Sciurus lokroides*).

Red-bellied flying squirrels (*Pteromys magnificus*).

Indian porcupines (*Hystrix leucurus*).

Hairy-rumped agouti (*Dasyprocta prymnolopha*).

CLASS AVES.

Order Passeres.

White crow (*Corvus splendens*).

Butcher crow (*Cratichneumon picatus*).

Piping crow (*Gymnorhina organica*).

Greater Bird of Paradise (*Paradisaea apoda*).

Lesser Bird of Paradise (*Paradisaea minor*).

Red Birds of Paradise (*Paradisaea rubra*).

Red-billed blue magpies (*Urocissa occipitalis*).

Yellow-billed magpie (*Urocissa flavirostris*).

Black-headed jays (*Cyanocorax cyzomelas*).

Himalayan jays (*Garrulus bispecularis*).

White-crested laughing thrushes (*Garrulax leucolophus*).

Striated laughing thrushes (*Grammatoptila striata*).

Horsfield's whistling thrushes (*Myiophonus horsfieldi*).

Blue-headed Chat thrush (*Orocetes cinclorhynchus*).

Jungle babblers (*Crateropus canorus*).

Semitar babbler (*Pomatorhinus leucogaster*).

Black-headed sibia (*Lioptila capistrata*).

Longtailed sibia (*Sibia picaoides*).

Bengal red-vented bulbuls (*Molpastes bengalensis*).

Red-whiskered bulbul (*Otocompsa jocosus*).

White-cheeked bulbuls (*Molpastes leucogenys*).

Yellow-vented bulbuls (*Pycnonotus analis*).

Rose-coloured starlings (*Pastor roseus*).

Common Indian starlings (*Sturnus menzbieri*).

- 4 Black-headed mynas (*Temenuchus nigriceps*).
 4 Andaman mynas (*Sturnia andamanensis*).
 1 Magpie (*Pica rustica*).
 5 Magpie robins (*Copsychus saularis*).
 30 Pekin robins (*Erythacas philomela*).
 4 White-winged robins (*Pratincola caprata*).
 2 Black birds (*Turdus merula*).
 1 Black-headed oriole (*Oriolus melanocephalus*).
 13 Weaver birds (*Ploceus baya*).
 12 Yellow-shouldered weaver birds (*Euplectes capensis*).
 1 Crimson-crowned weaver bird (*Euplectes flammiceps*).
 3 Red-headed cardinals (*Paroaria larvata*).
 3 Paradise whydahs (*Vidua paradisæ*).
 5 Black-naped blue fly-catchers (*Miagra azurea*).
 1 Purple honey-sucker (*Arachnechthra asiatica*).
 93 Red munias (*Sporoginthus amandava*).
 35 Java sparrows (*Padda oryzivora*).
 7 Tree sparrows (*Passer montana*).
 1 Bullfinch (*Pyrrhula erythrocephala*).
 9 Persian desert bull finches.
 3 Rosefinches (*Carpodacus erythrinus*).
 4 Gouldian finches (*Poephila gouldiæ*).
 1 Shama (*Cittocincla macrura*).
 1 Black shama (*Cittocincla nigra*).
 1 White-capped redstart (*Chæmorornis leucocephala*).
 15 Green finches (*Ligurinus chloris*).
 3 Gold-headed finches (*Metoponia pusilla*).
 1 Niltava finch (*Niltava sundara*).
 8 Brown-headed buntings (*Euspiza aureola*).
 6 Cut-throats (*Amadina fasciata*).
 2 Canaries (*Serinus canarius*).
 2 Himalayan accentors (*Accentor altaicus*).
 3 White-collared ouzels (*Merula albocincta*).
 1 Grey-headed ouzel (*Merula castanea*).
 2 Black-throated thrushes (*Planesticus atrogularis*).
 1 Indian pitta (*Pitta brachyura*).

Order Scansores.

- 1 Gold-backed woodpecker (*Brachypternus aurantius*).
 4 Blue-throated barbets (*Cyanops asiatica*).

Crimson-breasted barbet (*Xantholema haemacephala*).

Great Himalayan barbet (*Megalaima virens*).

Order Columbac.

Rock pigeons (*Columba intermedia*).

Wood pigeon (*Columba palumbus*).

White-bellied pigeons (*Columba leuconota*).

Crested Bronze-winged doves (*Ocyphaps lophotes*).

Coral-billed pigeons or emerald doves (*Chalcophaps indica*).

Blood-breasted pigeons (*Phlogoenas cruentata*).

Pied Imperial Pigeons (*Carpophaga bicolor*).

Common crowned pigeons (*Goura coronata*).

Victoria crowned pigeons (*Goura victoria*).

Nicobar crowned pigeons (*Calenas nicobarica*).

Nicobar Imperial pigeons (*Carpophaga aenea insularis*).

Bengal green pigeons (*Crocopus phaniapterus*).

Fruit pigeons (*Ptilopus superbus*).

Magpie pigeons.

Bronze-winged pigeon (*Phaps chalcoptera*).

Ringdoves (*Columba palumbus*).

Order Halcyones.

White-breasted kingfishers (*Halcyon smyrnensis*).

Brown-winged kingfishers (*Halcyon amauropterus*).

Laughing kingfishers (*Dacelo gigantea*).

Order Bucerotes.

Great pied hornbill (*Dichoceros bicornis*).

Small pied hornbill (*Anthracoceros albirostris*).

Rufous-necked hornbill (*Aceros nepalensis*).

Rhinoceros' hornbill (*Buceros rhinoceros*).

Order Psittaci.

Greater sulphur-crested cockatoos (*Cacatua galerita*).

Lesser sulphur-crested cockatoos (*Cacatua sulphurea*).

Roseate cockatoos (*Cacatua roseicapilla*).

Bare-eyed cockatoos (*Cacatua gymnopsis*).

Rosy-crested cockatoos (*Cacatua moluccensis*).

Leadbeater's cockatoo (*Cacatua leadbeateri*).

- 1 Rosella cockatoo (*Platycercus eximius*).
- 5 Pale-headed parrakeets (*Platycercus palliceps*).
- 7 Alexandrine parrakeets (*Palæornis eupatrius*).
- 3 Red-rumped parrakeets (*Platycercus hæmatonotus*).
- 1 Red and blue macaw (*Ara macao*).
- 1 Blue and yellow macaw (*Ara ararauna*).
- 2 Hyacinthine macaws (*Anodorhynchus hyacinthinus*).
- 2 Glaucous macaws (*Anodorhynchus glaucus*).
- 3 Red-sided eclectus (*Eclectus pectoralis*).
- 1 Illiger's macaw (*Ara maracana*).
- 1 Yellow-fronted amazon (*Chrysotis ochrocephala*).
- 1 Grey parrot (*Psittacus erythacus*).
- 2 Many-coloured parrots (*Platycercus multicolor*).
- 8 Java parrots (*Palæornis alexandri*).
- 11 Ring-necked parrots (*Palæornis torquata*).
- 25 Moustached parrots (*Palæornis fasciatus*).
- 1 Great billed parrakeet (*Tanygnathus megalorhynchus*).
- 4 Red-headed lorries (*Lorius rubra*).
- 2 Ornamental lorries (*Trichoglossus ornatus*).
- 16 Undulated grass parrakeets (*Melopsittacus undulatus*).
- 2 Pale-headed parrakeets (*Platycercus palliceps*).
- 8 Cockateels (*Calopsittacus novæ hollandæ*).
- 14 Blue crowned hanging parrakeets (*Loriculus galgulus*).

Order Striges.

- 6 Indian barn owls (*Strix javanica*).
- 2 Brown hawk-owls (*Ninox scutellatus*).
- 1 Brown fish-owl (*Ketupa ceylonensis*).

Order Accipitres.

- 1 Crestless hawk-eagle (*Nisaetus bonelli*).
- 2 Australian eagles (*Uroæus audax*).
- 2 King vultures (*Otogyps calous*).
- 1 Common brown vulture (*Gyps bengalensis*).
- 2 White tailed sea-eagles (*Paliocætus ichhyætus*).
- 1 White-bellied sea-eagle (*Haliætus leucogaster*).
- 1 Pallas sea-eagle (*Haliætus leucoryphus*).
- 2 Indian house kites (*Milvus govinda*).
- 2 Peregrine falcons (*Falco peregrinus*).

Order *Plataleæ*

- 1 Spoonbill (*Platalea leucorodia*).
- 3 Black-headed ibises (*Ibis melanocephalus*).
- 2 Straw-necked ibises (*Geronticus spinicollis*).
- 2 Black ibises (*Inocelis papillosus*).
- 2 Shell ibises (*Anastomus oscitans*).

Order *Odontoglossæ*.

- 4 Flamingoes (*Phænicopterus antiquorum*).

Order *Herodiones*.

- 6 Common herons (*Ardea cinerea*).
- 4 Lesser egrets (*Herodias intermedia*).
- 4 Cattle egrets (*Bubulcus coromandus*).
- 4 Pond herons (*Ardeola grayi*).
- 2 Night herons (*Nyctiardea nycticorax*).
- 3 Adjutants (*Leptoptilus argala*).
- 3 Lesser adjutants (*Leptoptilus javanicus*).
- 10 Black-necked storks (*Xenorhynchus asiaticus*).
- 1 White-necked stork (*Dissura episcopus*).
- 9 White storks (*Ciconia alba*).
- 1 Black stork (*Ciconia nigra*).
- 2 Japanese storks (*Ciconia boyciana*).
- 3 Jabiru storks (*Pseudotantalus leucocephalus*).

Order *Stegapopodes*.

- 2 White pelicans (*Pelecanus onocrotalus*).

Order *Anseres*.

- 7 Wild or grey-leg geese (*Anser cinereus*).
- 1 Pink-footed geese (*Anser brachyrhynchus*).
- 60 Bar-headed geese (*Anser indicus*).
- 1 Spur-winged goose (*Plectropterus gambensis*).
- 8 Cotton teals (*Nettapus coromandelianus*).
- 2 Egyptian sacred goose (*Chenalopez ægyptiacus*).
- 1 Canada goose (*Bernicla canadensis*).
- 1 White-fronted goose (*Anser albifrons*).

- 8 Black swans (*Cygnus atratus*).
 8 Mute swans (*Cygnus olor*).
 1 Black-necked swan (*Cygnus nigrocollis*).
 26 Comb ducks (*Sarcidiornis melanogota*).
 85 Brahminy ducks (*Tadorna castorca*).
 15 Mallard (*Anas boschas*).
 1 Sheldrake (*Tadorna cornuta*).
 1 Pink-headed duck (*Rhodonessa caryophyllacea*).
 12 Spotted-bill ducks (*Anas pacilorhyncha*).
 39 Lesser whistling teals (*Dendroryzga javanica*).
 16 Baikal teals (*Nettion formosum*).
 2 Bronze-capped teals (*Eunetta falcata*).
 19 Common teals (*Querquedula crecca*).
 52 Gargeny teals (*Querquedula circia*).
 48 Pin-tailed ducks (*Dafila acuta*).
 4 Shovellers (*Spatula clypeata*).
 2 Wigeons (*Mareca penelope*).
 9 Summer ducks (*Æx sponza*).
 34 Mandarin ducks (*Æx galericulata*).
 16 Muscovy ducks (*Cairira moschata*).
 7 Pochards (*Fuligula ferina*).
 10 Red-headed pochards (*Aythya ferina*).
 1 Tufted pochard (*Fuligula cristata*).
 2 Variegated sheldrakes (*Tadorna variegata*).

Order Gavia.

- 11 Brown-headed gulls (*Larus brunnoicephalus*).
 9 Common terns (*Sterna fluviatilis*).
 1 Stone plover (*Isacus recurvirostris*).
 11 Brouze-winged jacanas (*Metopidius indicus*).
 18 Pheasant-tailed jacanas (*Hydrophasianus chirurus*).

Order Grallæ.

- 8 Large black-bellied sandgrouse (*Pterocles arena*).
 26 Saras-cranes (*Grus antigone*).
 15 Common cranes (*Grus communis*).
 3 Large white cranes (*Grus leucogeranus*).
 1 White-necked crane (*Grus leucauchen*).
 8 Demoiselle cranes (*Grus virgo*).

- 3 Balearic cranes (*Balearica pavonina*).
 2 Stauley cranes (*Anthropoides paradisea*).

Order *Fulicariae*.

- 36 Purple coots (*Porphyrio poliocephalus*).
 2 Coots (*Fulcia atra*).
 1 Moorhen (*Gallinula chloropus*).
 7 Water cocks (*Gallinula cinerea*).
 22 White-breasted waterhens (*Erythra phoenicura*).
 7 Black tailed waterhens (*Tridonyx ventralis*).
 1 Australian rail (*Rallus pectoralis*).
 26 Indian water-rails (*Rallus indicus*).
 94 Little crakes (*Porzana parva*).
 1 Baillon's crake (*Porzana bailloni*).
 11 Ruddy crakes (*Porzana fusca*).

Order *Gallinae*.

- 31 Common quails (*Coturnix communis*).
 34 Chukar partridges (*Caccabis chukar*).
 3 Swamp partridges (*Ortygornis gularis*).
 3 Brown-breasted partridges (*Arboricola brunneopectus*).
 2 Hill partridges (*Arboricola torqueola*).
 8 Rufous-throated hill partridges (*Arboricola rufogularis*).
 2 See-See partridges (*Ammoperdix bonhami*).
 6 Black partridges (*Francolinus vulgaris*).
 10 Bamboo partridges (*Bambusicola thoracica*).
 1 Redcrested wood partridge (*Rollulus roultroul*).
 1 Partridge (not identified).
 32 Menaul pheasants (*Lophophorus impeyanus*).
 6 Ring-necked pheasants (*Phasianus torquatus*).
 1 Cheer pheasant (*Phasianus wallichii*).
 1 Gold pheasant (*Thaumalea picta*).
 3 Silver pheasants (*Euplocamus nyctemerus*).
 2 Amherst pheasants (*Thaumalea amherstiae*).
 2 Japanese pheasants (*Phasianus versicolor*).
 9 Bornean firebacks (*Euplocamus nobilis*).
 10 Kallege pheasants (*Euplocamus horsfieldi*).
 1 Red jungle fowl (*Gallus jerrugineus*).

- 1 Javan jungle fowls (*Gallus varius*).
- 7 Sonnerat's jungle fowls (*Gallus sonnerati*).
- 5 Red spur fowls (*Galloperdix spadiceus*).
- 3 Tragopan pheasants (*Cerionis satyra*).
- 5 Crow pheasants (*Centropus rufipennis*).
- 10 Common peafowls (*Pavo cristatus*).
- 1 Common peafowl (white) (*Pavo cristatus*).
- 3 Burmese peafowls (*Pavo muticus*).
- 4 Peacock pheasants (*Polyplectron chinques*).
- 1 Argus pheasant (*Argus giganteus*).
- 1 Mexican curassow (*Craz globicera*).
- 1 Wattled guan (*Aburria carunculata*).

Order Casuarii.

- 1 One-wattled cassowary (*Casuarius uniappendiculatus*).
- 1 Two-wattled cassowary (*Casuarius bicarunculatus*).
- 1 Emu (*Dromæus nova-hollandæ*).

Order Struthiones.

- 3 Ostriches (*Struthio camelus*).
- 1 Common rhea (*Rhea americana*).

CLASS REPTILIA.

Order Emydosauria.

- 5 Gharials (*Gavialis gangeticus*).
- 1 Sharp-nosed crocodile (*Crocodilus porosus*).
- 15 Marsh crocodiles (*Crocodilus palustris*).
- 1 Mississippi alligator (*Alligator mississippiensis*).

Order Chelonia.

- 2 Elephantine tortoises (*Testudo elephantina*).
- 4 Horsfield's tortoises (*Testudo horsfieldi*).
- 4 *Testudo elongata*.
- 3 Starred tortoises (*Testudo-elegans*).
- 1 *Testudo travancorica*.
- 1 Hamilton's terrapin (*Damonia hamiltoni*).

- 2 *Emyda granosa*.
1 *Geo-emyda tricarinata*.

Order Sauria.

- 5 Geckoes (*Gecko verticillatus*).
7 Yellowish monitors (*Varanus flavescens*).
4 Sand lizards (*Lacerta agilis*).
4 Chameleon (*Chameleo vulgaris*).
1 Bengal monitor (*Varanus bengalensis*).
3 Two-banded monitors (*Varanus salvator*).

Order Ophidia.

- 1 *Typhlops porrectus*.
14 Indian pythons (*Python molurus*).
9 Indian eryx (*Eryx johni*).
1 Black sandsnake (*Gongylophis conicus*).
16 Grass snakes (*Tropidonotus stolatus*).
7 *Hypsirhina enhydris*.
24 Water snakes (*Tropidonotus piscator*).
19 Indian rat-snakes (*Zamenis mucosus*).
4 Brown rat-snakes (*Coluber helena*).
17 (*Xenocrophis cerasogaster*).
1 Ornamented tree-snakes (*Chrysopelea ornata*).
1 Tree snakes (*Dryophis pictus*).
22 Green snakes (*Dryophis mycterizans*).
4 *Lycodon aulicus*.
4 *Dipsas forstenii*.
2 Cobras (*Naia tripudians*).
11 Snake-eating cobras (*Naia bungarus*).
15 Russell's vipers (*Vipera russellii*).
2 Banded kraits (*Bungarus fasciatus*).
4 Common krait (*Bungarus caeruleus*).

CLASS ARACHNIDA.

Order Scorpiones.

- 20 Scorpions (*Buthus tamulus*).

1917-1918

**REPORT OF THE HONORARY COMMITTEE
FOR THE MANAGEMENT OF
ZOOLOGICAL GARDEN, CALCUTTA
FOR THE YEAR 1917-18.**

THE Honorary Committee have the honor to submit their report for the year ending 31st March 1918, the contents of which, as usual, is included among other items—

- (1) The Superintendent's report upon the Zoological collection.
- (2) Monthly returns of visitors and donors and their donations.
- (3) Abstract of accounts of ordinary income and expenditure.

The Committee consisted of:—

President :

The Hon'ble Mr. C. J. Stevenson-Moore,
I.C.S.

Vice-President :

P. L. Buckland, Esq., F.Z.S.

Honorary Secretary and Treasurer :

S. C. Berridge, Esq., to 4th March 1918.

W. K. Dods, Esq., from 5th March 1918.

Members of the Committee :

Nominated—

R. D. Mehta, Esq., C.I.E.

Dr. Nelson Annandale, B.A., D.S.C., C.M.Z.S.

