

THE NATURALIST.

THE LION'S ROAR.

THERE WAS A TIME when many things used to puzzle me about the roaring of the lion. Some of them puzzle me no longer, but there are others still difficult to understand. The first problem was, "Why do lions roar at all?" since they want to catch their game, not to frighten it away. One could have pardoned the well-filled lion, returning home after a successful hunt, feeling rather pleased with himself, and giving vent to his satisfaction. But why roar before commencing to hunt? This always seemed to me such a tactless, not to say bombastic, proceeding. Presumably, however, the lion knows his own business better than we do, so that when he roars he probably has some good reason for it. Moreover, the chances are that nature has endowed him with powers in this respect to serve some useful purpose. It is hardly to be supposed that that wonderful reverberating apparatus of his has been designed with the idea of warning game and leaving him supperless. Assuming that the lion has not acquired this habit without reason, I have tried to discover what good he derives from this constant roaring. The first thing to be noticed is that there are several kinds of roars. There is first the ordinary roar, so commonly heard morning and evening, as well as at intervals during the night. This is a sort of moaning, generally consisting of several syllables. A series of these moans often ends with the rasping or "wood-sawing" noise, starting loud and gradually dying away in shorter and shorter jerks. This is exactly like the last efforts of a saw as it finishes cutting through a plank. So realistic is this noise that one almost expects to hear the piece of wood drop off.

Next is the hunting roar, a series of short, sharp rasping grunts, made when actually in hot pursuit. Then there is the roar which a lion gives when in the act of springing on his prey. Again, we have the angry roar, or growl, such as one hears on approaching a wounded lion. Yet again there is the roar with which a lion always answers to a bullet which has gone home. If he does not respond in this way to a shot, you may fairly assume that you have missed him, unless, of course, you have laid him out with a bullet through the brain, or in a vital spot in the neck. A badly hit lion will bound off with a series of grunting roars something like those of the hunting grunt. Lastly, there is what I may term the assembly call. This is a low roar or grunt, followed by a slight pause, and then three sharp, short roars in quick succession. This is a call seldom heard, but from what I have noticed on several occasions I regard it as a call to another lion or lioness. This may be a summons before hunting, to collect a stray member of the party, or after hunting to assemble before lying down. More often it is presumably a lion calling a lioness.

To take these various sounds in order, the first or moaning roar is essentially one used for the purpose of the hunt. Sometimes a party of lions will divide, and whilst some lie down silently, others will go round up wind, uttering this roar to drive game to the others. In many other ways this roar is of service, as in the following circumstances: (1) To drive game from unsuitable ground to that which is more suitable, from the lion's point of view; (2) to bewilder game. Several lions, or sometimes only one, will roar in succession on three sides of game, and then stalk them from the fourth side. The game is then at a loss to know in which direction to run. A lion coming after stock will often first roar on several sides before finally approaching. (3) Possibly the reason this roar is often heard in the morning, as the lion is going home, is that he wishes to have the place to himself, and is giving warning to all undesirables to clear out. It may, however, be mere light-heartedness, after having fed well. It is observable that game on the plains do not seem

THE WHITE RHINOCEROS.

MAJOR POWELL-COTTON has just presented to the Natural History Museum the skull and horns of a male white rhinoceros killed by him in the Lado district of Equatorial Central Africa. The skull indicates an immature animal, the last upper molar tooth on each side not having yet come into use, while the last premolar has not been replaced by its permanent successor. On contrasting this specimen with skulls of the typical southern race of *Rhinoceros simus* I have been somewhat surprised (considering the distance separating the haunts of the two animals) to find how comparatively slight are the differences. Of the two southern skulls used in the comparison one belongs to the male obtained some years ago by Mr Coryndon, while the other is a specimen which has been long in the museum, and of which the sex is unknown. They both indicate fully adult animals, having the last molar teeth in use. As the second skull differs somewhat in form from the first, it may possibly be that of a female.

As regards the teeth (which are of quite a different pattern to those of the black species), I can find no difference between the southern and the northern skulls. The latter is, however, readily distinguished by the shorter and wider form of the nasal bones which support the front horn. In the skull of Mr Coryndon's specimen these bones project 6in. in advance of their lateral supports, and measure 7 1/2 in. in maximum width in front; whereas the corresponding dimensions in the Lado skull are 5 1/2 in. and 7 1/2 in. If the second South African skull were used as the basis of comparison, the differences would be greater; but that skull, as already mentioned, may pertain to a female. It may be added that if the Lado skull were fully mature the width across the nasal bones would probably be still greater, as a character of this nature is one which might naturally be expected to intensify with age.

The Lado white rhinoceros thus presents an exaggeration of the feature from which the species received its designation of *simus* ("snub-nosed," or "blunt-nosed"), and the difference appears sufficiently marked to admit of its being regarded as a separate local race, for which the name of *Rhinoceros simus coltoni* will be appropriate. Of this race the skull in the museum will be the type. The horns of this specimen present no characters by which they can be satisfactorily distinguished from southern examples. The front one has an extremely massive basis, and curves very sharply backwards; its total length being 30in. In this connection it may be mentioned that two horns in the museum brought from the Lake Tchad district in the early part of last century appear, although of small size, to belong to *R. simus coltoni*, and will be so labelled. I may add that I have never yet seen female rhinoceros horns from Equatorial Africa of the long and slender type of those upon which Gray founded the so-called *Rhinoceros ornelli*; and the absence of horns of such a type in the female of the Lado rhinoceros may eventually prove to be another distinctive characteristic of that race. R. LYDBEKKER.

