

**Cape Hunting Dogs (*Lycaon pictus*) in the Gardens of the Royal Zoological Society of Ireland.** By D. J. Cunningham, F.R.S., Professor of Anatomy, University of Edinburgh. (With Two Plates.)

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In October 1894 a pair of Cape hunting dogs were acquired by the Royal Zoological Society of Ireland and added to their collection in Phoenix Park. They were purchased from Hagenbeck, in Hamburg, and at the time they came to Dublin they were not quite full grown. Although still existing in considerable numbers over a very wide area in Africa, the *Lycaon* is by no means a common specimen in Zoological Gardens, and it is rare to meet with it on the lists that are periodically issued by dealers in wild animals.

The characters of the Cape hunting dog are so fully described in most books on natural history, that is not necessary to dwell on them in this communication. Although placed in a separate genus, there is little either in general appearance or in structural detail that distinguishes it from the lupine members of the genus *Canis*. As is well known, the dog has five toes on the front foot and four on the hind foot. The *Lycaon* has four toes on both fore and hind feet (fig. 1); and this, with certain minor dental peculiarities, constitutes the chief structural difference between it and the genus *Canis*.

In size and general form it resembles an English collie, but its legs are longer and more slender and its head is remarkable on account of its breadth. The feature which chiefly catches the eye is its peculiar coloration. The prevalent or ground colour is a dusky, dull black, but this is interrupted by numerous blotches and spots of light yellow and white, which are scattered very irregularly over the body and limbs. No two Cape hunting dogs are marked precisely alike, and yet the general effect is the same in them all and very different from the uniform and more sombre hues which as a rule distinguish the members of the genus *Canis*.

The superficial resemblance which the Lycaon is said to present to the spotted hyena (*Hyena crocuta*) is commented on by most authors, and it is generally regarded as affording an instance of mimicry. It is difficult to conceive how such borrowed plumes could be of any advantage to the Cape hunting dog, seeing that it is in every respect bolder and more self-reliant than the cowardly and skulking hyena. For my part I must confess that this resemblance, except in the shape of the head, never impressed me. The Lycaon holds its head erect; its limbs are slender and long; it is not so bulky; its coloration and its action are quite different (fig. 2). Still, this fancied resemblance has earned for it the name of the "Hyena dog."

In captivity the Cape hunting dog is very intractable. The pair under consideration were in the Zoological Gardens of Dublin for nine years, and during the whole time they showed the same savage temper and never acquired any appreciable liking for their keeper.

The Lycaon does not bark like a dog, but this is not remarkable, seeing that the "bark" is said to have been acquired by the latter through domestication; nor does it snarl or howl like the wolf. When excited, as on the approach of food, it sets up a continuous jabbering or chattering cry something like the whinny of a horse, which is very distinctive but very difficult to describe. This was the only sound which the Dublin specimens emitted except when they were separated from each other, and then, although on these occasions the male was placed in a remote part of the Gardens, they managed to keep up constant communication with each other by a series of loud, piercing cries.

But the object of this paper is to put on record certain points which were observed in connection with their breeding. Between January 1896 and January 1900 no less than six litters were born. It is sufficiently rare for these animals to breed in captivity to make this a matter of some interest. Two or three litters are known to have been born on the Continent (notably in Amsterdam), but so far as I am aware in no case have any of the young survived.

Personally I never saw the act of coitus: but Flood, the keeper of the lion house, and a man of large experience in

the breeding of carnivora, informs me that during the act the male does not become "locked" to the female as in the case of the domestic dog.

The following table gives the leading details regarding the six litters born in the Dublin Gardens :—

	Date of Birth.	Number of Puppies in Litter.	Period of Gestation.
First litter . . .	Jan. 6, 1896	4	80 days
Second litter . . .	Jan. 4, 1897	5 (1 reared)	80 "
Third litter . . .	Jan. 1, 1898	?	78 "
Fourth litter . . .	Nov. 8, 1898	12 (2 reared)	86 "
Fifth litter . . .	May 16, 1899	?	80 "
Sixth litter . . .	Jan. 1900	?	80-82 (?)

What strikes one first in studying this table is that four out of six litters were born within the first few days of January, and that in the case of the first three litters the births were separated from each other by an interval of one year. Shorter intervals, viz., one of ten months and two of nine months, intervened in the case of the last three litters. It is not easy to offer a satisfactory explanation of the irregularity of the fourth and fifth litters. I am inclined to believe, however, in the absence of definite information on this point, obtained from the animals in a state of nature, that the *Lycaon* breeds only once a year, and that the irregularity noticeable in the case of the fourth and fifth litters is due to a tendency on the part of the Dublin specimens to adapt themselves to the climatic conditions of Ireland. At the same time it should be mentioned that certain indications were observed in connection with the demeanour of the parents towards each other which seemed to indicate that the sexual instinct was excited at more than one period in the year.