W. R. Gourlay, Esq., C.I.E., I.C.S.

Nawab Sir Asif Kadr Saiyid Wasif Ali Mirza,
Khan Bahadur, Mahabat Jang, Nawab Bahadur
of Murshidabad, K.C.S.I., K.C.V.O.

Lieut.-Col. Charles Robert Mortimer Green, M.D.,
F.R.C.S., I.M.S.

Ambica Charan Law, Esq.

G. Girard, Esq., I.S.O., F.R.H.S.

The Hon'ble Sir Bijay Chand Mahtab, K.C.S.I.,
K.C.I.E., I.O.M., Maharajadhiraj Bahadur of
Burdwan.

Shirley Tremearne, Esq.

David Ezra, Esq.

W. K. Dods, Esq.

Nawab A. F. M. Abdur Rahman, Khan Bahadur.

Lieut.-Col. Sir L. Rogers, KT., C.I.E., M.D., I.M.S.

Lieut. Col. C. R. Stevens, M.D., I.M.S.

Sir R. S. Highet, KT., C.B.E.

C. W. E. Cotton, Esq., I.C.S.

Lieut.-Col. E. H. Brown, I.M.S., (Retired),
M.D., D.P.H., F.R.C.S.E.

W. Dods, Esq.

officio—

The Commissioners of Divisions in Bengal.

The Executive Engineer, 2nd Calcutta Division,
Public Works Department.

The Sanitary Commissioner, Bengal.

The President of the Asiatic Society of Bengal.

The Director of Public Instruction, Bengal.

The Natural History Secretary of the Asiatic
Society of Bengal.

The Director of Land Records, Bengal.

The Superintendent, Civil Veterinary Depart-
ment, Bengal.

The Professor of Comparative Anatomy and Zoology, Medical College, Bengal.

The Superintendent of the Royal Botanic Garden, Sibpur.

The Chairman of the Calcutta Corporation.

The Principal of the Bengal Veterinary College, Calcutta.

PRINCIPAL EVENTS.

Among the principal events of the year were the laying out of the new extension and the erection of the Berridge Fountain therein. Parts of the ground were razed, levelled and turfed and a number of young trees were planted, but owing to the prevailing high prices of all building materials, and of iron in particular, only those enclosures were completed for which old materials were available and the construction of a new entrance gate opening on to Sterndale Road was kept in abeyance.

The Sunk Water Garden was finished and planted with lotus and water lilies. The base is made of patent stone and the sides of brick plastered with cement. It is 150 feet long and 10 feet wide. A beautiful fountain was presented to the Garden by Mr. S. C. Berridge, who was Honorary Secretary to the Garden from 1915 to 1918. The work was designed by Mr. N. Sudlow and executed by Messrs. Martin & Co.

The fountain is constructed of buff coloured sandstone from Chunar and consists of four square columns about 10 feet high supporting a *jali* panelled dome with *chujja* cornice on brackets and a finial at top. The railing round the water

a consists of Gwalior stone with beautiful *jali* carving. The best thanks of the Committee are due to Mr. Berridge for this handsome memento in association with the garden.

A figure of Atlas made of Mirzapur stone which was surmounted the Standard Assurance Company's office in Dalhousie Square was set up at the south-east corner of the new extension, the entire cost being generously met by Mr. W. K. (S.)

The birth of a young male hippopotamus in the garden on the 5th August 1917, aroused considerable interest. The male parent had been acquired in 1907 from Carl Hagenback of Hamburg as a 12 months old calf, and the mother from the same source in 1911, when about three years old. Unfortunately the calf only survived for eight months when, for reasons which are somewhat obscure, it was killed by its mother.

IMPROVEMENTS.

Among the improvements to the existing buildings, Raneegunge tiles were substituted for the original fish-tiled roofing of the Reptile House, and a patent stone border was inserted at the entrance of certain cages in the Dumraon House, where the lower portions of the iron gratings and doors had worn away.

ANNUAL REPAIRS.

Annual repairs to the buildings of the Garden were done departmentally as usual. The quinquennial repairs to the Hermitage were satisfactorily carried out.

APPOINTMENTS AND RETIREMENTS.

Mr. W. Dods was appointed a member of the Committee on the 22nd October 1917. On the 5th March 1918, Mr. Berridge resigned his appointment as Honorary Secretary and Treasurer on leaving Calcutta. The Committee, in accepting his resignation, recorded the following resolution: "The Committee records its appreciation of the services of Mr. Berridge since 1915 and its regret at his retirement."

OBITUARY.

The Committee records its deep regret at the death of Lieut.-Col. R Bird, M.V.O., C.I.E., I.M.S., for very many years a member of the Committee, and offers its sincere condolences to Mrs. Bird in her bereavement.

STAFF AND ESTABLISHMENT.

There was no change in the superior staff during the year. The *personnel* consists of:—

SUPERIOR STAFF.*Superintendent:*

Mr. Bijay Krishna Basu, G.B.V.C., C.M.Z.S.

Assistant Superintendent:

Babu Somadev Ganguli.

Store-keeper:

Babu Jugal Kishore Roy.

Overseer:

Babu Niranjan Mukerji.

Clerk :

Sabu Tarak Chandra Chatterji.

Gate Clerk :

Sabu Panchanan Mukerji.

VISITORS.

There was a falling off in the attendance of visiting visitors during the year, the turnstile records indicating a total of 583,343 visitors, a decrease of 88,152 as compared with the figures for 1917, attributable to reduced train services and want of facilities generally for travel. In the following table are shown the number of visitors and the gate receipts for the last three years:—

Year.	Visitors.	Receipts.	
		Rs.	As.
1915-16 ...	... 598,024	44,332	13
1916-17 ...	... 671,495	50,024	11
1917-18 ...	... 583,343	44,564	0

A large number of children under four years of age and school children in charge of their teachers are admitted free. On the day of the Fancy Fair when no individual charge is levied, it is estimated that about 11,600 people entered the Garden. In addition, 53,480 persons visited the Garden on free admission, of which a list with the number of visitors for each day will be found in Appendix C.

Special arrangements were made for the admission without payment of soldiers on leave and convalescents.

FINANCE.

In spite of the decrease in gate receipts the financial condition of the Garden during the year under review continued to be satisfactory. This is

due to the strict economy which was observed in all departments. Expenditure was limited to necessary upkeep, and the policy of postponing new works was continued.

The details of income and expenditure are summarised in Appendix A.

GARDEN.

The Garden was well maintained, and there was a particularly good show of flowering annuals in the cold weather. For a number of exhibits sent to the Agri-Horticultural Society's Exhibition the Head Gardener was awarded a money prize.

CONCLUSION.

The Committee desire to express their thanks to the Corporation of Calcutta for their continued generosity in remitting the consolidated rates in respect of the Gardens.

The thanks of the Committee are also due to those ladies and gentlemen who have added to the Zoological collection by donations, a list of which is given in Appendix D. Thanks are also due to those who kindly offered to present animals to the Garden, but whose offers could not be accepted either because the particular species of animals were already sufficiently well represented, or owing to want of accommodation.

The Committee also desire to express their thanks to the Railways and Steamer Companies for the conveyance of animals belonging to the Gardens free of charge.

W. K. DODS,
Honorary Secretary.

C. J. STEVENSON-MOORE,
President.

SUPERINTENDENT'S REPORT.

I HAVE the honour to submit the following report on the existing condition and the progress of the menagerie of the Gardens.

The following comparative table shows how various collection of specimens in the Gardens stood during the last four years:—

Year.		Mammals.	Birds.	Reptiles.
1914-15	...	334	1,893	246
1915-16	...	351	1,940	198
1916-17	...	318	1,975	263
1917-18	...	316	2,026	199

ACQUISITIONS.

A complete list of acquisitions will be found in Appendix D. Deserving special mention are a Malayan bear presented by Mr. I. H. Burkill and two Markhors and a Kiang (*Equus hemionus*) purchased.

Births.

Among the births in the Garden during the year may be noticed—a hippopotamus, 2 cats, a gayal and a nilgai. One of the Cassowaries laid eggs but did not hatch them as did the Chakar partridges and Nicobar Imperial pigeons.

Deaths.

In addition to the baby hippopotamus who was killed by his mother the principal losses during the year were:—

2 Two-wattled Cassowaries.

1 Lynx.

- 1 Kangaroo (*albino*).
- 3 Tigers.
- 1 Rufous Kangaroo.
- 2 Gayals.
- 1 Phayre's Leaf Monkey.
- 1 Ostrich.
- 1 Orang-utang.
- 1 White-handed Gibbon.
- 1 Markhor.
- 3 Blood Pheasants.

PATHOLOGICAL DEPARTMENT.

The work in this department was carried as usual. Thanks are due to the Principal Bengal Veterinary College, for his kind help in several important cases.

Post-mortem examinations were made of almost all the animals that died during the year. The following is a list of the more important cases which present the principal subjects for pathological diagnosis given below:—

Number of case.	Subject.
Anæmia ...	... 1 Sloth bear.
Broncho-pneumonia ...	... 1 Rhesus monkey (<i>golden var.</i>).
Congestion of the liver ...	... 1 Leopard cub, 1 Tiger cub.
Congestion of the lungs ...	... 1 Lynx, 1 White-tailed sea-eagle.
Cage paralysis ...	... 1 Golden cat, 1 Sambur deer, 1 Junco cat.
Carditis ...	... 1 Gayal.
Diarrhœa ...	... 1 Uryal.
Distrochia ...	... 1 Pig.

... ..	..	1 Uryal, 1 Himalayan bear, 1 Sloth bear.
itis ... ..	...	1 Hanuman, 1 Orang-utang.
degeneration of the liver	1	Polecat Ferret, 1/2 Mallard, 1 Sand grouse, 1 Nicobar pigeon, 1 Chakar partridge.
degeneration of the heart	1	Red-headed crane.
cholera ... ..	...	6 Monal pheasants, 8 Tragopan pheasants, 3 Kalij pheasants.
ral debility ... ..	...	5 Jungle fowl, 1 Monal pheasant.
itis ... ..	...	1 Gold pheasant, 1 Wild dog, 1 Wolf.
ro-enteritis ... ..	...	1 Tiger, 1 Malayan bear, 1 Himalayan bear.
apoplexy ... ..	...	1 Cassowary, 1 Peacock pheasant, 1 Tragopan pheasant, 1 Monal pheasant, 1 Gold pheasant, 1 Snow pigeon.
y... ..	...	1 Adjutant, 1 Burmese peafowl, 1 Sambur deer, 1 Thamin deer, 1 Comb duck.
tinal catarrh ... ..	...	1 Chat thrush, 1 Pigeon, 1 Red-bellied flying squirrel, 1 Peacock, 1 Pallas Fishing Eagle.
itis ... ..	...	1 Kangaroo (<i>albino</i>), 1 Spotted deer.
o-peritonitis ... ..	...	1 Gayal.
amonia ... ..	...	1 Four-horned antelope, 1 Green monkey, 1 Tiger.
lysis ... ..	...	1 Otter, 1 Leopard cub.
mia ... ..	...	1 Rufous kangaroo.
rets ... ..	...	1 young Spotted deer.
umatism ... ..	...	1 Two-wattled cassowary, 1 Ostrich.
icæmia ... ..	...	1 Jungle cat.
erculosis ... ..	...	1 White-handed gibbon, 1 Celebes black monkey.

The following table gives the chief items of expenditure under "Food of animals" for the year 1917-18:—

			Rs.	▲	P.
Beef	...	...	5,054	5	6
Mutton	...	...	906	10	6
Bread	...	...	554	4	6
Worms	...	...	234	15	6
Live fish	...	...	291	15	9
Plantain	...	...	518	12	6
Grasshoppers	...	...	36	0	0
Grains, such as, gram, rice, wheat, etc., etc.			17,108	1	6
Shattoo	...	...	185	8	0
Miscellaneous food, such as, leaves, fowl, canary, kangney, etc., etc.	...	...	5,466	4	3
Milk	...	...	281	0	3
Total	...	...	30,637	14	3

GENERAL CONDITION OF THE ANIMALS.

The general health of the animals was satisfactory. There were no epidemics amongst the mammals and the larger carnivores were kept in splendid condition, while the Himalayan animals such as, Markhor, Tahr, Serow, Uryal, Catbear did remarkably well.

In the aviary there was an outbreak of chicken cholera amongst a lot of newly purchased pheasants, which were at once placed in the segregation shed under observation, and the disease was suppressed without difficulty.

APPENDIX A.

I.—Comparative statement of receipts for 1916-17
and 1917-18.

	1916-17.			1917-18.		
	Rs.	A.	P.	Rs.	A.	P.
Opening balance	29,792	12	9	21,161	9	7
Interest	237	6	6	237	6	6
Donations and subscriptions ...	2,008	0	0	1,948	0	0
Entrance receipts	50,024	11	0	44,564	0	0
Lot	5,644	0	0	5,664	0	0
Marriage, rickshaw, elephant ride, etc., etc.	982	10	0	975	0	0
Printing	176	0	0	210	0	0
Stationery	175	0	0	229	0	0
Telephone	2,106	0	0	2,303	0	0
Other miscellaneous receipts ...	4,005	3	0	4,780	5	0
Government contribution	20,000	0	0	20,000	0	0
Total	1,15,151	11	3	1,02,072	5	1
Receipts of 31st March 1916, which were included in 1916-17.	125	4	0	.....	
Receipts of 31st March 1917, which are included in 1917-18.	.....			87	5	0
Total	1,15,276	15	3	1,02,159	10	1
Receipts of 31st March 1917, which are included in 1917-18.	87	5	0	.....	
Receipts from 28th to 31st March 1918, which will be included in 1918-19.	.....			799	13	0
GRAND TOTAL	1,15,189	10	3	1,01,359	13	1

*II.—Comparative statement of expenditure for
1916-17 and 1917-18.*

	1916-17.			1917-18.		
	Rs.	Α.	P.	Rs.	Α.	P.
Establishment	8,742	8	6	8,822	4	
Food of animals	30,183	9	0	30,637	14	
Purchase of animals	6,923	4	0	6,928	14	
Transport of animals	981	5	9	451	3	
Miscellaneous contingencies	8,895	6	5	8,757	4	
Repairs of roads	2,566	14	6	3,232	15	
Do. of buildings	9,844	14	0	11,262	2	
Original construction	20,408	5	0	4,876	3	
Garden construction	5,481	13	6	7,000	6	
Total	94,028	0	8	81,969	4	
Closing balance	21,161	9	7	19,390	8	
GRAND TOTAL	1,15,189	10	3	1,01,359	3	

APPENDIX C.

A list of free days showing free visitors during the year 1917-18.

16th April	1917	...	...	2,848
7th May	"	...	...	3,222
4th June	"	...	...	7,366
2nd July	"	...	...	2,629
6th August	"	...	...	5,479
3rd September	"	...	...	7,217
1st October	"	...	...	4,615
5th November	"	...	...	6,690
3rd December	"	...	...	5,321
21st January	1918	...	...	2,972
18th February	"	...	...	2,599
18th March	"	...	...	2,422
				<hr/>
		Total	...	53,480
				<hr/>

APPENDIX D.

List of Donors, 1917-18

A

Apperley, Mr. H. W. ... 1 Spotted tiger civet (*albino*)

B

Buttar, Mr. J. A. ... 1 Black leopard, 1 leopard.

Burkill, Mr. I. H. ... 1 Malayan bear.

Bonaglia, Mr. P. ... 1 Chameleon.

Bhunja, Mr. S. N. ... 1 Four-horned antelope.

C

Chatre, Mr. D. K. ... 2 Nilgais.

Chatterji, The Hon'ble Mr. Justice D. ... 1 Spotted deer.

Crichton, Mrs. A. K. ... 1 Indian robin, 1 Fly-catcher, 2 common amadavade, 1 Brown thrush.

D

Das Gupta, Babu Akhoy Kumar 5 Cobras.

Deputy Conservator of Forests, Port Blair. 4 Cochin-china parakeets, 1 Andaman banded rail.

District Magistrate, 24-Parganas 1 Tiger cub.

District Magistrate, Howrah ... 1 Hanuman.

Doda, Mr. W. K. ... 5 Lesser-whistling teals, 33 Pheasant-tailed jacanas, 2 Crow pheasants, 34 Cattle egrets, 13 Purple coots, 2 Grey-headed mynas, 1 Indian tree—pie, 1 White-breasted kingfisher, 15 Cotton teals, 16 Bronze winged jacanas, 1 big cattle egret, 15 Common coots, 12 White-breasted water-hens, 13 Corn crakes, 6 Indian water rails, 84 Grebes, 1 Common teal, 10 Bitterns, 1 Gargeny teal, 5 Indian foxes.

G	
Gregson, Mrs. A.	... 4 Nut-meg finches, 4 Black-headed gro 10 Common amadavade, 6 Silv 1 Fly-catcher, 2 Java sp 1 Button quail, 2 Red-ventedbu
Gruning, Mrs.	... 1 Indian mouse deer.
Galstaun, Mr. J. C.	... 1 Leopard, 2 sloth bear cubs.
Ghosh, Babu Manmatha Nath	... 1 Leopard cub.
Granville, Mr. F. B.	... 1 <i>Dipsas forstenii</i> .

H

Hutchings, Mr. A.	... 1 Python.
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K

Kirkpatrick, Mr. W.	... 1 Python.
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L

Lynch, Mrs. L.	... 1 Hog deer.
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M

Murshidabad, Nawab Bahadur of	1 Sambur deer.
Manger, Miss C.	... 1 Pair jungle fowl.
Morrison, Mr. R. M.	... 1 Canary.
Moore, Miss G.	... 1 Fishing cat.

P

Plummer, Mr. H. L.	... 1 Macaque monkey.
Perris, Mrs. A. E.	... 1 Common peacock.
Pereira, Mr. J. E. F.	... 2 Leopard cubs.

R

Roy, Kumar Bimalendra	... 1 Sloth bear cub.
Robertson, Mrs. F. D. C.	... 1 Jungle cat.

S

Mr. G. L.	...	1 Indian antelope.
Mr. D.	...	1 Sambur deer.
a, Kumar Debendra Narain	1	Leopard cub.
on, Mrs. F. W.	...	1 Indian antelope.
, Mrs. F. St. R.	...	1 Indian antelope.
a, Babu Surendra Narain	...	1 Python.
na, Capt. K. B.	...	2 Pittas.
rt, Mr. A. M....	...	2 Jarboas.

T

er, Mr. E. A.	...	1 Hantman, 1 Macaque monkey.
die, Mr. T. C.	...	1 Python.

