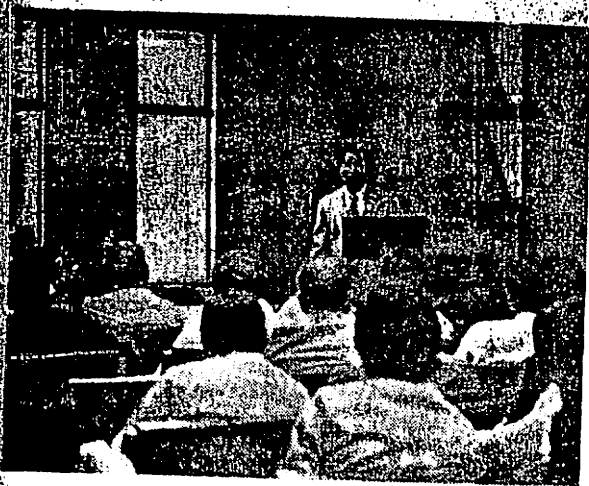


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Breeding Large Mammals in Captivity

By C. D. Krishna Gowda, Director, Mysore Zoo



C. D. Krishna Gowda
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(Photo by S. Walker)

Large animals are by far the most popular in my collection and particularly when they can be exhibited with young. The large mammals normally kept by Zoos are giraffe, hippo, elephant and also all of which have been kept and bred at Mysore Zoo in the last two decades.

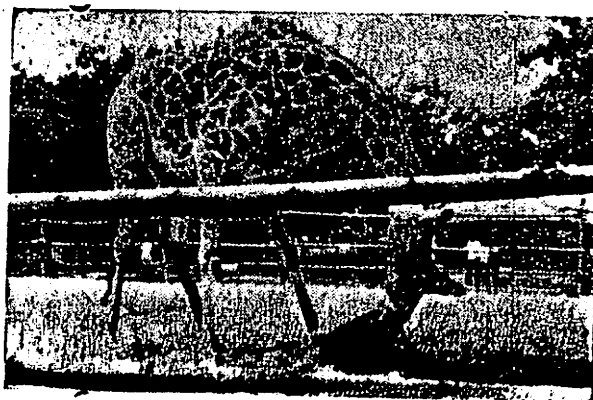
It has been stated by some Indian Wildlife experts that it is not feasible to rear giraffe in Indian Zoos: we have, it is said no proper facilities for feeding them as they like eating leaves at great heights and no Indian Zoo can provide such necessities. It makes one wonder how the giraffes have been kept and bred so successfully in European and American Zoos in the middle of concrete jungles where there were no trees at all.

Giraffes in fact were breeding in Mysore as long ago as 1934 and between then and 1943 a total of seven calves were born and reared. After a break of nearly three decades giraffes were again brought to Mysore Zoo and successfully bred in the 1970's. The animals were given a large area in which to roam and a giant barn for shelter at night. The feeding problem was solved by

tying feeding baskets within easy reach of the animals or about 6 feet off the ground. Diet consisted of oats, wheat bran, boiled horse gram, soaked bengal gram, broken maize, sag, onion, carrots, cabbage and potato. Also bulk fodder such as dry hay, ragi straw, and cut leafy branches were placed in hanging feeding troughs. In giving food the particular thing to avoid is allowing the concentrate to become sour.

The enclosures for giraffe in India should be constructed in such a way that the ground can be kept free off anything growing such as grass. Previously giraffes in Mysore were kept in enclosures where grass was growing. They soiled the grass with urine and excrement and ate the grass. They were losing their condition when it was decided to clean the entire ground and cover it with sand. Anything growing there was removed. Then the group became healthy and started breeding.

Unfortunately the epidemic of rinderpest which swept through Karnataka in the 70's wiped out our entire stock of five giraffes and since then we have been unable to procure more. Now all hoof-stock is inoculated against rinderpest.



Birth of Giraffe at Mysore Zoo
(Photo by Krishna Studios)

The breeding of Hippopotamus does not present any real difficulties provided the animals are in good health and have appropriate quarters with space for moving about and a water pool.

A problem arises only if the male and the female are kept separately without seeing one another for a long time. In such instance they become strangers to one another and may even develop hostility or aversion to one another. If they are brought together all of a sudden they may fight even to death.

In the instance of the mates having been separated for some time due to the birth of a calf or introducing new animals to one another, one must provide separate accommodation with strong barricades which allow the pair to see one another and become gradually acquainted or reacquainted without having opportunity to fight.

They must of course be observed closely as they will develop a great inclination for one another during the oestrus cycle. Then the barricade can be removed and they can be allowed to mate.

The act of intercourse in hippos and even rhinos and elephants can be a violent activity. One must not become disheartened for if one has observed correct procedures of introducing the pair all should go well despite the seemingly vicious agitation.

Elephants are notoriously difficult to breed in captivity and until now no one in India has succe-

ded in breeding Asian elephants in captivity except Mysore Zoo.