The period of gestation was accurately ascertained in the case of the first five litters, and approximately in the case of the last litter. It may be reckoned as being eighty days. This is seventeen days longer than in the case of the domestic dog, and, as might be expected, the young when they are born are more lusty and more advanced in development than new-born puppies of the dog. Still, they are born with their eyelids closed. On one occasion (fourth

litter) the period of gestation was lengthened out to eighty-six days, but this was no doubt due to the unusually large size of this litter.

All the puppies of the first litter died within a few days of their birth. The conditions under which they were born were very unfavourable. The only preparation which was made was the removal of the male from the cage. The cage was in the small carnivora house, and the only means of secluding the mother was by boarding up the front of the den. This was not sufficient. The noise of the visitors in the house alarmed the mother so much that during the day-time she kept continually careering round her compartment with one or more of the puppies in her mouth, seeking a place where she could conceal them. The puppies stood this treatment for three days and then they all succumbed.

On the second occasion elaborate precautions were taken to reproduce as far as possible the conditions under which these animals breed in a state of nature. In a secluded part of the Gardens a den was prepared from the back of which a narrow passage, constructed to resemble a burrow, led into a second smaller compartment. The burrow, and the recess to which it led, were buried deeply under a mass of closely packed straw and peat-moss, with the object of deadening the many noises that take place in a zoological garden. The prospective mother took very kindly to her new quarters, and when her young were born she showed none of the former restiveness and came out at regular intervals to the front den to feed. After a day or two had elapsed a mistake was made. A foster-mother in the form of an Irish terrier having become available, the temptation to remove some of the puppies and place them under her care proved too great, and accordingly two were selected for this purpose. The next day one of the remaining three puppies was found dead at a distance from the others. Evidently the keeper's hand had touched it, and the mother had thrust it out from the others and had allowed it to die of cold. This alarmed us for the safety of the remaining two, and we determined to rear three with the foster-mother. One only was left with the mother, and on the morning following the second removal it had totally disappeared. It had been devoured by the mother.

This was a very unfortunate circumstance, because everyone who has experience in the breeding of wild forms of carnivora knows that when the mother has once acquired the habit of eating her offspring, it is useless to expect that she will ever again properly perform the maternal duties.

Of the three puppies which were placed with the foster-mother, two died—one from natural causes and the other from an accident. The survivor, a male, was reared until he became six months old, and then he was presented to the Zoological Society of London (fig. 3). He was, however, very difficult to bring up, and required constant care on the part of one of our most experienced keepers. Part of the treatment carried out was to rub cod liver oil well into the skin. This was done under great difficulties, because the puppy was very savage, and as early as six weeks after its birth it snapped viciously at anyone who touched it. When nearly four months old, a curious incident occurred. It was given a little terrier puppy as a companion, and in the course of their play the sharp teeth of the terrier scratched one of the fore feet of its mate, so that blood began to flow. No sooner did the young *Lycaon* see the blood than it began to attack its own foot with the greatest fury, and, before it could be stopped, it had torn off a toe and had lacerated the foot to a very considerable extent (fig. 4).

The third litter came two days before it was expected. The male had not been removed. Not a trace of this litter was ever seen.

The fourth litter was remarkable on account of its great size. The puppies, however, were considerably smaller than those of the first two litters. On this occasion a foster-mother had been procured, but she was quite unable to provide for so numerous a family; consequently, although in three days two other foster-mothers were obtained, ten of the puppies died. Of the two survivors one (a male) succumbed when very nearly full grown, whilst the other (a female) lived for four or five years in the Gardens (fig. 5).

The last two litters were destroyed and devoured by the mother before the keeper had an opportunity of removing them.

It is interesting to note that certain features which are very

characteristic of the adult Lycaon are absent in the new-born puppy. In the latter, the coloration and markings are different. There are no yellow patches. The body and head, in almost every case, were uniformly black; whilst the legs, and in some cases the thighs, were mottled black and white; further, in every specimen the terminal half of the tail was white.

The yellow patches do not make their appearance until the third month, and it is long before they assume the vivid tone of the adult. At an early period two light patches begin to appear on the forehead—one on either side. The dark median band which separates these was a striking feature in both the parents, and in the figures of other specimens of the Lycaon which have come under my notice it is generally more or less distinctly represented.

The ears of the new-born puppy are small and by no means obtrusive. In the adult they are large, wide-spreading, and erect, and give a peculiarly rakish look to the animal. It is towards the end of the second month of puppyhood that the ears begin to shoot out, and at the end of the fourth month they are relatively as large as in the adult.

An attempt was made to obtain a cross between the Lycaon and the domestic dog. For this purpose a female collie was purchased, and when the proper time came she was placed with the male Lycaon. I need hardly say that, in view of the savage nature of the Cape hunting dog, this was not done without some misgiving and certain precautions being taken for the safety of the collie. During the few days that the latter remained in the cage she showed the greatest fear of her companion, whilst he on his part treated her with the utmost contempt, and took not the slightest notice of her. In view of the very manifest discomfort and terror evinced by the collie while in the cage, the experiment was not repeated.

In putting these few notes together regarding the breeding of the Cape Hunting Dogs, I must express my indebtedness to Mr Thomas Hunt, superintendent of the Zoological Gardens in Dublin, for the material help that he has given me.