V

ent, Mr. C.	...	1 Hog deer.
-------------	-----	-------------

W

son, Mrs. L.	...	2 Java sparrows, 4 common amadavade 6 Nut-meg finches, 9 Black-headed grosbeaks.
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1918-1919

**REPORT OF THE HONORARY COMMITTEE
FOR THE MANAGEMENT OF THE
ZOOLOGICAL GARDEN, CALCUTTA
FOR THE YEAR 1918-19.**

THE Honorary Committee have the honour to submit their report for the year ending 31st March 1919, the contents of which, as usual, include among other items,—

- (1) The Superintendent's report upon the Zoological collection.
- (2) Monthly returns of visitors and a list of donors and their donations.
- (3) Abstract of accounts of ordinary receipts and expenditure.

The Committee consisted of:—

President :

The Hon'ble Mr. C. J. Stevenson-Moore, C.V.
I.C.S.

Vice-President :

P. L. Buckland, Esq., F.Z.S.

Honorary Secretary and Treasurer :

W. K. Dods, Esq., to 28th February 1919.
W. Dods, Esq., from 1st March 1919

Members of the Committee :

Nominated—

- R. D. Mehta, Esq., C.I.E.
- Dr. Nelson Annandale, B.A., D. Sc., C.M.Z.S.
- W. R. Gourlay, Esq., C.I.E., I.C.S.
- H. J. McIntosh, Esq.

S

Mr. G. L.	...	1 Indian antelope.
Mr. D.	...	1 Sambur deer.
a, Kumar Debendra Narain	†	Leopard cub.
on, Mrs. F. W.	...	1 Indian antelope.
, Mrs. F. St. R.	...	1 Indian antelope.
a, Babu Surendra Narain	...	1 Python.
na, Capt. K. B.	...	2 Pittas.
rt, Mr. A. M....	...	2 Jarboas.

T

er, Mr. E. A.	...	1 Hanuman, 1 Macaque monkey.
die, Mr. T. C.	...	1 Python.

V

ent, Mr. C.	...	1 Hog deer.
-------------	-----	-------------

W

on, Mrs. L.	...	2 Java sparrows, 4 common amadavade 6 Nut-meg finches, 9 Black-headed grosbeaks.
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1918 - 1919

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- H. J. McIntosh, Esq.

Nawab Sir Asif Kadr Saiyid Wasif Ali Mirza,
Khan Bahadur, Malfabat Jang, Nawab Bahadur
of Murshidabad, K.C.S.I., K.C.V.O.

Lieutenant-Colonel Charles Robert Mortimer
Green, M.D., F.R.C.S., I.M.S.

G. Girard, Esq., I.S.O., F.R.H.S.

The Hon'ble Sir Bijay Chand Mahtab, K.C.S.I.,
K.C.I.E., I.O.M., Maharajadhiraj Bahadur of
Burdwan.

Shirley Tremearne, Esq.

David Ezra, Esq.

W. Dods, Esq.

Nawab A. F. M. Abdur Rahman, Khan Bahadur.

Lieutenant-Colonel Sir L. Rogers, Kt., C.I.E., M.D.,
I.M.S.

Lieutenant-Colonel C. R. Stevens, M.D., I.M.S.

C. W. E. Cotton, Esq., I.C.S.

Lieutenant-Colonel E. H. Brown, I.M.S. (Retired),
M.D., D.P.H., F.R.C.S.E.

H. F. Yeoman, Esq.

Babu Surendra Nath Laha.

Ex-officio

The Commissioner of Divisions in Bengal.

The Executive Engineer, 2nd Calcutta Division,
Public Works Department.

The Sanitary Commissioner, Bengal.

The President of the Asiatic Society of Bengal.

The Director of Public Instruction, Bengal.

The Natural History Secretary of the Asiatic
Society of Bengal.

The Director of Land Records, Bengal.

The Superintendent, Civil Veterinary Depart-
ment, Bengal.

The Professor of Comparative Anatomy and
Zoology, Medical College, Bengal.

The Superintendent of the Royal Botanic Garden
Sibpur.

The Chairman of the Calcutta Corporation.

The Principal of the Bengal Veterinary College.

PRINCIPAL EVENTS.

The transfer by the Government of Bengal of the Zoological Gardens of a plot of land including a portion of the road known as Duel Avenue and a piece of the compound of the Meteorological office was effected during the year under review. The plot formed an acute angled wedge between the former area of the Zoological Gardens and the extension. The inclusion has rounded off the boundary and improved the appearance of the Gardens.

Work on the new extension was steadily carried on. The western portion was enclosed with iron-fencing to form a big paddock for the ruminants. On the south a new enclosure was made for the markhors. Within a high fence a crag-like cement structure was built up round the old survey mark, reproducing a mountain peak in miniature and furnishing the inmates with a colourable imitation of their natural habitat.

The boundary wall of the new extension as well as of the Hermitage along the Alipore Road was reconstructed in connection with the re-alignment of the Alipore Road which was sanctioned by Government.)

The birth of another young male Hippopotamus in the Garden on 28th July 1918 was of considerable interest. It will be remembered that the first

alf born in the previous year was killed by its mother when scarcely more than a week old. The new calf is thriving well and is a great attraction to visitors.

IMPROVEMENTS.

Various improvements were carried out during the year. The brick wall round the Hippopotamus Enclosure was further raised as the male hippo tried several times to scale it and seemed likely to succeed.

The Tapir Enclosure was found insufficient to accommodate the growing number of these animals, and it was thought expedient to make additions to the existing building. New shelters were therefore constructed on the western side of the building facing the lake and the animals have now ample accommodation.

A new segregation shed was built in the Begunbari compound for the accommodation of sick animals.

ANNUAL REPAIRS.

The annual repairs to the buildings of the garden were carried out departmentally as usual and a good deal of painting was done during the year to the fences and iron-work.

APPOINTMENTS AND RETIREMENTS.

Mr. H. F. Yeoman and Babu Surendra Nath Laha were appointed members of the Committee of Management on the 17th April 1918 and 20th

February 1919, respectively. On the 4th January 1919, Sir R. S. Highet, K.T., C.B.E., resigned his membership on leaving India for good and Babu Ambica Charan Law resigned on 18th February 1919 owing to ill-health. On 1st March 1919 Mr. W. K. Dods resigned his appointment as Honorary Secretary and Treasurer upon proceeding home and Mr. William Dods was appointed to the vacancy.

STAFF AND ESTABLISHMENT.

There was no change in the superior staff except in the case of Gate Clerk, Babu Panchanand Mukherji, who died on 22nd October 1918. Babu Doyal Chandra Dass, retired Gate Clerk of the Garden, was appointed in his place as a temporary measure. On 1st January 1919 the services of the Superintendent were recognised by Government by the conferment of the title of Rai Bahadur upon him. The personnel consists of:—

SUPERIOR STAFF.

Superintendent.

Mr. Bijay Krishna Basu, G.B.V.C., C.M.Z.S.

Assistant Superintendent.

Babu Somadev Ganjali.

Store-keeper.

Babu Jugal Kishore Roy.

Overseer.

Babu Niranjan Mukerji.

Clerk.

Babu Tarak Chandra Chatterji.

Gate Clerk.

Babu Doyal Chandra Dass.

VISITORS.

The attendance of paying visitors during the year was satisfactory, the turnstile records indicating a total for the year of 635,497, an increase of 52,154 as compared with the figures for 1917-18.

The following is a comparative table of visitors and gate receipts for the last three years:—

Year.	Visitors	Receipts.	
		Rs.	A. P.
1916-17	671,495	50,024	11 0
1917-18	583,343	44,564	0 0
1918-19	635,497	48,490	0 0

A large number of children under four years of age and school children in charge of their teachers were admitted free. On the day of the Fancy Fair when no individual charge is levied, it is estimated that about 16,000 visitors entered the Garden. In addition 32,203 persons visited the Garden on free days, of which a list with the number of visitors on each will be found in Appendix C.

Special arrangements were made for the admission without payment of soldiers on leave and convalescent.

FINANCE.

The financial condition of the Garden has been on the whole satisfactory and in spite of the fact that the cost of food-grains, has considerably increased, the expenditure has been kept down by rigid economy.

GARDEN.

The Garden was kept in excellent condition throughout the year. The lawns and paths were in good order and the show of flowers was a special attraction to the visitors.

CONCLUSION.

The Committee desire to express their thanks to the Corporation of Calcutta for their continued generosity in remitting the consolidated rates in respect of the Gardens.

The thanks of the Committee are also due to those ladies and gentlemen who have added to the Zoological collection by donations, a list of which is given in Appendix D, as well as to those who kindly offered to present animals to the Garden but whose offers could not be accepted, either because the particular species of animals was already sufficiently well represented, or owing to want of accommodation.

The Committee in conclusion desire to express their thanks to the Railways and Steamer Companies for the conveyance of animals belonging to the Gardens free of charge.

WILLIAM DODS,
Honorary Secretary.

C. J. STEVENSON-MOORE,
President.

SUPERINTENDENT'S REPORT.

I HAVE the honour to submit the following report on the existing condition and the progress of the Zoological collection.

The following comparative table shows how the various collection of specimens in the Gardens has stood during the last four years:—

Year.	Mammals.	Birds.	Reptiles.
1915-16	... 351	1,940	198
1916-17	... 318	1,975	263
1917-18	... 316	2,026	199
1918-19	... 299	1,944	171

ACQUISITIONS.

Among other acquisitions the following deserve special mention:—

Hoolock	... ..	Presented by M. Barnett, Esq.
Wreathed Hornbill	... ..	Ditto E. H. Turner, Esq.
White-tailed Guereza Monkeys	...	Purchased.
Lion Cubs	... ..	Born.
Malabar Langur	... ..	Presented by F. Thompson, Esq.
Green Monkey	... ..	Born.
Ostriches	... ..	Purchased.
Grow-antle. 30 Dec 1919	... ..	Presented by V. H. F. Clarke, Esq.
Malayan Tapir	... ..	Born.
Hippopotamus	... ..	Do.
Goral	... ..	Presented by W. K. Dods.
Tiger	... ..	Ditto Raja of Khairagarh.
Snow Leopard	... ..	Purchased.
Great Kangaroo	... ..	Born.
Barasingha Deer	... ..	Presented by Lady C. Tottenham.

1 Black Leopard	...	...	Presented by Hassimuddin Hassain, Esq.
1 Serow	...	...	Purchased.
1 Black Leopard	...	...	} Presented by Maulvi Habibulla.
1 Malayan Bear	...	...

The following consignment of animals was received from the Taronga Zoological Park Trust, Sydney, on exchange during the year:—

2 King Parrakeets.	2 Yellow-collared Parrakeets.
3 Red-rumped Parrakeets.	3 Rosellas.
3 Pennant's Parrakeets.	8 Cockateels.
14 Black Swans.	

Births.

The following animals were born in the Gardens during the year:—

2 Lion Cubs.	1 Malayan Tapir.
1 Green Monkey.	1 Hippopotamus.
3 Spotted Deer.	1 English Wild Cattle.
2 Sambar Deer.	1 Great Kangaroo.
3 Sonnerat's Jungle Fowl.	1 Nilgai.
1 Leopard.	1 Banteng.

Deaths.

The following were the principal losses during the year:—

1 Great Wallaroo.	1 Wattled Cassowary.
2 Pumas.	1 Gayal
2 Lion Cubs.	1 Goral.
1 Clouded Leopard.	1 Gold Marmoset.
1 White Peafowl.	1 Snow Leopard.
5 Great Kangaroos.	1 Uryal.
1 Serow.	

PATHOLOGICAL DEPARTMENT.

The work in this department was carried on as usual. Thanks are due to the Principal, Bengal Veterinary College, for his kind help in important cases.

Post-mortem examinations were made of almost all the animals that died during the year. A list of the more important cases which presented the principal subjects for pathological diagnosis is given below:—

Number of case.	Subject.
broncho-pneumonia ...	1 Large Indian squirrel.
congestion of the liver ...	1 Puma.
leg paralysis ...	1 Celebes Black Monkey 1 Barking Deer.
diarrhœa ...	1 Barking Deer, 1 Hanuman.
colic ...	1 Wild Dog.
enteritis ...	1 Clouded Leopard, 1 Gayal.
atty degeneration of the liver ...	1 Pin-tailed Duck, 1 Hanging Parrakeet, 1 Hunting Cissa.
general debility ...	1 Monal Pheasant, 1 Kalij.
colitis ...	1 Fishing Cat, 1 Leopard Cat.
gastro-enteritis ...	1 Three-coloured Squirrel, 1 Lynx, 1 Wolf Cub.
apoplexy ...	5 Cat Bears, 1 Great Wallaroo, 1 Snow Pigeon, 1 Snow Leopard.
ery ...	1 White Peafowl, 2 Great Kangaroos, 1 Four-horned Antelope.
intestinal Catarrh ...	1 Alexandrine Parrakeet, 1 Spotted Bill Duck.
pneumonia ...	1 Gold Marmoset, 1 Cat Bear, 1 Monal Pheasant, 1 Crested Fireback.
neuro-pneumonia ...	1 Red-bellied Flying Squirrel
peritonitis ...	1 Indian Squirrel.

Paralysis	...	...	1 Pied Hornbill.
Pyæmia	...	...	1 Spotted Deer (alb.).
Snake-bite	...	...	2 Nilgais.
Tuberculosis	...	...	1 Arabian Baboon.

The following table gives the chief items of expenditure under "Food of animals" for the year 1918-19 :—

			Rs	A.	P.
Beef	...	...	4,849	14	5
Mutton	...	...	670	5	0
Bread	...	...	612	3	0
Worms	...	...	258	0	0
Live fish	...	...	291	15	9
Plantain	...	...	419	11	3
Grasshoppers	...	...	36	0	0
Grains, such as, gram, rice, wheat, etc., etc.	...	...	17,065	14	5
Shattoo	...	...	185	8	0
Miscellaneous food, such as, leaves, fowl, Cauary, Kangney, etc., etc.	...	...	5,161	9	0
Milk	...	...	293	6	6
Total	...	...	29,784	7	5

GENERAL CONDITION OF THE ANIMALS.

Except for an epidemic amongst the marsupials the general condition of the animals has been satisfactory. The mammals and birds have been free from epidemic disease and the larger and the smaller carnivora are in prime condition.

The general health of the birds has been very good and there have been no losses calling for special mention.

APPENDIX A.

*Comparative statement of Receipts for 1917-18
and 1918-19.*

	1917-18.			1918-19.		
	Rs	A.	P.	Rs.	A.	P.
Opening balance ...	21,161	9	7	19,390	8	11
Interest ...	237	6	6	237	6	6
Donations and subscriptions ...	1,948	0	0	668	0	0
Insurance receipts ...	44,564	0	0	48,490	0	0
Postage ...	5,664	0	0	6,494	0	0
Fare, rickshaw, elephant ride, etc., etc.	975	0	0	1,545	4	0
Printing ...	210	0	0	240	0	0
Electric ...	229	0	0	287	0	0
Telephone ...	2,303	0	0	2,378	0	0
Other receipts	4,780	5	0	5,870	5	3
Government contribution ...	20,000	0	0	20,000	0	0
Total ...	1,02,072	5	1	1,05,600	8	8
Receipts of 31st March 1917, which were included in 1917- 18.	87	5	0	.....	
Receipts of 28th to 31st March, which are included in 1918-19.	.....			799	13	0
Total ...	1,02,159	10	1	1,06,400	5	8
Receipts from 28th to 31st March 1918, which are included in 1918-19.	799	13	0	....	
Receipts of 31st March 1919, which will be included in 1919- 20	.....			168	14	0
GRAND TOTAL ...	1,01,359	13	1	1,06,231	7	8

*II.—Comparative statement of Expenditure for
1917-18 and 1918-19.*

	1917-18		1918-19	
	Rs.	A. P.	Rs.	A.
Establishment ...	8,822	4 0	8,441	3
Food of animals ...	30,637	14 3	29,784	7
Purchase of animals ...	6,928	14 0	9,357	14
Transport of animals ...	451	3 9	2,030	14
Miscellaneous contingencies ...	8,757	4 7	8,317	3
Repairs of roads ...	3,232	15 9	1,444	0
Do. of buildings ...	11,262	2 9	6,141	10
Garden construction ...	4,876	3 1	4,792	13
Original construction ...	7,000	6 0	1,462	0
Total ...	81,969	4 2	71,772	3
Closing balance ...	19,390	8 11	34,459	4
GRAND TOTAL ...	1,01,359	13 1	1,06,231	7

APPENDIX B.

*Summary of Visitors and Gate receipts during
1918-19.*

Month and year.				Number of visitors.	Receipts.
					Rs. A. P.
April	1918	...	...	39,119	3,052 15 0
May	"	...	...	37,750	2,958 0 0
June	"	...	...	42,531	3,352 11 0
July	"	...	...	51,298	3,543 9 0
August	"	...	...	42,313	3,294 3 0
September	"	...	...	48,417	3,635 14 0
October	"	...	...	84,858	5,945 3 0
November	"	...	...	52,721	4,125 2 0
December	"	...	...	58,280	4,748 5 0
January	1919	...	...	65,651	4,844 5 0
February	"	...	...	59,739	4,679 6 0
March	"	...	...	52,820	4,310 7 0
Total				635,497	48,490 0 0

APPENDIX C.

*A list of Free days showing free visitors during
the year 1918-19.*

15th April	1918	...	...	2,003
27th May	"	...	...	2,641
17th June	"	...	...	2,330
22nd July	"	...	...	2,033
26th August	"	...	...	2,349
23rd September	"	...	..	2,196
28th October	"	...	...	2,740
25th November	"	...	...	2,754
9th December	"	...	...	2,731
13th January	1919	...	...	4,036
10th February	"	...	...	3,346
10th March	"	...	...	3,044
		Total	...	<u>32,203</u>

APPENDIX D.

List of Donors, 1918-19.

A

- y, Babu Kalidas ... 1 Hyæna cub.
l, Deputy Commissioner ... 1 Spotted deer.

B

- ett Mr. M. ... 1 Hoolock.
clough, Mr. B. ... 1 Leopard cat.
ner, Mr. W. S. ... 1 Leopard.
ridge, Mr. H. H. ... 1 Python.
ett, Mr. L. H. ... 1 Rock-horned owl.
n, Mrs. E. H. ... 1 Flamingo, 4 Barheaded geese.