ZOOLOGICAL SOCIETY.

ADDITIONS TO THE MENAGERIE FR M FEB. 10 TO FEB. 15.

Date	Name	Country	How obtained	Where located in the gardens
Feb. 10	1 Grey Squirrel (<i>Sciurus cinereus</i>)	N. America	Presented by Mr J. J. Morgan	Squirrels' House
"	2 Common Pheasant (White var.) (<i>Pavo cristatus</i>)	India	Presented by Major B. C. Waterfield	E. Aviary
11	1 Rab-eating Ibacoon (<i>Procyon cancrivorus</i>)	Venezuela	Deposited	Small Mammal House
"	2 Brazilian Hangabouts (<i>Leptocyon jamaicensis</i>)	Ditto	Ditto	W. Aviary
"	4 Guianan Love-birds (<i>Pituitca guianensis</i>)	Ditto	Ditto	Parrot House
"	1 Variegated Spider Monkey (<i>Ateles caripato</i>) ♀	Ditto	Presented by Mr A. Fau	Insect House
"	2 Punctated Agoutis (<i>Dasyprocta punctata</i>)	Ditto	Ditto	Rodents
"	1 Red Pheasant (<i>Circus rufus</i>) ♀	Ditto	Ditto	House Gazelle House

THE PRESENT STATUS OF THE BEAR IN SWEDEN.

SWEDEN is one of the few countries in Europe where the common brown bear (*Ursus arctos*) still exists, but with the march of civilisation it is becoming scarcer every year. It is not generally recognised what a large country Sweden is; close on 1000 miles long by about 300 miles broad at the widest part, and it is only in the northern portion, which is sparsely populated, that bears are usually to be met with. In the central part of Sweden they were not uncommon within living memory, but are now almost, if not quite, extinct. It is owing to the vast desolate districts in the north to which it has retired, and where man is rarely seen, that the bear, which has no sort of legal protection, has not long since disappeared, as in other European countries where it once was prevalent. The common mode of hunting bears in Sweden is by ringing or surrounding them. Bands of men, whose number sometimes exceeds a hundred, after having marked a spoor or lair, spread themselves out in a wide circle, which they gradually reduce in the hope of coming upon the quarry. Bruin, however, is not infrequently outside of the ring, and even if within it he more often than not manages to find a weak spot in the circle, and to make good his escape. The latest record of a successful bear hunt comes from Angermanland, where an animal about a year old was tracked in the snow, and, though wounded in the fore paw, contrived to escape his pursuers for two days before succumbing to a bullet. It is probable that the mother was not far away, but no other tracks were seen anywhere. In cutting up the slain animal the intestines were found to contain the down of capercaille and the bones of a sparrow. Times are changed since this part of the country used to be a famous hunting ground for bears. In Gasrickland and in Dalarna, the most southerly part of Sweden in which bears were found up to a recent date, they are now seldom or never dealt with. Farther north, in Jemtland and Angermanland, the stock, though not reduced to the same extent as further south, is nevertheless so much diminished that it is estimated they number only from twenty to thirty. In Lapland bears range wide and in greater numbers than in Sweden, but since the construction of the railway some years ago they have been so hunted and killed down that they now stand in danger of extermination. It is the same story everywhere, and if things are allowed to go on as at present their complete disappearance from Sweden is only a question of time. In these circumstances it is thought that at least in some parts of the country steps should be taken to protect them. Impressed with this idea the Swedish Hunters' Association, supported by the Academy of Science, have petitioned the King to pass a law with that object, not only for the district round Stora Sjöfallet, which it is proposed to make into a national park, but also for all other crown lands, and to recommend that on all private property bears may be hunted only with the permission of the proprietor.

It is impossible to estimate the number of bears now existing in Sweden, but authorities believe that they are sufficiently numerous (if a fair measure of protection is afforded them) to ensure the propagation of the species. Since they have become so scarce the damage they cause is so trifling that any plea for their extermination on this ground may be disregarded. As evidence of this the Government reward which formerly was given for every bear killed has been long since abolished. Isolated instances occur, showing that bears, which are mainly herbivorous, living on fruits, berries, and roots, will also eat flesh when they can get it, and do considerable damage sometimes amongst sheep and cattle, but such cases are so rare as not to weigh against the importance of their preservation from extinction. Should cases occur within the protected districts, and bears be found doing serious damage, permission might be granted by magistrates to kill the obnoxious animals. The following statistics drawn up by the Board of Domain Administration show the number of bears killed in Sweden from 1894 to 1905: 1894, 22; 1895, 21; 1896, 15; 1897, 10; 1898, 4; 1899, 11; 1900, 11; 1901, 11; 1902, 13; 1903, 12; 1904, 15; 1905, 10. The increase after 1898 is no doubt due to the construction of the railway in Norrbotten, which has facilitated and increased the means of communication and brought hunters to these parts.

F. V. Cotton R. James Cotton