

LOOKING AT ANIMALS

A Zoologist in Africa

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THE FOUR GIANTS

commands, 'as if they "knew" what they were expected to accomplish'.

In 1957 Professor Bernhard Rensch (65) conducted a series of psychological experiments with a female Indian elephant in Münster Zoo, designed to test more precisely the animal's learning capacity and memory. Her initial task was to discriminate between various visual patterns. During training the patterns were presented in pairs, and the elephant had to choose the 'correct' one of each pair to get a food reward. The animal eventually learned and could keep in memory the meaning of twenty stimulus pairs. In a final discrimination test, each of the twenty pairs was presented thirty times in a previously established sequence. 'The test covered six hundred trials lasting several hours, yet the elephant not only showed no symptoms of fatigue but actually improved in performance towards the end.'

She also recognized patterns if they were modified. For example, having been trained to choose a black cross as the positive signal, she still recognized the figure as the positive sign when its shape was altered in various ways – suggesting her ability to grasp an abstract idea. A further series of tests in which she was presented with thirteen pairs of cards which she had learned earlier but had not seen for about a year showed, in a total of 520 trials, that she had retained the meaning of 24 (of the 26) visual patterns. 'This,' as Rensch remarks, 'was a truly impressive scientific demonstration of the adage that "elephants never forget"'.

Lt Col J. H. Williams, who worked with elephants in Burma for twenty-five years, reports that domesticated elephants have been known to stuff mud into the bells round their necks before silently setting out to steal bananas at night! And in his book *Elephant Bill* he says that the elephant 'never stops learning because he is always thinking'.

Black and White

To see for the first time a rhinoceros in the unspoilt and uninhabited wilderness is to be transported to another age, as if one were viewing the world in the middle Pleistocene long before man had arrived upon the stage. Its heavy build, median nasal horns, scale-like naked skin, small eye and dull wits all seem to mark it as coming from antiquated stock. Existing rhinoceroses are but a remnant of the number known from fossil remains. It is a family on the wane: in the world today there remain but five dwindling species, of which three are Asiatic and two African.

The Black (*Diceros bicornis*) and White Rhinoceros (*Ceratotherium simum*)



Portrait of Black Rhinoceros

differ from one another in many respects – anatomical and behavioural. Though the Black Rhinoceros is the smaller of the two, five feet at the shoulder as compared with at least six feet, it is nevertheless a massive animal that has fancifully been called a 'dreadnaught of the bush'. The prehensile upper lip is pointed and extensible, and can be used like a very short trunk to place food in the mouth – an adaptation to the browsing habit. The head is relatively short and is held horizontally, the neck is without a nuchal hump, and the ears are small and fringed thickly with hair.

The White Rhinoceros is distinguished by its much larger size with a weight of up to five tons, a pronounced hump on the neck, very long head which is carried low, large almost tubular ears, and broad square

muzzle which – like that of the Hippopotamus – is well suited to the grazing habit. The horns of both species are variable in shape and length, but are generally longer in the Black Rhino: the record, shot by R. Gordon Cumming in South Africa, was a front horn measuring $6\frac{1}{2}$ inches.

The two species are very unlike in temperament and habits. The Black Rhino lives in bush country, especially thorn scrub where it eats coarse and prickly vegetation such as Gall Acacia or Whistling Thorn (*Acacia drepanolobium*). It will even take the fibrous woody fruit of the Sausage Tree (*Kigelia aethiopica*).

Black Rhinos have been given a bad name for belligerence and vindictiveness by some hunters. No doubt this reputation is partly due to the animal's poor eyesight and inquisitive nature. When 'charging' the rhinoceros may be more alarmed than aggressive, and making an effort to flee from danger. Real aggressive intent is revealed by jerky movements of the head and tail, the animal standing with ears cocked and nostrils dilated. The trot is lumbering, but as the animal gathers speed its step has a spring, and it can stop and turn as quickly as a polo pony. The top speed is a gallop with the head down and the front horn held near the ground and, as Stevenson-Hamilton remarks, 'its appearance when bearing down to the accompaniment of snorts, reminiscent of a steam engine, is not reassuring' (74).