C

- avarti, Hon'ble Mr. B. ... 1 Leopard.
ler, Mr. S. C. ... 2 Hog deer.
lhury, Babu Gopal Das ... 1 Hog deer, 1 Barking deer.
Behar, Prince Victor of ... 1 Tiger cub.

D

- Mrs. L. ... 1 Large Indian squirrel.
Mrs. W. K. ... 1 Common otter.
Mr. W. ... 1 Indian roller, 3 Brown-winged kingfishers, 46 Cattle egrets, 19 Purple coots, 17 Pheasant-tailed jacanas, 9 Chestnut bitterns, 15 Brown-winged jacanas, 3 Lesser-whistling teals, 6 Yellow bitterns, 18 Cotton teals, 4 Pochards, 4 Gadwals, 3 Common coots, 1 Pin-tailed duck, 4 Little bitterns, 24 Corn crakes, 37 Grebes, 1 Common otter, 2 Marsh cocks, 2 Indian rails, 4 Ruddy crakes, 2 Common teals, 1 Goral.

E

Edye, Mr. H. H., I.C.S. ... 1 Wild dog.

F

Fields-Clarke, Mr. V. H. T. ... 2 Brown-antlered deer.

G

Glennie, Mr. C. ... 1 Python.
 Ghosh, Mr. T. P. ... 1 Adjutant.
 Gordon, Mrs. A. D. ... 1 Hanuman, 1 Macaque Monkey.

H

Heysham, Mrs. L. ... 1 Alexandrine Parrakeet.
 Hyde, Mr. J. W. ... 1 Leopard.
 Hanna, Mr. H. B. ... 1 Javan Mouse-Deer.
 Holmes, Mr. B. W. ... 1 Common Otter.
 Holtum, Mr. A. K. ... 1 Wild Boar.
 Hassain, Mr. Hassimuddin ... 1 Black Leopard.
 Habibullah, Maulavi ... 1 Black Leopard, 1 Malayan Bear.

K

Khairagarh, Raja of ... 1 Tiger.

L

Locket, Mr. A. ... 1 Ant-eater.
 Lowman, Mr. F. J. ... 1 Leopard, 1 Himalayan Bear.
 Lister, Mr. R. S. ... 1 Leopard Cat.

M

Macleay, Mr. R. ... 1 Wild Dog.
 Marcolyn, Mr. H. B. ... 1 Black-rumped Magpie.
 Mullins, Mr. R. ... 1 Bengal Monitor.
 Mawson, Mr. O. ... 1 Malayan Bear.
 Mukherji, Babu Sashibhusan ... 1 Spotted Deer.

O

Oakley, Mr. L. ... 1 Marsh Crocodile.

R

Chowdhuri, Babu J. K. ...	1 Crested Serpent Eagle.
ed, Mr. W. A. ...	1 Nilgai.
osmalecocq, Lt.-Col. C. A. ...	1 Himalayan Bear.

S

omov, Mrs. S. J. ...	1 Hog Deer.
h, Babu Kanilal ...	1 Indian Antelope.
n, Babu Anath Nath ...	1 Four-horned Antelope.
raikella, Feudatory Chief of ...	2 Ant-eaters.
aw, Babu Charan Behari ...	1 Spotted Deer.
evens, Mr. H. H. ...	1 Palm Civet.
an, Miss D. M. C. ...	1 Indian Porcupine.
ewart, Mr. D. M. ...	1 Wolf Cub.

T

ylor, Mr. R. W. ...	1 Fishing Cat.
rner, Mr. E. H. ...	1 Wreathed Hornbill.
ompson, Mr. ...	1 Snake-eating Cobra.
ompson, Mr. F. ...	1 Malabar Langur.
tteuham, Lady C. I. ...	1 Barasingha Deer.

W

hitworth, Mr. R. ...	1 Indian Antelope.
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1919-1920

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FOR THE YEAR 1919-20.**

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C.V.O., I.C.S.

Vice-President :

The Hon'ble Mr. Justice P. L. Buckland, F.Z.S.

Honorary Secretary and Treasurer :

W. Dods, Esq.

Members of the Committee :

minated—

R. D. Mehta, Esq., C.I.E.

Dr. Nelson Annandale, B.A., D.Sc., C.M.Z.S.

W. R. Gourlay, Esq., C.I.E., I.C.S.

H. J. McIntosh, Esq.

Nawab Sir Asif Qadr Saiyid Wasif Ali Mirza,
Khan Bahadur, Mahabat Jang, Nawab Bahadur
of Murshidabad, K.C.S.I., K.C.V.O.

G. Girard, Esq., I.S.O., F.R.H.S.

The Hon'ble Sir Bijay Chand Mahtab, K.C.S.I.
K.C.I.E., I.O.M., Maharajadhiraja Bahadur of
Budwan.

Shirley Tremearne, Esq.

David Ezra, Esq.

Nawab A. F. M. Abdur Rahaman, Khan Bahadur.

Lieutenant-Colonel Sir L. Rogers, KT., C.I.E., M.D.,
I.M.S.

C. W. E. Cotton, Esq., I.C.S.

Lieutenant-Colonel E. H. Brown, I.M.S., (Retired)
M.D., D.P.H., F.R.C.S.E.

H. F. Yeoman, Esq.

Babu Surendra Nath Laha.

ex-officio—

The Commissioners of Divisions in Bengal.

The Executive Engineer, 2nd Calcutta Division,
Public Works Department.

The Sanitary Commissioner, Bengal.

The President of the Asiatic Society of Bengal.

The Director of Public Instruction, Bengal.

The Natural History Secretary of the Asiatic Society of Bengal.

The Director of Land Records, Bengal.

The Superintendent, Civil Veterinary Department, Bengal.

The Professor of Comparative Anatomy and Zoology, Medical College, Bengal.

The Superintendent of the Royal Botanic Garden, Sibpur.

The Chairman of the Calcutta Corporation.

The Principal of the Bengal Veterinary College.

Resignation.—The Hon'ble Colonel C. R. M. Greaves, M.D., I.M.S., resigned his membership owing to his transfer from Calcutta.

OBITUARY.

The death of Lt.-Col. C. R. Stevens, M.D., I.M.S., a member of the Committee, occurred during the year. The Committee received the announcement with deep regret.

IMPROVEMENTS.

Among the improvements carried out during the year, the following may be mentioned:—

- (1) Accommodation for the young Hippopotamus:—It was found necessary to provide separate accommodation for the young Hippopotamus born last year. The Abdul Ghouse House was, therefore, remodelled to suit the requirements of the animal, a water-tight tank being constructed with unfiltered water connection.

(2) Construction of a Gate for the New Extension:—With a view to relieve the congestion at the main entrance on occasions when large crowds are attracted to the Zoo a gate was opened on to the Sterndale Road.

ANNUAL REPAIRS.

The annual repairs to the buildings of the Garden are limited to those buildings which needed repairs badly. Extensive repairs could not be taken in on account of the high prices of building materials, paints, and the increased cost of labour.

STAFF AND ESTABLISHMENT.

There was no change in the superior staff during year. The *personnel* consists of—

SUPERIOR STAFF.

Superintendent :

Rai Bijay Krishna Basu Bahadur, G.B.V.C., C.M.Z.S.

Assistant Superintendent :

Babu Somadev Ganguli.

Store-keeper :

Babu Jugal Kishore Roy.

Overseer :

Babu Niranjan Mukherji.

Clerk :

Babu Tarak Chandra Chatterji.

Gate Clerk :

Babu Doyal Chandra Dass.

VISITORS.

There was an increase in the attendance of pay visitors during the year, the turnstile records indicating a total of 7,15,039 visitors, and showing an increase of 79,542 over the figures for 1918-19.

Corresponding with the increase in the number of visitors, the gate receipts increased by Rs. 6,034. The following is a comparative statement of visitors and gate receipts for the last three years:—

YEAR.	Visitors.		Receipts.	
	Rs.	A.	Rs.	A.
1917-18	583,343	44,564 0
1918-19	635,497	48,490 0
1919-20	715,039	54,524 2

A large number of children under four years of age and school children in charge of their teachers were admitted free. On the days of the Fancy Fair when no individual charge is levied, it is estimated that about 15,500 visitors entered the Garden. In addition 35,674 persons visited the Garden on free days, which a list with the number of visitors on each day can be found in Appendix C.

Special arrangements were made for the admission of soldiers on leave and convalescents.

FINANCE.

The financial condition of the Garden is on the whole satisfactory, in spite of the high cost of food grains, and of building. This is due to the rigid economy, which has been practised during the past few years, but a comprehensive programme of improvements and repairs will soon have to be undertaken, on which the available balance will be expended.

The amounts of income and expenditure are summarised in Appendix A.

GARDEN.

Considerable attention has been paid to the lawns, flower beds, shrubs and trees, and the Gardens generally have been maintained in good order. The appearance of the grounds has improved. For some very excellent exhibits at the Centenary Flower Show, held on 17th and 21st February 1920, the Agri-Horticultural Society of India awarded 16 prizes, of which 13 were first prizes.

CONCLUSION.

The Committee desires to express its thanks to the Corporation of Calcutta for their continued generosity in remitting the consolidated rates in respect of the Gardens.

The thanks of the Committee are also due to those ladies and gentlemen who have added to the Zoological collection by donations, a list of which is given in Appendix D. Thanks are also due to those who kindly offered to present animals to the Garden, but whose offers could not be accepted either because the particular species of animals was already sufficiently well-represented, or owing to want of accommodation. The Committee also desires to express its thanks to the Railway and Steamer Companies for the conveyance of animals belonging to the Gardens free of charge.

W. K. DODS,

Honorary Secretary.

C. J. STEVENSON-MOORE,

President.

SUPERINTENDENT'S REPORT.

I have the honour to submit the following report on the existing condition and the progress of Zoological collection.

The following comparative table shows how various collection of specimens in the Garden stood during the last four years:—

YEAR.		Mammals.	Birds.	Reptiles.
1916-17	...	318	1,975	263
1917-18	...	316	2,029	199
1918-19	...	299	1,944	171
1919-20	...	294	1,919	183

ACQUISITIONS.

The most important purchase during the year a female Giraffe. Other purchases for the year included—

- 1 Baby Elephant.
- 1 Pair Fallow deer.
- 1 Hunting leopard.
- 1 Pink-headed duck.
- 1 Tiger cub.
- 1 Golden cat.
- 4 Cat bears.
- 1 Uryal.
- 3 Blood pheasants.

Among the important gifts deserving special mention are a pair of Kashmir deer presented by H. H. Maharaja of Kashmir, and two tiger cubs presented by L. E. Cobden-Ramsay, Esq., I.C.S., C.I.E.

The following animals were received in exchange from the Zoological Society of Scotland—

- 1 Common English Fox.
- 4 Ferrets.
- 2 Bernicle geese.
- 8 Mute swans.

Births.

Among the births in the Garden during the year
be noticed--

- 4 Hanuman monkeys.
- 2 Lions.
- 2 Leopards.
- 2 Uryals.
- 2 Nilgais.
- 4 Spotted deer.
- 1 Fallow deer.
- 2 Brow-antlered deer.
- 1 English Park cattle.
- 4 Hog deer.
- 2 Indian antelopes.
- 1 Barking deer.
- 1 Barasinha deer.
- 4 Hozy-bellied Himalayan squirrels.
- 1 Imperial Nicobar pigeon.
- Russell Vipers.

Eggs were laid, but not hatched by the following
s—

- Monal pheasant.
- Bornean Fireback.
- Ostrich.
- Hill partridge.

Deaths.

We have lost a number of valuable animals but the
es were mainly due to old age and to circumstances
which we have no control.

The following is a list of important deaths :—

- 1 Gayal.
- 2 Uryals.
- 1 Banteng.
- 1 Malay Tapir.
- 1 Hunting leopard.

- 3 Markhors.
- 2 Orang-outangs.
- 1 Zebra.
- 1 Ostrich.
- 1 Diana monkey.
- 1 Binturong or bear cat.
- 1 Brow-antlered deer.
- 1 Tiger cub.

Departure.

The following animals, were sent to the Zoological Society of Scotland on exchange account :—

- 2 Hoolocks.
- 2 Striped hyænas.
- 2 Indian jackals.
- 3 Pythons.
- 15 Rhesus monkeys.
- 1 Tiger.
- 2 Pig-tailed monkeys.
- 2 Indians Wild boars.
- 2 Saras cranes.
- 2 Black-necked storks.
- 2 Black-headed ibises.
- 2 Peacock pheasants.
- 6 Bar-headed geese.
- 2 Purple coots.
- 1 Sounerat's Jungle fowl.

PATHOLOGICAL DEPARTMENT.

The work in this department was carried on usual. Thanks are due to the Principal, Bengal Veterinary College, for his kind help in important cases.

Post-mortem examinations were made of almost the animals that died during the year, and carcasses were sent to the Indian Museum for helminthologic

mination. A list of the more important cases which presented the principal subjects for pathologico-diagnosis is given below :—

Number of case.	Subject.
Colera ...	4 Monal pheasants.
Dysentery ...	1 Hanuman, 1 Indian Mouse deer, 1 Spotted deer.
Whooping-cough ...	1 Imperial Nicobar pigeon, 1 Binturong.
Jaundice ...	1 Fishing cat.
Paralysis ...	1 Diana monkey, 1 Bronze-winged pigeon, 1 Orang-outang.
Senility brought on by old age	1 Gayal, 1 Uryal, 1 Markhor.
Hydrophobia ...	3 Common foxes.
Trichinosis ...	1 Sloth bear.
Diarrhoea ...	1 Hoolock, 1 Markhor.
Epilepsy ...	1 Tiger cub, 1 Orang-outang.
Peritonitis ...	1 Markhor.
Senility degeneration of the liver	1 Streaked Laughing thrush.
Leptospirosis ...	1 Leopard cat, 1 Audaman pig.
Gastro-enteritis ...	1 Black leopard cub, 2 Wild dogs, 1 Wolf cub, 1 Hunting leopard.
Encephalitis ...	1 Large Indian squirrel, 1 Himalayan bear.
Intestinal catarrh ...	1 Black-necked Ibis, 1 Peacock pheasant, 1 Mandarin duck, 1 Black swan.
Hydrophobia ...	1 Siamang, 2 Hoolocks, 1 Orang-outang.
Pneumonia ...	1 Flamingo, 1 Malayan Tapir, 1 large Indian squirrel.
Septicæmia ...	1 Zebra.
Snake bite ...	1 Serow, 1 English Park cattle.

The following table gives the chief items expenditure under "Food of animals" for the year 1919-20:—

	Rs.	A.	P.
Beef	6,536	14	3
Mutton	617	10	0
Bread	708	2	3
Worms	224	6	6
Live fish	288	11	0
Plantains	420	14	3
Grasshoppers	36	0	0
Grains, such as, gram, rice, wheat etc., etc.	24,629	14	6
Shattoo, etc.	186	0	0
Miscellaneous food, such as, leaves, fowl, canary, kangney	5,453	13	3
Milk	288	1	6
Total	39,390	7	6

GENERAL CONDITION OF THE ANIMALS.

The general condition of the larger mammals was very satisfactory, and important animals were kept in a perfect state of health. There were a number of cases of mange and distemper amongst the foxes and of general debility brought on by mange amongst the anthropoid apes. Prompt isolation of the cases and proper disinfection of the cages checked the spread of the diseases. Sick and decrepit specimens which had been exhibited in the Gardens for a long time were mercifully destroyed, as not fit for exhibition.

The general health of the birds was good, and there were no epidemics amongst them.

APPENDIX A.

*Comparative statement of receipts for 1918-19
and 1919-20.*

	1918-19.			1919-20.		
	Rs.	A.	P.	Rs.	A.	P.
opening balance	19,390	8	11	34,459	4	0
... ..	237	6	6	237	6	6
... ..	668	0	0	1,066	0	0
... ..	48,490	0	0	54,524	2	0
... ..	6,494	0	0	6,734	0	0
... ..	1,545	4	0	1,193	10	0
... ..	240	0	0	374	0	0
... ..	287	0	0	268	0	0
... ..	2,378	0	0	2,381	0	0
... ..	5,870	5	3	10,315	2	6
... ..	20,000	0	0	20,000	0	0
Total	1,05,600	8	8	1,31,552	9	0
Receipts of 28th to 31st March 1918 which were included in 1918-19.	799	13	0	...		
Receipts of 31st March 1919 which are included in 1919-20.	...			168	14	0
Total	1,06,400	5	8	1,31,721	7	0
Receipts of 31st March 1919 which are included in 1919-20.	168	14	0	...		
Receipts of 31st March 1920 which will be included in 1920-21.	...			98	13	0
GRAND TOTAL	1,06,231	7	8	1,31,622	10	0

*II.—Comparative statement of expenditure for
1918-19 and 1919-20.*

	1918-19.			1919-20.
	Rs.	A.	P.	Rs.
Establishment	8,441	3	3	9,770
Food of animals	29,784	7	5	39,390
Purchase of animals	9,357	14	0	10,561
Transport of animals	2,030	14	9	2,716
Miscellaneous contingencies	8,317	3	7	8,581
Repairs of roads	1,444	0	3	410
Do. buildings	6,141	10	9	6,567
Garden construction	4,792	13	6	4,690
Original construction	1,462	0	2	2,295
Total	71,772	3	8	84,983
Closing balance	34,459	4	0	46,638
GRAND TOTAL	1,06,231	7	8	1,31,621

APPENDIX B.

*Summary of Visitors and Gate receipts during
1919-20.*

Month and year.				Number of visitors.	Receipts.		
					Rs.	A.	P.
1919	...	...	...	43,697	3,282	5	0
"	...	...	...	40,155	3,047	4	0
"	...	...	...	56,009	4,178	8	0
"	...	...	...	58,171	4,250	9	0
st	"	...	...	44,437	3,427	15	0
mber	"	...	...	71,160	5,319	1	0
er	"	...	...	89,425	6,370	15	0
mber	"	...	...	59,822	4,827	12	0
mber	"	...	...	68,144	5,277	15	0
ary	1920	...	...	71,120	5,526	5	0
ary	"	...	...	58,819	4,821	3	0
h	"	...	...	54,080	4,194	6	0
Total				715,039	54,524	2	0

APPENDIX C.

A list of free days showing free visitors during year 1919-20.

28th April	1919	...	...	2,249
26th May	"	...	...	2,411
23rd June	"	...	...	3,934
28th July	"	...	...	3,059
4th August	"	...	...	3,384
22nd September	"	...	...	3,641
27th October	"	...	...	3,433
24th November	"	...	...	2,325
8th December	"	...	...	2,487
12th January	1920	...	...	3,438
9th February	"	...	...	2,589
8th March	"	...	...	2,721
		Total	...	<u>35,674</u>

APPENDIX D.