*Elephants mating at Mysore Zoo
(Photo by Krishna Studio)*

Previously the female elephant Padma was left free for grazing during summer months that she could mate with wild bulls. Indeed she had two calves by being covered by a wild bull in 1948 and one in 1956.

In 1967 however due to brought the elephants were not allowed for free grazing and it was thought to attempt breeding them in the Zoo. They were allowed in water as it was thought that elephants breed only in water although they enjoyed splashing about no breeding behaviour was observed at all. But then the elephants were allowed freely together as they became accustomed to one another and ultimately they began to mate on 29 Feb. '65. A calf was born on 28 January 1967. A little over a year it was weaned and removed from the mother.

Then a female elephant, Kumari was brought for Swethavarna in 1973 and after mating for some months Kumari conceived. After a gestation period of 22 months Kumari gave birth to a calf which was left with the mother for nearly two years, then the calf was weaned and Kumari was allowed again with Swethavarna.

In 1977 the pair were again allowed to mate with the happy result of a calf in 1979. At this time all pregnancy tests showed negative, but the birth of the calf proved the tests false. The calf was kept with the mother a year and half and then weaned.



*Elephants courting at Mysore Zoo
(Photo by Krishna Studio)*



*Great Indian Rhino calf born at Mysore Zoo
(Photo by Krishna Studio)*

Both African Black Rhinoceroses and Indian Rhinoceros have bred a number of times in Mysore. The case of the male black African Rhinoceros was most interesting as it was for the first time in this country that sex hormones were successfully administered to a Zoo animal with favourable result.

The pair of black rhinoceroses, *Diceros Bicornis* at Mysore Zoo arrived at the zoo on 17 January 1956 from L. Ruhe, Hanover. The male was about six years old and the female about eight years old. The male was smaller than the female and appeared stunted. He was fed special nutritious food, together with five multivitamin capsules, 28 g multivitamin syrup and 10 calcium gluconate tablets given daily between 9 March 1962 and 31 May 1962. His general condition improved considerably after this treatment.

The two rhinos are kept in an enclosure divided by a wall. They can move freely between the two enclosures and the dens that are attached to them.

From the time she arrived at the Zoo the female regularly came into oestrus. The cycle was from 30-33 days and each oestrus lasted from 24 to 48 hours. During oestrus she was much more excitable, made a whistling noise and frequently urinated. At this time she allowed the male to nuzzle her. However, the male was not sexually aroused by her and they never mated.

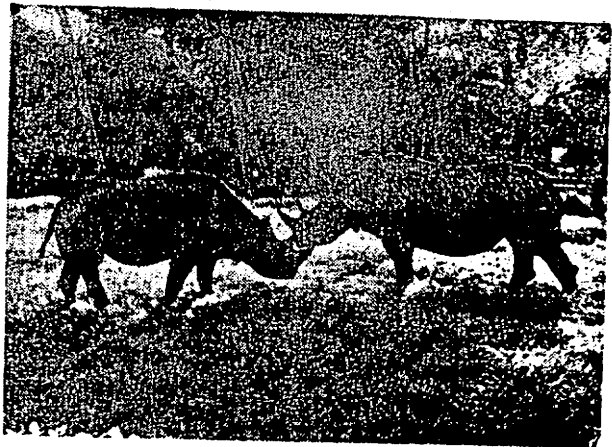
As both rhinos were mature it was decided to administer hormone treatment to the male in the hope of making him sexually potent. On 10 February 1963 a course of Testoviron (testosterone propionate) was started. For six days he was given five Testoviron tablets, powdered and mixed with bananas, three times daily. Sprouting Bengal Gram, which contains oestrogenic substance, was

also fed together with the normal feed (boiled rice, oats, wheat bran, carrots and cabbage). On 23 February the male had a partial erection of the penis; this had never been observed in the past. A second course of treatment was administered for six days from 24 February. Soon afterwards he was seen caressing the female. A third course of treatment as administered from 16 April and a fourth and last course from 13 August to 17 August.

Meanwhile the female was seen to be in oestrus on the morning of 16 August. The male responded to her by erecting the penis to its full length of about 75 cms and attempted to copulate with the female. As she was sitting down, the penis could not be inserted fully into the vagina. From then onwards whenever the female was in oestrus and approached the male, he would erect his penis and rub it over her genital area. Once again, on 8 September 1964 when the female was in oestrus, the male tried to copulate with her, but once again she was sitting down and the attempt was unsuccessful. On 26 April 1965 when the female was in oestrus the male copulated with her successfully for the first time. Copulation lasted for about 20 minutes.

Since then Jackie has sired rhino calves and set a record for himself by fathering two in a year last year by different mothers.

In all cases of these large mammals the factors that seem to determine success are Mysore's temperate climate, the comfortable enclosures enjoyed by the animals and rich diet provided to them and continuous observations on both the male and the female to bring them together in the time which is acceptable to each other.



*Black Rhinos Courting at Mysore Zoo
(Photo by B. Kaverappa)*