Black Rhinos tend to be unsociable. The males are generally seen alone. The female tends to lead a solitary life with the calf; and will not tolerate an older calf when the new offspring has arrived. If the calf strays the mother emits a high-pitched 'mew' – an incongruous call to come from so large an animal – which brings the calf to heel.

John Goddard, who made a three-year ecological study of two populations in Ngorongoro Caldera and the vicinity of Olduvai Gorge, found that adults remain permanently attached to a small home range of from six to fourteen square miles. The resident invariably attacks an intruder: 'The head is lowered, eyes rolled, ears flattened, tail raised, and the animal curls its upper lip, emitting a screaming groan. The anterior horns are used for goring, or for clubbing the other animal on the sides of the head' (30). Territory appears to be marked out by the use of regular defecating places. The sense of scent is extremely accurate: Goddard has shown experimentally that a rhino can accurately follow a devious fecal scent-trail; and one animal has been observed following another when separated by at least a mile, and going on an identical course.

Next to the elephant, the White Rhinoceros is the largest terrestrial animal. Despite its popular name, it is not lighter in colour than its



White Rhinoceros trotting

smaller relative: both species take on the colour of the mud where they have been wallowing, and so may be any shade of greyish-brown, chalky-grey, blackish, or red-ochre.

In temperament it is inoffensive and placid, almost always seeking safety in flight. A curious trait, in which it again differs from the Black Rhinoceros, is the mother's habit of walking behind her calf and guiding it with her horn; in the 'black' species the mother leads and the calf follows. The White Rhinoceros is also more sociable and is found in parties of three to five or more. Its distribution is discontinuous, in East and in South Africa, being restricted to a small area in the West Nile Province of Uganda and adjacent regions, and to game reserves of Zululand. Under protection in Umfolozi Game Reserve the species has flourished and since 1960 many specimens have been successfully immobilized, captured and transported to various reserves and zoos overseas. Specimens have likewise been translocated from the West Nile to Kabalega Falls National Park where they now live on good terms with the indigenous Black Rhino population.



White Rhinoceros, Umfolozi, Zululand

Rhinoceros horn is a structure unique among mammals. Unlike the horns of antelopes which have a central core of bone, or those of deer which consist entirely of bone and are deciduous, rhino horn is entirely

keratinous, and situated on but not fused with the nasal bones. The horn is greatly prized by the Chinese and other eastern races for its medico-magical properties and especially for its supposed value as an aphrodisiac. It is also carved into various articles such as sword-scabbards, and libation cups which are believed to protect the user from poison. The high market price paid for the horn has long been a powerful incentive to poaching and illegal commerce – with Singapore as a main collecting centre for horns both from Africa and south-east Asia.

Published exploits of the Victorian hunters in Africa indicate the former abundance of rhinos. For example, when hunting in what is now Tsavo National Park, Captain Sir John Willoughby in 1887 'regularly shot four or five rhinos a day for many days on end close to the Mzima Springs. Forty-three rhinos were shot by his party within a fortnight' (71). The years have taken their toll; and today we are left with a decimated and dwindling remnant of these extraordinary animals.

The Hippopotamus

The last of the giants to be considered here is the *Hippopotamus*. The family to which it belongs is today confined to Africa, and is related to the pig family – Suidae. The members of both groups carry tusks, and have four toes on each foot. In the hippo the four toes touch the ground; in the pigs only the median pair do so. The *Hippopotamus* is really a gigantic pig that has become adapted to the amphibious life.

It is a grotesque animal, with huge head, enormously wide muzzle, bulging eyes, mouse-like ears, a barrel-shaped body and disproportionately short legs. The adult male may weight as much as four tons, or about the weight of an adult cow elephant. In profile the head has some features in common with the crocodile, and which are related to the amphibious habit: the nostrils are turret-mounted on top of the snout and can be closed with valves at the moment of submergence; the periscope eye is dorsal in position; and the ear opening is also situated high on the head – so that the animal can breath and remain alert and receptive when almost submerged.

Aggressive temperament

Hippos live in schools averaging ten individuals, but as many as 107 in a school have been recorded. The school contains adult females, calves and juveniles of both sexes, but few adult males. The latter tend to live