*List of Donors, 1919-20.***B**

Mr. C., I. C. S.	...	1	Indian wild dog.
Lt. H., R. F. A.	...	2	Sloth bear cubs.
Cherji, Mr. B. B.	...	1	Chameleon.
a, Babu Sarat Chandra	...	1	Indian antelope.
Mr. M. T.	...	2	Himalayan Bears.

C

n-Ramsay, Mr. L. E.	...	2	Tiger cubs.
verty, Dr. H. L., L. M. S.	...	1	Indian gazelle.
eli, Mr. J.	...	1	Himalayan bear.

D

y Commissioner of Police	...	1	Common peafowl.
l, Captain P. V.	...	1	Sloth bear.
Mr. William	...	7	Indian foxes.
abu Nityananda	...	1	Hanuman.

F

ne, Lt., B. G. A.	...	1	Leopard cub.
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G

per, Mr. W.	...	1	Fishing cat.
Babu Kalidas	...	1	Banded Krait.

H

, Mrs. B.	...	1	Leopard.
, Mr. M. A.	...	1	Leopard.
s, Mr. B. W.	...	1	Indian antelope.

K

ir, H. H. Maharaja of	...	2	Kashmir deer
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L
Letharn, Miss ... 1 Flying squirrel.

M
Mullins, Mr. R. ... 1 Sloth bear cub.
Muirhead, Mr. C. A. ... 2 Leopard cubs.

O
O'Brien, Mr. R. ... 1 Sloth bear cub.

P
Pereira, Mr. J. H. H. ... 1 Fishing cat.

R
Roy, Babu Bimalendu Kumar ... 1 Fishing cat.
Roy, Babu Sarat Chandra ... 1 Indian antelope.

S
Steen, Mrs. D. ... 1 Sambar deer.
Sam, Mr. A. V. ... 1 Porcupine.
Superintendent, Lushai Hills ... 3 Tiger cubs.
Surabala, Sreemati ... 1 Leopard cub.
Sing, Babu Sripat Jagpat ... 2 Indian antelopes.

T
Taylor, Mr. L. ... 1 Sloth bear cub.
Tweedie, Mr. A. G. ... 1 Leopard.

V
Vernon, Mr. I. S. ... 1 Hog deer.

W
Watling, Mr. R. G. ... 2 White-tailed sea-eagles.

1920-1921

**REPORT OF THE HONORARY COMMITTEE
FOR THE MANAGEMENT OF THE
ZOOLOGICAL GARDEN, CALCUTTA
FOR THE YEAR 1920-21.**

THE Committee have the honour to submit their report for the year ending 31st March 1921, containing, as in former years, among other items—

- (1) The Superintendent's report upon the Zoological collection.
- (2) Abstract of accounts of ordinary receipts and expenditure.
- (3) Monthly returns of visitors and gate receipts and a list of donors and their donations.

The Committee consisted of—

President :

The Hon'ble Sir C. J. Stevenson-Moore, K.C.I.E., C.V.O., I.C.S.

The Hon'ble Mr. Justice P. L. Buckland, F.Z.S. from 29th March 1921.

Vice-President :

The Hon'ble Mr. Justice P. L. Buckland, F.Z.S., till 29th March 1921.

Honorary Secretary and Treasurer :

W. K. Dods, Esq., from 7th April 1920.

Members of the Committee :

Nominated—

R. D. Mehta, Esq., C.I.E.

Dr. Nelson Annandale, B.A., D.Sc., C.M.Z.S. (resigned on 11th December 1920).

W. R. Gourlay, Esq., C.I.E., I.C.S.

H. J. McIntosh, Esq.

Nawab Sir Asif Quadr Saiyad Wasif Ali Mirza,
Khan Bahadur, Mahabat Jang, Nawab Bahadur
of Murshidabad K.C.S.I., K.C.V.O.

G. Girard, Esq., I.S.O., F.R.H.S.

The Hon'ble Sir Bijay Chand Mahtab, K.C.S.I.,
K.C.I.E., I.O.M., Maharajadhiraja Bahadur of
Burdwan.

Shirley Treamearne, Esq.

David Ezra, Esq.

Nawab A. F. M. Abdur Rahman, Khan Bahadur.

Lieutenant-Colonel Sir L. Rogers, K.T., C.I.E., M.D.,
I.M.S.

C. W. E. Cotton, Esq., C.I.E., I.C.S.

Lieutenant-Colonel E. H. Brown, I.M.S. (retired)
M.D., D.P.H., F.R.C.S.E.

H. F. Yeoman, Esq.

Surendra Nath Laha, Esq.

Dr. B. L. Chaudhuri, D.Sc.

G. C. Mandal, Esq.

Satya Charan Laha, Esq., F.Z.S.

W. Kirkpatrick, Esq.

ex-officio—

The Commissioners of Divisions in Bengal.

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The Director of Public Instruction, Bengal.

The Natural History Secretary of the Asiatic
Society of Bengal.

The Director of Land Records, Bengal.

The Superintendent, Civil Veterinary Department
Bengal.

The Professor of Comparative Anatomy
Zoology, Medical College, Bengal.

The Superintendent of the Royal Botanic Garden
Sibpur.

The Chairman of the Calcutta Corporation.

The Principal of the Bengal Veterinary College.

Resignation—

On the 29th March 1921 the Hon'ble Sir O. Stevenson-Moore, K.C.I.E., C.V.O., I.C.S. resigned his appointment as President of the Committee of Management of the Garden. In accepting his resignation the Committee of Management recorded the following resolution:—

“It was unanimously agreed that an expression of the Committee's warm appreciation of his services as President should be minuted in the proceedings.”

Dr. N. Annandale, B.A., D. Sc., C. M. Z. S., resigned his membership owing to his absence from Calcutta on long leave.

Appointment—

The following new members were appointed during the year:—

Dr. B. L. Chaudhuri, D. Sc.

G. C. Mandal, Esq.

Satya Charan Laha, Esq., F.Z.S.

W. Kirkpatrick, Esq.

STAFF AND ESTABLISHMENT.

Rai Bijay Krishna Basu Bahadur continued in charge of the Garden as Superintendent throughout the year and Babu Somadev Ganguli as Assistant Superintendent.

The following is a list of the superior staff of the Garden at the end of 1920-21 :—

Superintendent.

Rai Bijay Krishna Basu Bahadur, C. M. Z. S.

Assistant Superintendent.

Babu Somadev Ganguli.

Store-keeper.

Babu Jugal Kishore Roy.

Overseer.

Babu Niranjan Mukherji.

Clerk.

Babu Tarak Chandra Chatterji.

Gate Clerk.

Babu Doyal Chandra Dass.

The following is a list of the menial staff of the Garden at the end of 1920-21 :—

1 Salatri.	14 Gardeners.
1 Jamadar.	3 Sweepers
8 Durwans	1 Chaprasi.
20 Keepers.	1 Carpenter.
2 Bhistis.	2 Cartmen.
1 Cook.	1 Syce.
1 Head Gardener.	1 Scythe man
1 Night-watch.	

In addition a number of temporary men were engaged during the year.

STRUCTURAL ALTERATIONS AND IMPROVEMENTS.

The principal alterations and improvements effected were with regard to:—

(*The Southern Extension.*—The conflict between the reluctance of the Committee to cover this area with fences and sheds and their desire to make the most effective use of it for a display of exhibits and the relief of the enclosures in other parts of the Garden has been reconciled by grouping animals and birds of different genera with no restrictions as to freedom of movement over the entire space. This has afforded considerable interest to observers who have had the patience and opportunity to watch the conduct of the inmates towards each other. It may be necessary to sub-divide the area at least once as inter-breeding between different species cannot be permitted, and this places a severe restriction upon the number which can be accommodated.

The substitution of a wide ditch, of a depth which prevents wading across, for fences and railing takes advantage of the disinclination of animals to jump out of water, gives an unobstructed view to the visitor and is a form of enclosure which is rarely found in the Zoological Gardens of Europe and entirely new to India.)

Remodelling of the Murshidabad House.—The condition of the central dome and the wooden circular roof of the Murshidabad House had so deteriorated that it had become necessary to remove and rebuild them entirely on improved designs. All woodwork

has been taken away and an iron frame with galvanized wire work and Ranigunge tiled roof have been substituted. The floor of the interior cages has been surfaced and made rat-proof. From a sanitary point of view also the structure is now greatly improved.

Segregation Shed.—A well-raised and airy shed, with three compartments having a common exercise paddock attached, was erected in the Begunbari for the accommodation of sick animals.

The Hermitage.—The flooring of some of the rooms had to be resurfaced, and a red polished patent stone flooring was provided. The electric installation also required renovation which has been done.

GENERAL ANNUAL REPAIRS.

The general annual repairs to the buildings of the garden were carried out departmentally as usual and painting of fences and iron-work to a considerable extent was done during the year.

VISITORS.

It is satisfactory to report that there was a considerable increase in the number of paying visitors during the year notwithstanding prevailing economic conditions. The turnstile records indicate a total of 1,61,616 visitors and show an increase of 127,577 over the figures for 1919-20.

Corresponding with the increase in the number of visitors there was an increase in gate receipts Rs. 13,321-12. The following is a comparative

statement of visitors and gate receipts for the three years :—

Year.			Visitors.	Receipts.	
				Rs.	A.
1918-19	...	...	635,497	48,490	0
1919-20	...	...	715,039	54,524	2
1920-21	...	...	842,616	67,845	14

A large number of children under four year age, and school children in charge of their teachers were admitted free. On the days of the Fancy when no individual charge is levied, it is estimated that about 18,000 visitors entered the Garden. In addition 42,698 persons visited the Garden on other days, of which a list, with the number of visitors each, will be found in Appendix C.

FINANCE.

The financial condition of the Garden is on the whole satisfactory in spite of the high cost of grain. By curtailing the running expenses of the Garden in its executive department and the strict economy in other directions, the Committee have been enabled to set aside a substantial sum, included in the item shown as expended on original construction, in order to repair and improve some of the older buildings and make other permanent improvements designed to ameliorate the conditions under which the animals are kept. These will be taken in hand whenever the cost of materials is so reduced as to bring them within the means at the disposal of the Committee.

The amounts of income and expenditure are summarised in Appendix A.

GARDEN.

The usual work in the general maintenance of the garden and in the care of lawns, walks and roads was carried on as usual throughout the year. The floricultural department was carefully attended to and flowering annuals were successfully exhibited at the annual Flower Show of the Agri-Horticultural Society.

The Committee desire to express their thanks to the Corporation of Calcutta for their continued liberality in remitting the consolidated rates in respect of the Gardens.

The thanks of the Committee are also due to those ladies and gentlemen who have added to the Zoological collection by donations, a list of which is given in Appendix D. Thanks are also due to those who kindly offered to present animals to the Garden, but whose offers could not be accepted either because the particular species of animals was already sufficiently well represented, or owing to want of accommodation. The Committee also desire to express their thanks to the Railway and Steamer Companies for the conveyance of animals belonging to the Garden, free of charge.

P. L. BUCKLAND,
President.

W. K. DODS,
Honorary Secretary.

SUPERINTENDENT'S REPORT.

I have the honour to submit the following on the existing condition and the progress of Zoological collection.

The following comparative table shows how various collection of specimens in the Garden stood during the last 4 years :—

Year.	Mammals.	Birds.	Reptiles.
1917-18	... 316	2,029	199
1918-19	... 299	1,944	171
1919-20	... 294	1,919	183
1920-21	... 328	2,033	171

ACQUISITIONS.

The high standard of the collection generally, been maintained by the addition of many interesting foreign animals and all available space is filled to utmost capacity.

The most important purchases during the year were five zebras and 11 gayals. Other purchases for the year included—

1 Gold-leaf monkey.	1 Siamang.
3 Purple-faced monkeys.	1 Serow.
2 Negro langurs.	24 Catheas.
4 Temminck's Tragopan pheasants.	2 Markhors
	4 White cranes.

Among the important gifts deserving special mention were a pair of African lions and a pair of tigers presented by His Highness the Moharao of Kotah, 2 lion cubs presented by His Highness Raj Saheb of Wankaner, one tiger presented by the late Chief of Bamra, one tiger presented

lan Mohan Lall., Esq., one tiger cub presented by
ster Suresh Singh of Udaipur, and one white-
nted goose presented by Babu Udit Narain Singh.

The following animals were received in exchange
m the Zoological Society of London :—

2 Fallow deer.	1 Blue-fronted Amazon.
2 Common badgers.	1 Yellow-fronted "
2 Common foxes.	1 Orange-winged "
2 Anubis baboons.	1 Blue-crowned } conure.
1 Mandrill.	1 Golden-crowned "
1 Red and blue Macaw.	2 Mute swans.

The following animals were received in exchange
m the Zoological Society of Scotland :—

1 Sea-lion	4 Canadian geese.
2 Brown bear cubs.	2 Grey-lag geese
2 Gannet..	1 Buzzard.
9 Mute swans.	

Captain Macdonald of SS. "Janus" brought from
stralia the following animals :—

2 Nail-tailed kangaroos.	1 Short-tailed wallaby.
--------------------------	-------------------------

Births.

The following animals were born in the Garden
ring the year :—

2 Lion cubs.	1 Brow-antlered deer.
1 Fallow deer.	1 Green monkey.
1 Indian antelope.	1 Spotted deer.
5 Hog deer.	3 Gayals
2 Black leopards.	1 Barasingha deer.
5 Common peafowl.	2 Peacock pheasants.
2 Sagaing firebacks.	1 Spotted deer.
1 Markhor. "	5 Black swans.
1 Kashmere deer.	

The following birds bred on the island in the lake :—

Night herons.	Little cormorants.
Indian snake birds.	

Eggs were laid but not hatched by the following birds :—

Ostrich.	Ring-necked pheasant.
Curassow.	Hill partridge.

Deaths.

The Garden sustained a serious loss in the death of a young female giraffe. She was purchased in 1919 and thrived satisfactorily but at the beginning of 1921 she developed cancer of the lower jaw and in spite of all efforts died of the disease on the 14th February 1921.

The following is a list of deaths of other valuable specimens during the year :—

2 Lion cubs.	1 Greater bird of paradise.
2 Zebras.	1 Black-necked swan.
1 Hunting leopard.	1 White-tailed gnu.
2 Red birds of paradise.	1 Kashmere deer.
1 Malayan tapir.	

Departure.

The following animals were sent to the Zoological Society of London on exchange account :—

2 Burmese pig-tailed monkeys.	1 Indian roller.
2 Small Indian civets.	6 Red-billed blue magpies.
2 Bengal foxes.	3 Jungle babblers.
2 Indian jackals.	4 Purple coots.
2 Himalayan bears.	6 Egrets.
2 Sambar deer.	33 Snakes.
2 Spotted deer.	

PATHOLOGICAL DEPARTMENT.

The work in this department was carried on as usual with kind assistance from Lieutenant-Colonel Smith, F. R. C. V. S., Principal, Bengal Veterinary College, in important cases.

Post-mortem examinations were made of almost all animals that died during the year. A list of the more important cases which presented the principal subjects for pathological diagnosis is given below:—

Number of cases.	Subjects.
... 3	Cat bears, 4 Temminck's tragopan pheasants.
... 1	Indian gazelle.
... 1	Streaked laughing thrush.
... 1	Giraffe.
... 1	Leopard, 1 jungle cat, 1 ferret.
... 1	Red bird of paradise.
... 1	White-tailed guereza.
... 1	Houcheur monkey, 1 Zebra.
... 1	Orang-outang, 1 Wallaby, 1 Markhor, 1 Spotted deer.
... 1	Markhor, 1 Hanuman.
... 1	Indian wolf.
... 1	Tiger cub, 1 Hanuman.
... 1	Gargeay teal, 1 Cotton teal, 1 Sheldrake, 1 Chakar partridge, 1 Ferret.
... 1	Sloth bear, 2 Leopard cats, 1 Indian fox.
... 1	Zebra.
... 2	Canaries.
... 1	Saras crane, 1 Spotted deer.
... 1	Gayal.
... 1	Great kangaroo.

Number of cases.	Subjects.
Mange	... 1 Indian wolf.
Paralysis	... 1 Himalayan bear, 1 Hunting leopard.
Do (cage)	... 1 Orang-outang.
Pneumonia	... 1 Malayan tapir, 1 Silver pheasant, 1 Siamang, 1 One-wattled night heron, 2 Cat bears, 1 Kingfisher.
Rheumatism	... 1 Ringnecked pheasant.
Snake-bite	... 1 Kashmere deer, 1 Uryal.
Ulceration of the stomach	... 1 Fishing cat.

The following table gives the chief items of expenditure under "Food of animals" for the 1920-21 :—

	Rs.	A.
Beef	6,799	5
Mutton	786	12
Bread	717	13
Worms	294	14
Live fish	460	0
Plantains	457	4
Grasshoppers	36	0
Grains, such as, gram, bran, rice, wheat, etc.	29,076	11
Shuttoo	166	0
Miscellaneous food, such as, leaves, fowls, catfish, seeds, eggs, fruits, etc.	5,512	9
Milk	288	10
Total	44,656	1

APPENDIX A.

I.—Comparative statement of receipts for 1919-20 and 1920-21.

	1919-20.		1920-21.	
	Rs.	A. P.	Rs.	A. P.
Opening balance	34,459	4 0	46,638	13 9
Interest	237	6 6	237	6 6
Donation and subscriptions ...	1,066	0 0	1,056	0 0
Entrance receipts	54,524	2 0	67,845	14 0
Gift	6,734	0 0	7,104	0 0
Marriage, rickshaw, etc., etc. ...	1,193	10 0	1,436	12 0
Printing	374	0 0	266	0 0
Medical	268	0 0	248	0 0
For urine	2,381	0 0	3,556	8 0
Miscellaneous receipts	10,315	2 6	5,933	4 0
Government contribution	20,000	0 0	20,000	0 0
Total	1,31,552	9 0	1,54,322	10 3
Receipts of 31st March 1919 which were included in 1919-20.	168	14 0	.....
Receipts of 31st March 1920 which are included in 1920-21.	.....		98	13 0
Total	1,31,721	7 0	1,54,421	7 3
Deduct— Receipts of 31st March 1920 which are included in 1920-21.	98	13 0	.....
Receipts of 30th and 31st March 1921 which will be included in 1921-22.	.....		464	2 0
GRAND TOTAL	1,31,622	10 0	1,53,957	5 3

*II.—Comparative statement of expenditure for
and 1920-21.*

		1919-20.			
		Rs.	A. P.		
Establishment	... ..	9,770	6	0	1
Food of animals	... ..	39,390	7	6	4
Purchase of animals	... ..	10,561	8	0	1
Transport of animals	... ..	2,716	0	9	
Miscellaneous contingencies	... ..	8,581	8	3	1
Repairs of roads	... ..	410	3	9	
Ditto buildings	... ..	6,567	0	6	1
Garden construction	... ..	4,690	2	6	
Original construction	... ..	2,295	13	0	3
	Total	84,983	12	3	1,4
	Closing balance	46,638	13	9	1
	GRAND TOTAL	1,31,622	10	0	1,5

APPENDIX B.

Summary of visitors and gate receipts during
1920-21.

Month and year.			Number of visitors.	Receipts.		
				Rs.	A.	P.
1920	...	...	44,761	3,846	14	0
"	...	...	52,772	4,431	3	0
"	...	...	77,387	5,821	11	0
"	...	...	53,425	4,242	15	0
"	...	...	63,658	5,390	9	0
ber	"	...	66,354	5,321	10	0
r	"	...	123,507	9,106	13	0
ber	"	...	62,132	5,163	12	0
ber	"	...	75,110	6,143	10	0
y	1921	...	83,982	7,031	9	0
ry	"	...	67,167	5,745	8	0
"	"	...	72,421	5,599	12	0
Total			842,616	67,845	14	0

APPENDIX C.

A list of free days showing free visitors during year 1920-21.

26th April	1920	...	...	2,208
24th May	"	...	...	4,418
28th June	"	...	...	3,323
5th July	"	...	...	3,012
2nd August	"	...	...	5,201
13th September	"	...	...	3,135
4th October	"	...	...	3,037
1st November	"	...	...	6,204
6th December	"	...	...	2,762
24th January	1921	...	...	3,342
28th February	"	...	...	3,624
21st March	"	...	...	2,452
			Total	42,698

APPENDIX D.

List of Donors, 1920-21.

A

Ram, Subadar ... 2 Himalayan bear cubs.

B

ra, Raja of ... 1 Tiger.
 tlett, Mr. J. R. H. ... 1 Leopard.
 wn, Lt.-Col. E. H. ... 2 Slow lorises.
 nerji, Babu Probodh Chandra ... 1 Slender loris.
 e, Mr. J. N. ... 1 Hog deer.

C

ndra, Mr. P. C. ... 1 Spotted deer.
 teret, Mr. S. K. de ... 1 Common wolf.

D

s, Mr. W. K. ... 17 Cotton teals, 1 Indian porcupine,
 5 Common coots, 4 Indian rails,
 68 Egrets, 39 Bronze-winged
 Jacanas, 20 Pheasant-tailed
 Jacanas, 1 Lesser Whistling teal,
 7 Grebes, 4 Purple coots, 3 Rain
 quails, 2 Hares, 2 Yellow bitterns,
 1 Marsh tern, 6 Spoonbills, 1
 Indian roller, 1 White-breasted
 kingfisher, 1 Red-headed pochard,
 1 Pintailed duck, 1 Common
 teal, 17 Corn crakes, 3 Indian
 foxes, 4 Ruddy crakes, 3
 Gargeny teals, 1 White-tailed
 sea-eagle.
 y, Babu Bholanath ... 2 Fishing cats.

G

e-Smyth, Mr. G. C. ... 1 Sloth bear.

H

tswell, Mr. L. V. ... 2 Three-coloured squirrels.

K

ah, H. H. the Maharao Sahib of ... 2 Lions, 2 Tigers, 2 Leopards, 2 Sloth
 bears.

L

Langmore, Mr. J. H. ... 1 Leopard cub.

M

Maclenan, Miss M.A. ... 1 Himalayan bear.

Madanmohan Lal, Babu ... 1 Tiger.

Minahan, Capt. S. C. ... 2 Spotted deer.

Mukherji, Babu Monmotha Nath ... 1 Crocodile.

Munro, Mrs. I. A. ... 1 Python.

Mackenzie, Mr. M. A. ... 3 Hyæna cubs.

Mandal, Mr. G. C. ... 6 Magpie robins.

O

Oliver, Mrs. R. J. ... 1 Four-horned antelope.

P

Pugh, Mrs. ... 1 Three-coloured squirrel.

Phillips, Mr. S. ... 5 Cobras, 1 Russell viper.

R

Roy, Raja Bhuban Mohan ... 1 Malayan bear, 1 Himalayan bear.

Richard, Capt. J. E. M. ... 1 Indian antelope.

S

Sures Singh, Master ... 1 Tiger cub.

Shillingford, Mr. A. G. ... 2 Bengal floricans.

Singh, Kumar D. N. ... 1 Sloth bear, 2 Leopard cubs.

Singh, Babu Udit Narain ... 1 White-fronted goose.

Sircar, Mr. N. ... 1 Jungle cat.

Strelley, Mrs. M. ... 1 Indian wild pig.

T

Tweedie, Mr. T. C. ... 1 Himalayan viper.

W

Watling, Mrs. L. M. ... 1 Indian gazelle.

Wankaner, H. H. Raj Saheb of ... 2 Lion cubs.

1921-1922

**REPORT OF THE HONORARY COMMITTEE
FOR THE MANAGEMENT OF THE
ZOOLOGICAL GARDEN, CALCUTTA, FOR
THE YEAR 1921-22.**

The Committee have the honour to submit their report for the year ending 31st March 1922 containing, as in former years, among other items—

- (1) The Superintendent's report upon the Zoological collection.
- (2) Abstract of accounts of ordinary receipts and expenditure.
- (3) Monthly returns of visitors and gate receipts and a list of donors and their donations.

The Committee consisted of—

President :

The Hon'ble Mr. Justice P. L. Buckland, F.Z.S.

Vice-President :

Vacant.

Honorary Secretary and Treasurer :

W. K. Dods, Esq., from 1st April 1921 to 28th April 1921 and from 1st July 1921 to 3rd March 1922.

W. Kirkpatrick, Esq., from 29th April 1921 to 3rd June 1921.

W. Dods, Esq., from 4th March 1922.

Nominated—

R. D. Mehta, Esq., C.I.E.

W. R. Gourlay, Esq., C.I.E., I.C.S. (resigned
• 23rd February 1922).

H. J. McIntosh, Esq. (retired).

Nawab Sir Asif Quadr, Saiyad Wasif Ali Mirza,
Khan Bahadur, Mahabat Jang, Nawab Bahadur
of Murshidabad, K.C.S.I., K.C.V.O.

G. Girard, Esq., I.S.O., F.R.H.S. (deceased).

The Hon'ble Sir Bijay Chand Mahtab, K.C.S.I.,
K.C.I.E., I.O.M., Maharajadhiraja Bahadur of
Burdwan.

Shirley Tremearne, Esq. (resigned on 5th Sep-
tember 1920).

David Ezra, Esq., F.Z.S.

Nawab A. F. M. Abdur Rahman, Khan Bahadur.

Lieutenant-Colonel Sir L. Rogers, Kt., C.I.E., M.D.,
I.M.S. (retired).

C. W. E. Cotton, Esq., C.I.E., I.C.S. (resigned on
10th March 1922).

Lieutenant-Colonel E. H. Brown, M.D., I.M.S.
(retired) D.P.H., F.R.C.S.E.

H. F. Yeoman, Esq. (resigned on 30th July 1921).

Surendra Nath Laha, Esq.

Dr. B. L. Chaudhuri, D.Sc.

G. C. Manjal, Esq.

Satya Charan Laha, Esq., F.Z.S.

W. Kirkpatrick, Esq.

H. B. Turle, Esq.

F. C. French, Esq., C.S.I., I.C.S.

Lieutenant-Colonel E. E. Waters, M.D., M.R.C.P., I.M.S.

Lieutenant-Colonel F. P. Connor, D.S.O., F.R.C.S., I.M.S.

Oswald Martin, Esq.

Ajit Nath Das, Esq.

Ex-officio—

The Commissioners of Divisions in Bengal.

The Executive Engineer, 2nd Calcutta Division,
Public Works Department.

The Sanitary Commissioner, Bengal.

The President of the Asiatic Society of Bengal.

The Director of Public Instruction, Bengal.

The Natural History Secretary of the Asiatic Society of Bengal.

The Director of Land Records, Bengal.

The Superintendent, Civil Veterinary Department, Bengal.

The Professor of Comparative Anatomy and Zoology, Medical College, Bengal.

The Superintendent of the Royal Botanic Garden, Sibpur.

The Chairman of the Calcutta Corporation.

The Principal of the Bengal Veterinary College.

Obituary—

The Committee record with deepest regret the loss sustained by the death of Lt.-Colonel G Girard, I.S. F.R.H.S., who was a member of the Committee from 24th August 1909 till June 1921.

Resignation—

The following members resigned during the year :—

W. R. Gourlay, Esq., C.S.I., C.I.E., I.C.S.

Shirley Tremearne, Esq.

C. W. E. Cotton, Esq., C.I.E., I.C.S.

H. F. Yeoman, Esq.

The names of the following gentlemen were removed from the list of members of the Committee on retirement from their respective services without expectation of return to Calcutta :—

H. J. McIntosh, Esq., I.C.S.

Lt.-Colonel Sir L. Rogers, Kt., C.I.E., I.M.S.

Appointment—

The following new members were appointed during the year :—

H. B. Turlé, Esq.

F. C. French, Esq., C.S.I., I.C.S.

Lt.-Colonel E. E., Waters, M.D., M.R.C.P., I.M.S.

Lt.-Colonel F. P. Connor, D.S.O., F.R.C.S., I.M.S.

Oswald Martin, Esq.

Ajit Nath Das, Esq.

STAFF AND ESTABLISHMENT.

Rai Bijay Krishna Basu Bahadur continued in charge of the garden as Superintendent throughout the year and Babu Somadev Ganguli as Assistant Superintendent.

The following is a list of the superior staff of the garden at the end of 1921-22 :—

Superintendent.

Rai Bijay Krishna Basu Bahadur, C.M.Z.S.

Assistant Superintendent.

Babu Somadev Ganguli.

Store-keeper.

Babu Jugal Kishore Roy.

Overseer.

Babu Niranjan Mukherji.

Clerk:

Babu Tarak Chandra Chatterji.

Gate Clerk:

Babu Doyal Chandra Dass.

The following is a list of the menial staff of the garden at the end of 1921-22:—

1 Salutri	14 Gardeners.
1 Jemadar.	3 Sweepers.
8 Durwans.	1 Chaprasi.
20 Kepeers.	1 Carpenter.
2 Bhistis.	2 Cartmen.
1 Cook.	1 Syce.
1 Head Gardener.	1 Scythe-man.
	1 Night-watch.

In addition a number of temporary men were engaged during the year.

IMPROVEMENTS.

The following improvements were made during the year:—

(1) *The New Extension.*—It is most satisfactory to be able to report further improvement in the New Extension. To afford greater facilities for grazing and movement to the animals and to give an unobstructed view of the extension, portions of the paddocks at the southern end of the garden have been dismantled and added to the extension. The ditch confining the animals to this area has been extended by 140 feet and 400 feet of new roads have been constructed. The

ignment of the adjoining paddocks has been set back thereby giving an almost unobstructed view of the whole of the extension when approached from the north.

Two brick-built sheds with tiled roofs were constructed in the adjacent paddocks and a shed 18' x 9' - 6" was also constructed in the new extension in order to provide additional shelter when necessary.

(2) *Small Carnivora House*.—The grated iron partitions of the out-door cages in the Recreation enclosure were fitted with strong 1" mesh wire-netting. This was found to be necessary to prevent the inmates from injuring each other.

(3) *Reptile House*.—Several plate glass fronts of the partitions in the Reptile House being badly cracked it was decided to replace them. Glass was imported from England and fitted at a moderate cost. The broken glass has been utilised in the construction of a small aquarium 5' - 10" x 3' - 3" x 3' similar to that in the Reptile House.

(4) *The Hermitage*.—New drainage and water pipes were installed.

ANNUAL REPAIRS.

The Annual Repairs to the buildings of the garden were carried out departmentally as usual and considerable savings were effected.

The following is a list of more important repairs executed:—

(1) *Dumraon House*.—The house was thoroughly repaired and sand plastering done. The inside walls

were lime-washed and outside walls colour-washed. The iron bars of some of the inner cages were renewed; portions of wire-netting were repaired.

(2) *Gubbay House*.—The inner walls were lime-washed and the outer walls were repaired and colour-washed.

(3) *Sonebursa Enclosure*.—Thorough repairs were done to the house. The inside walls were white-washed and the outside building colour-washed. Repairs were also effected to the wooden roof. Doors and windows were painted.

(4) *Lalgola House*.—The rooms were whitewashed and the wire-netting of the outer fencing and the partitions was repaired. The iron partition fencing of one of the enclosures which had been broken by a falling tree was repaired.

(5) *Paddocks*.—Extensive repairs were done to the paddocks. The sheds were repaired as far as possible and lime-washed and wood and iron work painted: the iron fencing was coal-tarred.

(6) *Sarnomoyi House*.—Thorough repairs were done to this house. The sand plastering and the wood work of the inner houses had been considerably damaged by parrots and roseate cockatoos and were repaired. The wire-netting of the outer and inner enclosures was repaired where rendered necessary by corrosion.

(7) *Reptile House*.—The inside walls were scraped carefully and whitewashed. The ornamental railings round the basins and the pillars were painted and painting was effected.

(8) *Small Carnivora House*.—The inner dens were lime-washed and the outer verandah colour-washed. The iron gratings of the cages and the partitions were

nted and repairs were executed to the ceiling of the randah. The recreation enclosure was scraped and inted.

(9) *Zebra House*.—The roof of the building was paired.

(10) *Burdwan House*.—Extensive repairs were ne to this house. The roof was overhauled and ade watertight. The sand plaster was scraped off ere necessary and new sand plaster substituted. e outer and inner dens were repaired and lime- shed and outside walls colour-washed. The oden platforms were attended to. The recreation closure, the wooden posts of the hand railing and e building itself were re-painted.

(11) *The Hermitage*.—In addition to the usual ork quinquennial repairs were done to the Hermi- ge. The roof was half-terraced and the exterior d the interior of the house were repaired and painted.

(12) The following houses were repaired and painted :—

Entrance Lodge.	Mandrill House.
Murshidabad House.	New Monkey House.
Mullick House.	Rodent House.
Jhiná House.	Refreshment Pavilion.
Schwendler House.	Retiring Rooms.

(12) The following buildings were lime-washed and our-washed :—

Bear House.	Durbhanga House.
Buckland Enclosure.	New Antelope House.

(13) *Boundary wall*.—The whole wall was scraped, e sand plaster was renewed in several places and the tire length of wall then colour-washed.

Besides the above, petty repairs of smaller houses and sheds and enclosures were attended to. The repairs of roads were carried out as usual. The main drainage was remodelled at places and roads and garden paths were repaired.

VISITORS.

There was a falling off in the number of paying visitors during the year, the turnstile records indicating a total of 8,40,055 visitors. This may be attributed to the general conditions of unrest prevailing in the train and tram strikes and to *hartals* which generally impeded the influx of visitors from the mofasil.

The following is a comparative table of visitors for the last three years:—

Year.				Visitors.
1919-20	...	...	...	715,039
1920-21	...	...	...	842,616
1921-22	...	...	...	840,055

A large number of children under four years of age, and school children in charge of their teachers were admitted free. On the days of the Fancy when no individual charge is levied, it is estimated that about 10,000 visitors entered the Gardens. In addition 33,690 persons visited the garden on the days of which a list, with the number of visitors each, will be found in Appendix C.

FINANCE.

Corresponding with the decrease in the number of visitors the gate receipts decreased by Rs. 1,991 compared with last year.

The following is a comparative statement of gate receipts for the last three years:—

Year.	Receipts.	
	Rs.	A.
1919-20	54,524	2
1920-21	67,845	14
1921-22	65,854	

In spite of the fact that the gate receipts have gone down and that the cost of food grains has considerably risen, the financial condition of the garden on the whole is satisfactory, for though the accounts show a balance in favour of the gardens, this has only been attained by strict economy and by postponing heavy outlay on buildings and additions to the collection which will become necessary to maintain the standard of the collection and can only be met out of savings.

GARDEN.

The ornamental parts of the garden, such as lawns, flower beds, have been kept in the best possible condition.

Flowering annuals were exhibited at the Annual Flower Show of the Agri-Horticultural Society, Madras for the best group of which the garden was awarded the Governor's Medal in addition to other honours.

ACKNOWLEDGMENTS.

The thanks of the Committee are due to those donors and gentlemen who have added to the Zoological collection by donations, a list of which is given in

Appendix D. Thanks are also due to those who kindly offered to present animals to the garden, but whose offers could not be accepted either because the particular species of animals was already sufficiently well represented, or owing to want of accommodation.

The Committee desire to express their thanks to the Corporation of Calcutta for their continued generosity in remitting the consolidated rates in respect of the gardens and to the Railway and Steamer Companies for the conveyance of animals belonging to the garden, free of charge.

P. L. BUCKLAND,
President.

W. K. DODS,
Honorary Secretary.

SUPERINTENDENT'S REPORT.

I have the honour to submit the following report on the existing condition and the progress of the Zoological collection.

The following comparative table shows how the various collection of specimens in the garden has stood during the last four years:—

Year.	Mammals.	Birds.	Reptiles.
1918-19	... 299	1,944	171
1919-20	... 294	1,919	183
1920-21	... 328	2,033	171
1921-22	... 317	2,041	190

ACQUISITIONS.

The collection of animals was enriched by numerous additions; the most important of them are the following:—

Gayal	...	...	Presented by A. N. Barton, Esq.
Orang-utan	...	...	Purchased.
Rhinoceros hornbills	...	...	Do.
African lions	...	...	Presented by the Maharaja of Balarampur.
Pangolin	...	...	Presented by the Kshatriya Samiti, Rangpur.
Lioness	...	...	Presented by H. H. the Maharaja of Mayurbhanj.
Hocheur monkey	...	...	Purchased.
Serval cat	...	...	Do.
Syke's monkeys	...	...	Do.
Thomson's Gazelle	...	...	Do.
Leopard	...	...	Presented by the Botanic Garden, Bangalore.
Cane Rat	...	...	Presented by E. W. Harper, Esq.
Markhors	...	...	Purchased.
Malayan bear	...	...	Presented by Dr. R. P. Weldon.
3 Argus Pheasants	...	...	Purchased.
1 Gaur (calf)	...	...	Do.

The following animals were received in exchange from the Zoological Society of Scotland:—

3 Mute Swans.	14 Common Gulls.
---------------	------------------

The following were received from the Zoological Park Trust, Taronga, Australia:—

1 pair great Kangaroos.	1 Fur Seal.
1 pair Wombats	1 Mongoose lemur.
1 pair Emus.	

The management of the garden was much indebted to Mr. W. K. Dods for his kindly help in obtaining for the garden a regular supply of common aquatic birds during the year

Births.

The following is a list of animals born in the garden during the year:—

5 Lions.	2 Indian antelopes.
1 Kashmere deer.	3 Spotted deer.
2 Fallow deer.	1 Burchell's Zebra
4 Wild pigs.	1 Great Kangaroo.
1 Black leopard.	1 Barasingha deer.
2 Sambar deer.	1 Hog deer.
1 Celebes black monkey.	1 Markhor.
1 Bengal porcupine.	1 Nicobar pigeon.
1 Brow-antlered deer.	

Mr. H. Stevens sent to the gardens hamadryad and viper eggs (*T. monticola*) from Gopaldhara, Kurseon. They were hatched out successfully. Eggs were laid but not hatched by the following birds:—

Ostrich, Common peafowl.

Deaths.

The following is a list of more important deaths during the year:—

1 Uryal.	1 Serow.
1 Nail-tailed Kangaroo.	2 Ostriches.
1 Mona monkey.	1 Markhor.
4 Cat bears.	1 Purple-faced monkey.
2 Gayals.	1 Black leopard.
4 Great Kangaroos.	1 Serval cat.
2 Rufous Kangaroos.	1 Hyacinthine Macaw
1 Waltaby.	1 Hoolock Gibbon

The following animals were sent to the Taronga Zoological Park Trust, Sydney :—

1 Tiger.	2 Indian foxes.
7 Leopards.	4 Bar-headed geese.
4 Cat bears.	

PATHOLOGICAL DEPARTMENT.

With the ready and generous help rendered in important cases by Lieutenant-Colonel A. Smith, R.C.V.S., Principal, Bengal Veterinary College, the work in this department was carried on as usual. Conditions do not admit of more being undertaken than is requisite to establish the cause of death and acquire such information as may be utilised in the care of living animals. But in order to promote further research, arrangements were made with the Director, Calcutta School of Tropical Medicine and Hygiene, for the carcasses of all animals that die in the gardens to be sent to the School Laboratory for research work and investigation. Thanks are due to Major Knowles, I.M.S., Proto-Zoologist to the School of Tropical Medicine, for his very interesting P. M. reports on the specimens sent.

Notes on the more important cases examined in the garden are given below—

Sloth Bear.

The animal suffered from attacks of diarrhœa and dysentery from time to time.

Liver	...	...	Enlarged and congested.
Intestine	...	...	Chronic congestion and patches of ulceration found. A large number of round worms found.
Other internal organs	...	...	Extremely anemic.
Cause of death	...	...	Chronic diarrhœa.

Cat Bear.

The condition of the animal was good.

Lungs	...	...	Congested.
Heart	...	...	Right ventricle full of dark clots.
Liver	...	...	Congested.
Stomach	...	...	Full of half-digested food.
Brain	...	...	Deeply congested.
Other organs	...	...	Normal.
Cause of death	...	...	Heat apoplexy.

Jungle Cat.

The animal enjoyed excellent health till the attack after which it was completely off its feed.

Liver	...	...	Congested.
Spleen	...	...	Enlarged.
Heart	...	...	Normal.
Kidney	...	...	Deeply congested.
Stomach	...	...	Empty and deeply congested, a thick yellow mucous found.
Intestines	...	...	Diffused inflammation.
Cause of death	...	...	Gastro-enteritis.

Grivet Monkey.

Lungs	...	...	Showed acute inflammation; one portion sinks in water. There is a little fluid in the pleural space.
Heart	...	...	Normal.
Liver	...	...	Enlarged.
Kidney	...	...	Enlarged and deeply congested.
Stomach	...	...	Empty and slightly congested.
Cause of death	...	...	Pneumonia.

Monal Pheasant.

It is one of the oldest birds; condition very good.

Liver	...	...	Deeply congested and deposit of fat in the substance of the liver.
Heart	...	...	Large quantity of fat.
Other organs	...	...	Normal.
Cause of death	...	...	Fatty degeneration of the liver.

Indian Gazelle.

The animal was never in good condition since its arrival and in spite of all attention and extra food it did not thrive. Internal organs emaciated.

Thoracic cavity	...	...	Pleura was adherent to the wall of the thorax; there was a little fluid in the pericardial sac.
Liver	...	...	Enlarged and brittle.
Kidney	...	...	Congested.
Bladder	...	...	Wall of the bladder thickened; pieces of gravel found in the bladder.
Cause of death	...	...	General debility.

Ostrich.

The condition of the bird was very good—she tried to lay eggs; became uneasy, struggled and died after short time.

Abdominal cavity	Several eggs of different sizes found. One full-sized egg found burst into the tube which was also ruptured—quantity of blood found in the abdominal and the pelvic cavity—also in the peritoneal sac. Portion of the peritoneum thickened and fibrotic and was adherent to the abdominal wall.
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Other organs	Normal.
Heart	Large quantity of fat found around the heart.
Cause of death	Internal hæmorrhage due to the bursting of the tube.

The following is a list of some important cases examined by Major R. Knowles:—

Pennant's Parrakeet.—The small and large intestine showed extreme congestion with, in places, tiny hæmorrhages. Films from the heart blood, lung, liver, spleen, kidney and bone marrow showed Pasteurella infection. Examination of fresh films and of Hæmalum stained films of the intestinal contents showed nothing special.

Cause of death.—Pasteurillosis and enteritis.

Rufous Kangaroo.—The animal seemed rather emaciated. Free fluid found in both pleuræ and in peritoneum. Lower two-thirds of both lungs consolidated and sink in water. State of lobar croup pneumonia present. Heart normal. Liver fibrotic. Guts hard, probably enlarged and with amyloid degeneration. Spleen also rather fibrotic. Iliac glands enlarged and somewhat fibrotic. Intestines normal. Intestinal contents show a very mild infection with coccidiosis—and a few coccidial oocysts in the faecal contents. Blood films from heart blood, lung, venous blood, liver, spleen, bone marrow and iliac glands shew no parasites.

Cause of death.—Double lobar pneumonia.

Mandarin Duck.—Condition of hæmorrhagic enteritis in large intestine. Films from heart blood negative. Liver studded with nodules from a coccidial infection. Films from spleen, bone marrow, kidney, lung negative. Films from the contents of the

Large intestine shewed a state of hæmorrhage into the
 at, red corpuscles and leucocytes.

Cause of death.—Hæmorrhagic enteritis.

Russell's Viper.—Heart empty. Gall bladder dis-
 ended. Films from heart blood, spleen, bone marrow,
 lung, liver etc. shewed nothing characteristic. The
 mesentery, however, and the peritoneal surface of the
 gut shewed multiple tiny cysts of a cysticercus infec-
 tion. The contents of the gut shewed a Bodo infec-
 tion.

Cause of death.—Cysticercus infection of the mesen-
 tery.

Rat Snake.—A most remarkable specimen for patho-
 logical results. One lung was infested with enormous
 urbate nematodes. The lung cavity was studded with
 large nematode worms, about 4 to 5 inches long, each
 packed full of embryos, and each clinging to the
 lung by a sucking disc. As this must almost certainly
 be a new parasitic helminthic species, the specimen
 was sent to London to Dr. Leiper. This in itself
 would probably cause death but there was also multiple
 cysticercus infection of the mesentery and peritonium,
 which might also be pathogenic.

Films of heart blood, liver, lung and kidney shewed
 scanty Hæmogregaine infection. The gut contents
 warmed with an actively motile Trichomonas (intes-
 tinal flagellate).

Great Kangaroo.—The animal shewed excess of fat
 everywhere; subcutaneous; mesenteric and in the
 pericardium. The pericardium was adherent in many
 places to the heart, loaded with fat, and shewed signs
 of old standing pericarditis. Inside it was sanious
 and tuberculate. The lungs were both full of broncho-
 pneumonic consolidation; the consolidated patches

sinking in water. The liver and spleen were very congested and the gut in a state of acute hæmorrhagic enteritis. Films from the heart blood, liver, spleen, lung, kidneys and bone marrow gave no positive findings; but the organism of pleuro-pneumonia usually not seen in fresh films and only in culture. The contents of the gut shewed hæmorrhage and inflammation, and a Chilomastix infection was also present (intestinal flagellate).

Cause of death.—Pleuro pneumonia.

Heron.—A most unusual condition, a complete longitudinal rupture of the trachea just above its bifurcation. The trachea had ruptured into the pericardial cavity and into the left pleural sac; and both were distended with air. The rupture was with clean cut edges and the trachea did not appear diseased. It appears a dilatation had been present and had given way.

Cause of death.—Rupture of the trachea.

Sheldrake.—The right pleural cavity and peritoneal cavity were full of sero-sanious fluid. The whole of the right lung had become converted into an enormous tumour, soft and friable and of the character of an endothelioma. There was also hæmorrhage into the left lung, and metastases in the abdominal viscera, chiefly liver. Nothing found in blood films and intestinal contents.

Cause of death.—Tumour.

Brahminy Duck.—A condition of acute plastic peritonitis was present; the intestinal coils being bound together by plastic peritonitis. The liver shewed patches of fatty degeneration. Films from the internal viscera were everywhere full of a Pasteurella infection, the organism resembling Bacillus

Septicus. It was also apparently the cause of peritonitis.

The gut contents shewed *nil*.

Cause of death—Peritonitis.

GENERAL CONDITION OF THE ANIMALS.

Foot and mouth disease amongst the ruminants broke out in one wing of the New Extension. Every possible precaution as regards isolation, frequent and efficient disinfection, etc., was put into effect immediately and it was completely stamped out before other mischief had been done.

The general condition of the animals has been satisfactory, the death-rate considered to be normal. Mammals and birds have been free from any other serious diseases and the larger and the smaller carnivorous animals are in good condition. It is gratifying to report that the following Himalayan animals, *viz.*, al, markhor, thar, serow, cat bear, Himalayan, have become thoroughly acclimatised and are enjoying perfect health.

B. BASU.

APPENDIX A.

1.—Comparative statement of receipts for 1920-21 and 1921-22.

	1920-21.			1921-22.		
	Rs.	A.	P.	Rs.	A.	P.
Opening balance	46,638	13	9	10,853		
Interest	237	6	6	237		
Donation and subscriptions ...	1,056	0	0	388		
Entrance receipts	67,845	14	0	65,854		
Rent	7,104	0	0	7,654		
Carriage, rickshaw, etc., etc. ...	1,436	12	0	896		
Fishing	266	0	0	8		
Picnic	248	0	0	237		
Rhino urine	3,556	8	0	4,086		
Miscellaneous receipts	5,933	4	0	7,298		
Government contribution	20,000	0	0	20,000		
Total	1,54,322	10	3	1,17,512		
<i>Add—</i>						
Receipts of 31st March 1920 which were included in 1920-21.	98	13	0	.....	
Receipts of 30th and 31st March 1921 which are included in 1921-22.	.....			464		
Total	1,54,421	7	3	1,17,976		
<i>Deduct—</i>						
Receipts of 30th and 31st March 1921 which are included in 1921-22.	464	2	0	.....	
Receipts of 31st March 1922 which will be included in 1922-23.	.....			100		
GRAND TOTAL	1,53,957	5	3	1,17,876		

*Comparative statement of expenditure for
1920-21 and 1921-22.*

	1920-21.			1921-22.		
	Rs.	A.	P.	Rs.	A.	P.
ishment ...	11,682	4	9	2,340	4	9
f animals ...	44,656	1	6	48,143	15	6
se of animals ...	12,784	9	9	5,829	1	0
ort of animals ...	2,843	14	6	3,146	3	3
aneous contingencies ...	11,150	2	5	9,744	2	7
s of roads ...	2,265	2	0	1,968	1	0
s of buildings ...	10,972	9	6	9,655	0	6
construction ...	7,625	6	3	6,729	13	0
al construction ...	39,123	13	6	7,466	10	0
Total ...	1,43,104	0	2	1,05,023	3	7
g balance ...	10,853	5	1	12,853	3	0
GRAND TOTAL ...	1,53,957	5	3	1,17,876	6	7

APPENDIX B.

Summary of visitors and gate receipts during the year 1921-22.

Month and year.				Number of visitors.	Receipts.		
					Rs.	A.	P.
April	1921	...	...	61,529	5,016	3	0
May	"	...	...	56,759	4,761	0	0
June	"	...	...	90,144	6,529	12	0
July	"	...	...	64,749	5,263	9	0
August	"	...	...	61,690	4,834	13	0
September	"	...	...	72,801	5,257	3	0
October	"	...	...	127,396	8,994	5	0
November	"	...	...	57,581	4,635	12	0
December	"	...	...	55,257	4,520	13	0
January 1922	"	...	...	78,919	6,358	7	0
February	"	...	...	58,003	5,277	9	0
March	"	...	...	55,227	4,405	0	0
Total ...				840,955	65,854	6	0

*II.—Comparative statement of expenditure for
1920-21 and 1921-22.*

	1920-21.			1921-22.		
	Rs.	A.	P.	Rs.	A.	P.
Establishment	1,682	4	9	2,340	4	9
Food of animals	44,656	1	6	48,143	15	6
Purchase of animals	12,784	9	9	5,829	1	0
Transport of animals	2,843	14	6	3,146	3	3
Miscellaneous contingencies	11,150	2	5	9,744	2	7
Repairs of roads	2,265	2	0	1,968	1	0
Repairs of buildings	10,972	9	6	9,655	0	6
Garden construction	7,625	6	3	6,729	13	0
Original construction	39,123	13	6	7,466	10	0
Total	1,43,104	0	2	1,05,023	3	7
Closing balance	10,853	5	1	12,853	3	0
GRAND TOTAL	1,53,957	5	3	1,17,876	6	7

APPENDIX B.

Summary of visitors and gate receipts during the year 1921-22..

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					Rs.	A.	P.
April	1921	61,529	5,016	3	0
May	"	56,759	4,761	0	0
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July	"	64,749	5,263	9	0
August	"	61,690	4,834	13	0
September	"	72,801	5,257	3	0
October	"	127,396	8,994	5	0
November	"	...	...	57,581	4,635	12	0
December	"	...	...	55,257	4,520	13	0
January	1922	...	...	78,919	6,358	7	0
February	"	...	...	58,003	5,277	9	0
March	"	...	...	55,227	4,405	0	0
Total				840,955	65,854	6	0

APPENDIX C.

A list of freedays showing free visitors during the year, 1921-22.

25th April	1921.	...	...	2,775
23rd May	"	...	...	2,374
27th June	"	...	...	1,095
25th July	"	...	...	1,065
22nd August	"	...	...	1,686
26th September	"	...	...	3,033
3rd October	"	...	...	3,554
7th November	"	...	...	2,820
5th December	"	...	...	2,978
16th January	1922	...	...	2,955
20th February	"	...	...	2,881
20th March	"	...	...	2,474
				<hr/>
		Total	...	33,690
				<hr/>

APPENDIX D.

*List of Donors, 1921-22.***B.**

Barton, Mr. A. N. ...	1 Gayal.
Balrampur, late Maharaja of Bangalore, the Botanic Garden ...	2 Lions.
Bean, Mr. R. B. ...	6 Leopards.
...	1 Himalayan bear.

C.

Chakravarti, Mr. B., M.A. ...	1 Spotted deer.
Commander, SS. <i>Maharaja</i> ...	1 Andaman pig.

D.

Dods, Mr. W. K. ...	1 Indian fox, 2 Indian wild pigs, 1 common otter, 4 Indian rollers and 8 Spoon-bills.
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F.

Floud, Mr. A. M. ...	5 Lesser whistling teals
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G.

Griffin-chave, Mrs. F. T. ...	1 Sloth bear cub.
George, Mr. M. ...	1 Javan mouse deer.
Gaspar, Mr. T. O. ...	1 Leopard.

H.

Harper, Mr. E. W. ...	1 Cane rat.
Harris, Mr. C. Stanley ...	3 Wild dog pups.

J.

Jackson, Mrs. H. J. ...	1 Sloth bear cub.
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L.

Lisbey, Mr. S. T. W. ...	1 Grivet monkey.
Lopez, Miss ...	1 Barking deer.

M.

Mayurbhanj, H. H. the Maharaja	1	Lioness.
Saboo of.		
Martin, Mr. L.	...	1 Leopard cat.
Mullick, Mr. N. C.	...	1 Spotted deer.
Macdonald, Mr. J.	...	1 Indian antelope.

N.

Norcock, Commander C. V. L.	...	1 Spotted deer.
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P.

Peters, Mr. E. C.	...	1 Leopard cub.
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R.

Rush, Mr. E.	...	1 Leopard.
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S.

Santhia, Mr. Radha Kissen	...	1 Leopard cub.
Samiti, Raupur Khatriya	...	1 Pangolin.
Strelly, Mrs. M.	...	1 Indian wild pig.
Scott-Smith, Mrs. A.	...	2 Canaries.
Smith, Mrs. C. V.	...	1 Sloth bear.
Sen, Mr. P.	...	1 Indian mouse deer
Sunder, Mr. D.	...	1 Hog deer.
Sen, Mr. K. B., I.S.O.	...	2 Leopards.

W.

Wirth, Mrs.	...	1 Crested porcupine.
Weldon, Dr. R. P.	...	1 Malayan bear

1922-23

**REPORT OF THE HONORARY COMMITTEE
FOR THE MANAGEMENT OF THE
ZOOLOGICAL GARDEN, CALCUTTA, FOR
THE YEAR 1922-23.**

The Committee have the honour to submit their report for the year ending 31st March 1923, supplemented as in former years, among other items, by—

- (1) The Superintendent's report upon the Zoological collection.
- (2) Abstract of accounts of ordinary receipts and expenditure.
- (3) Monthly returns of visitors and gate receipts, and a list of donors and their donations.

The Committee consisted of—

President :

The Hon'ble Mr. Justice P. L. Buckland, F.Z.S.

Vice-President :

The Hon'ble Sir Bijay Chand Mahtab, K.C.S.I., K.C.I.E., I.O.M., Mahàrajadhiraj Bahadur of Burdwan, from 21st August 1922.

Honorary Secretary and Treasurer :

W. Dods, Esq., from 1st April to 6th November 1922.

W. K. Dods, Esq., from 7th November to 2nd March 1923.

A. M. McGrigor, Esq., from 3rd March 1923 to 31st March 1923.

*Members :**minated—*

- R. D. Mehta, Esq., C.I.E.
 Nawab Sir Asif Qu'dr Saiyid Wasif Ali Mirza,
 Khan Bahadur, Mahabat Rang, Nawab Bahadur
 of Murshidabad, K.C.S.I., K.C.V.O.
 David Ezra, Esq., F.Z.S.
 Nawab A. F. M. Abdur Rahman, Khan Bahadur.
 Lieutenant-Colonel E. H. Brown, M.D., I.M.S.
 (retired), D.P.H., F.R.C.S.E.
 Surendra Nath Laha, Esq.
 Dr. B. L. Chaudhuri, D.Sc.
 G. C. Mandal, Esq.
 Satya Charan Laha, Esq., F.Z.S.
 W. Kirkpatrick, Esq.
 H. B. Turle, Esq.
 F. C. French, Esq., C.S.I., I.C.S.
 Lieutenant-Colonel E. E. Waters, M.D., M.R.C.P.,
 I.M.S.
 Lieutenant-Colonel F. P. Connor, D.S.O., F.R.C.S.,
 I.M.S.
 Oswald Martin, Esq.
 Ajit Nath Das, Esq.

officio—

- The Commissioners of Divisions in Bengal.
 The Executive Engineer, 2nd Calcutta Division,
 Public Works Department.
 The Sanitary Commissioner, Bengal.
 The President of the Asiatic Society of Bengal.
 The Director of Public Instruction, Bengal.
 The Natural History Secretary of the Asiatic
 Society of Bengal.
 The Director of Land Records, Bengal.

The Superintendent, Civil Veterinary Department
Bengal.

The Professor of Comparative Anatomy and
Zoology, Medical College, Bengal.

The Superintendent of the Royal Botanic Garden
Sibpur.

The Chairman of Calcutta Corporation.

The Principal of the Bengal Veterinary College
Calcutta.

Rai Bijay Krishna Basu Bahadur continued in
charge of the garden as Superintendent throughout
the year and Babu Somadev Ganguli as Assistant
Superintendent.

The following is a list of the superior staff of the
garden at the end of 1922-23 :—

Superintendent.

Rai Bijay Krishna Basu Bahadur, C.M.Z.S.

Assistant Superintendent.

Babu Somadev Ganguli.

Store-keeper.

Babu Jugal Kishore Roy.

Overseer.

Babu Niranjan Mukherji.

Clerk.

Babu Tarak Chandra Chatterji.

Gate Clerk.

Babu Doyal Chandra Dass.

The menial staff of the garden at the end of 1922-23 comprised in addition to temporary men who were engaged as required :—

1 Salutri.	14 Gardeners.
1 Jemadar.	3 Sweepers.
8 Durwans.	1 Chaprasi.
20 Keepers.	1 Carpenter.
2 Bhistis.	2 Cartmen.
1 Cook.	1 Sycc.
1 Head gardener.	1 Scytheman.
	1 Night watch.

The Committee of Management are able to report that during the year under review the standard of the collection and of the gardens has been maintained. The collection has been added to from time to time by gifts, exchanges and purchases as funds permitted, and the health of the animals and birds on the whole has been good throughout the year, with the exception however of casualties among the markhors and Billingham cattle due to the unusually heavy rains in the month of September last. It is also a matter of regret that the sea-lion, a most attractive exhibit, has not survived notwithstanding that the conditions under which he lived could hardly be improved upon in confinement and are such that the Committee will not be discouraged from attempting to replace him, if opportunity arises. Figures showing the numbers of the mammals, birds and reptiles will be found in the Superintendent's report.

The approach to the southern extension has been further improved by the demolition of two small houses of old design and faulty construction which were only in a very bad state of repair, but which obstructed the approach to the extension. In their place on the adjacent eastern boundary a new house

has been constructed intended to accommodate Hillayan sheep and goats. It is confidently hoped, with the accommodation thus provided further casualties during the monsoon among the market due to climatic conditions may be avoided, or at least greatly minimised.

In lieu of one of the demolished houses a new house for guinea pigs and rabbits has been built, also on the eastern boundary in the same locality. For the public and the Committee are indebted to the generosity of Mr. Ajit Nath Das, a member of the Committee of Management, at whose request this house has been named "Boloram House" in memory of his late father Babu Boloram Das. Simultaneously with these improvements, an aviary on the west boundary which obscured the view has been moved to the opposite side of the grounds, and this is intended to use as a segregation cage for the reception of new arrivals during such time as they have to be in quarantine before distribution among appropriate cages.

With the improvements to which reference has been made, the south extension and its approaches may be considered complete. It is now several years since His Excellency Lord Carmichael secured this portion of land for the garden. Since then it has undergone various changes, but no one who can recollect the unattractive congested enclosures towards the southern extremity of the garden will fail to appreciate the results achieved. The wide open spaces giving free scope for the activities of animals and birds of many kinds, all dwelling together in harmony, furnish an exhibit hardly to be equalled in any Zoological Garden.

The Committee are much indebted to those members of the public who send their old and broken down horses to be destroyed at the Zoological Gardens. Not only does this supply of horse flesh reduce the cost of food to be supplied, which during the year is very considerable, but those who adopt these means of having their horses destroyed have the satisfaction of knowing that it is done promptly and under conditions which cause no suffering to the animal nor to any others, as the spot is wholly secluded. The site has recently been renovated and the drainage improved so that the conditions may be as perfect as possible.

Annual repairs to the buildings of the garden were carried out departmentally as usual.

The following houses were repaired and re-painted:—

Entrance Lodge.	Schwendler House.
Sonebursa Enclosure.	Rhinoceros Enclosure.
Gubbay House.	Durbhanga House.
Mullick House.	Servants' Quarters.
Mandrill House.	

Extensive repairs were done to the following houses and iron and wood-work repaired and renewed:—

Lalgola House.	Bird of Prey House.
Barking deer enclosure.	Abdul Gany House.
Crane Enclosure.	Cooch-Behar House.
Saruomoyi House.	Store Godown.

The following houses were lime-washed and colour-washed:—

Dumraon House.	New Bear House.
Murshidabad House.	Hippo Enclosure.
Reptile House.	Tapir Enclosure.
Small Carnivora House.	Ezra House.

The whole of the boundary wall of the garden was thoroughly scraped, sand-plastered and colour washed and the entire iron-fencing of the paddock was coal-tarred.

In addition to the above, the usual petty repairs to smaller houses, sheds and enclosures and roads and paths were attended to. Ground railings were repaired and painted and the garden seats were painted and the main drive re-metalled as necessary.

There was a considerable falling off in the number of visitors on Sundays during the year which must be attributed to inclement weather prevailing on Sunday afternoons. The result is that, though the total number of visitors for the year shows an increase of 13,948 over the previous year, there was a decrease of Rs. 2,460-7-0 in the gate receipts as will be seen from the following table:—

		SUNDAY RECEIPTS.					
		At 4 annas.			At 1 rupee.		
		Rs.	A.	P.	Rs.	A.	P.
1921-22	...	1,556	4	0	12,142	0	0
1922-23	...	1,298	4	0	9,249	0	0

The following is a comparative statement of visitors and receipts for the last three years:—

		Visitors.		Receipts.			
		Rs.	A.	P.	Rs.	A.	P.
1920-21	...	842,616	...	67,845	14	0	
1921-22	...	840,055	...	65,854	6	0	
1922-23	...	854,003	...	63,393	15	0	

A large number of children under 4 years of age and school children attended by their teachers were admitted free. On the occasion of the 5th Fancy Fair about 9,700 people visited the garden. In addition 34,503 persons visited the garden on the free day. Detailed statement of the numbers of visitors and receipts appear in Appendix B.

The financial condition of the garden has been on whole satisfactory. Income and expenditure are summarised in Appendix A.

The gardens have been maintained in excellent condition throughout the year. The lawns, flower beds and shrubberies are in good order and the show of flowers has been specially attractive to visitors. New paths have been cut and laid in the new extension of the garden and the general appearance improved. Unfortunately, it is not possible to report, as in former years, that prizes were secured at the show of the "Horticultural Society" as owing to inclement weather the show was not held.

The thanks of the Committee are due to those ladies and gentlemen who have added to the zoological collection by donations, a list of which is given in Appendix C. Thanks are also due to those who kindly offered to present animals to the garden, but whose offers could not be accepted either because the particular species of animals was already sufficiently well represented, or owing to want of accommodation.

The Committee desire to express their thanks to the Corporation of Calcutta for their continued generosity in remitting the consolidated rates in respect of the gardens and to the railway and steamer companies for the conveyance, free of charge, of animals belonging to the garden.

Thanks are also due to the Officer Commanding and Officers of the 90th Punjabi Regiment for allowing their band to play at the garden on Tuesday afternoons free of charge.

A. M. McGRIGOR,
Honorary Secretary.

P. L. BUCKLAND,
President.

SUPERINTENDENT'S REPORT.

I have the honour to submit the following report on the existing condition and the progress of the menagerie of the garden.

The following comparative table shows how the various collections of animals in the garden stood during the last four years :—

Year.	Mammals.	Birds.	Reptiles.
1919-20	... 294	1,919	183
1920-21	... 328	2,033	171
1921-22	... 317	2,041	190
1922-23	... 281	851	142

The figures 851 are approximate only, and in fact the total number of birds actually in the gardens has not greatly varied. Many birds of common varieties such as muniahs, wax bills, black-headed nuns, finches, etc., have been excluded. Birds such as cranes, raijacas, coots, etc., which formerly were included, have been excluded as they have been set at large in the gardens. The extent of the large tank and the number of birds at large make it impossible to take stock with any degree of accuracy.

Among the important gifts deserving special mention were a fine male Bengal Tiger presented to H. R. H. the Prince of Wales, and a male Sikh Stag presented by H. H. Maharaja Chandra Shams Jung Bahadur, Prime Minister of Nepal. Many additions to the collection have been made during

year, the most important of which are the following:—

Persian Brown bear ...	... }	Purchased.
Siamese Gibbons }	
Black Gibbon ...	... }	Presented by J. C. Cumming, Esq.
Orang-outang ...	... }	Presented by H. Kenneth, Esq.
Old-leaf monkeys }	
White-rumped argas ...	... }	Purchased
Leopard monkey }	
Wallace's sea-eagle ...	... }	Presented by W. K. Doda, Esq.
Red Imperial pigeons }	
Siberian lynx ...	... }	Purchased.
Wombats }	
Orang-outangs }	
Malayan bear ...	... }	Presented by Mr. Oadens.
Woolly calf ...	... }	Purchased.
White peafowl ...	... }	By exchange.

The following animals were received in exchange in the Taronga Zoological Park Trust, Sydney:—

2 Great Kangaroos. | 2 Red Birds of Paradise. | 2 Emus.

The following animals were born in the gardens during the year:—

1 Markhor.	2 Sambar deer.
2 Green monkeys.	2 Brown-antlered deer.
1 Bonnet monkey.	2 Black leopards.
4 Bengal porcupines.	4 Emus.
2 Gayals.	3 Hog deer.
1 Kashmir stag.	2 Spotted deer.
1 Tiger.	5 Indian wild pigs.
1 Fallow deer.	1 Barasingha deer.
2 Leopards.	1 Indian antelope.
2 Lions.	2 Peacock pheasants.
1 Malayan tapir.	2 Black-headed ibises.
1 English wild cattle.	

The following birds bred on the island in the big enclosure:—

Night herons. | Indian snake birds. | Little cormorant.

Eggs were laid, but not hatched, by the following birds:—

Ostriches.	Imperial Nicobar pigeons.
Purple coots.	Ring-necked pheasants.
Jungle fowl.	Black swans.
Sagaing firebacks.	Crowned pigeons.
	Canaries.

During the past year the gardens had the misfortune to lose the fine herd of Chillingham wild cattle, except one heifer and some markhorns. Foot-and-mouth disease occurred amongst the ruminants, with careful treatment and proper precautions disease was stamped out. The Chillingham cattle and the markhorns, however, suffered the most and though they recovered, they could not regain their former health and the unusually heavy rains, that followed, brought on pneumonia and other complications which they succumbed. As Chillingham cattle are rare, even in England, it will be almost impossible to replace them.

The death of the sea-lion is also a severe loss to the gardens, though every endeavour was made to keep the animal in natural surroundings, as far as possible, and to acclimatise it.

The work in the Pathological Department is carried on as usual with the help of the Principal, Bengal Veterinary College. As arranged last year with the Director, Calcutta School of Tropical Medicine and Hygiene, Major R. Knowles, I.M.S., carried on bacteriological researches, and from his reports the following extracts are of interest:—

Hyacinthine Macaw.—A most extraordinary condition. The abdomen was full of ascitic fluid, liver almost unrecognisable, fibrotic, cirrhotic, fatty, nearly white in colour. Films from inter-

era gave negative results. The intestinal contents showed a prevalent intestinal spirochaete.

Cause of death.—Acute cirrhosis of the liver.

Temminck's Tragopan.—This bird showed a most extraordinary amount of fat everywhere. The heart was buried in fat, also the liver. The whole mesentery and abdominal peritoneum was loaded with fat. The omental fat was very excessive. The heart muscle had undergone fatty degeneration. The gut contents showed numerous sarcodinæ and infection with a spirochaete (not at all unusual in birds and mammals and corresponds to the probably harmless *Spirochaeta eugyrata* of man). Films from the internal viscera, specially from the kidney and lungs, showed infection with a leucocytozoon.

Cause of death.—Leucocytozoon infection, plus fatty condition of the internal viscera.

Indian Mouse deer.—Both lungs deeply congested, places consolidated and dripping with blood on section. Right heart distended. Intestinal contents showed nothing abnormal.

Cause of death.—Pleuro-pneumonia.

Large Heron.—The heart was congested and distended and liver also congested. The blood vessels of the mesentery were very dilated and congested. Films from the internal viscera showed nothing. The intestinal contents showed an entamoeba present with bright chromidial bars, not unlike *E. histolytica* of man.

Cause of death.—Enteritis.

Black-necked stork.—Liver very fibrotic, cuts hard and in many places fatty. Films from the viscera showed nil. But there was a most interesting condition of the large intestine, the wall being riddled with

cysts with very thick hard fibrotic walls; inside these a reddish jelly; which on microscopical examination showed occidial oocysts, plus a mycotic infection.

Cause of death.—Mycotic infection of the gut super-added on to a coccidial infection.

Slow Loris.—The liver was almost white and everywhere fatty and fibrotic. The spleen was also enlarged and fibrotic. No intestinal parasites were found. Films from the viscera showed everywhere a big thick bacillus looking like a *B. proteus*.

Cause of death.—Fatty degeneration, fibrosis and cirrhosis of the liver.

Markhor.—The pericardial and both pleural sacs were full of serous effusion; the lungs were sodden with œdema, frothy on section, and full of white pus. There was also a hæmorrhagic condition of the wall of the aorata, but no rupture; lots of petechial spots on the adventitia.

Cause of death.—Hyper acute pleuro-pneumonia.

King Cobra.—The lungs sac was full of strongyloid worms, containing living embryos. The mesentery was studded with encysted worms. The gut contents were full of worm ova: one of a *Trichuris* type, another of *Strongyloid* type. The worm in the lungs had two chitinous mouth plates. The gut contents shewed abundant *Trichomastix*, and there was also a hæmogregarine infection in the viscera.

Cause of death.—Helminthic infection.

Orang-outang.—The curious feature is that films from the pneumonic lung showed bacteria resembling Pleiffer's influenza bacillus. The pneumonia was either influenzal or pasteurellosis in type.

Cause of death.—Broncho-pneumonia.

Sagaing Fireback.—The heart blood films showed heavy infection. The gut contents showed *Ascaris*, *Trichuris* and *Blastocystis*. The visceral films showed microfilaria in the lungs and *Proteosoma* in the heart blood. The skin was full of *Proteosoma* pigment.

Cause of death.—*Pasteurella* infection.

Russell's Viper.—The lung sac was intensely congested, but no parasites were found.

Cause of death.—*Cysticercus* infection of the mesentery.

APPENDIX A.

I.—Comparative statement of receipts for 1921-22 and 1922-23.

	1921-22.			1922-23.		
	Rs.	A.	P.	Rs.	A.	P.
Opening balance	10,853	5	1	12,853	3	0
Interest	237	6	6	237	6	6
Donation and subscriptions	388	0	0	405	0	0
Entrance receipts	65,854	6	0	63,393	15	0
Rent	7,654	0	0	8,699	13	3
Carriage, rickshaw, etc., etc.	896	2	0	955	0	0
Fishing	8	0	0	12	0	0
Pic-nic	237	0	0	185	0	0
Rhino urine	4,086	8	0	4,383	0	0
Miscellaneous receipts	7,298	1	0	4,178	1	0
Government contribution	20,000	0	0	20,000	0	0
Total	1,17,512	12	7	1,15,302	6	9
<i>Add—</i>						
Receipts of 30th and 31st March 1921, which were included in 1921-22.	464	2	0	.....	
Receipts of 31st March 1922, which are included in 1922-23.	.....			100	8	0
Total	1,17,976	14	7	1,15,402	14	9
<i>Deduct—</i>						
Receipts of 31st March 1922, which are included in 1922-23.	100	8	0	.....	
Receipts of 29th, 30th and 31st March 1923, which will be included in 1923-24.	.....			592	5	0
GRAND TOTAL	1,17,876	6	7	1,14,810	9	9

II.—Comparative statement of expenditure for 1921-22
and 1922-23.

	1921-22.			1922-23.		
	Rs.	A.	P.	Rs.	A.	P.
Establishment ...	12,340	1	9	14,815	8	3
Food of animals ...	48,143	15	6	45,176	3	6
Purchase of animals ...	5,829	1	0	7,632	12	0
Transport of animals ...	3,146	3	3	2,333	6	9
Miscellaneous contingencies ...	9,744	2	7	11,298	10	4
Repairs of roads ...	1,968	1	0	2,105	4	6
Repairs of buildings ...	9,655	0	6	6,881	6	9
Garden construction ...	6,729	13	0	8,243	0	6
Original construction ...	7,466	10	0	10,624	12	3
Total ...	1,05,023	3	7	1,09,111	0	10
Closing balance ...	12,853	3	0	5,699	8	11
GRAND TOTAL ...	1,17,876	6	7	1,14,810	8	9

