



Creating the Nation's first BioPark

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Letter from the Desk of David Challinor
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I have chosen dragons for the subject of this month's Letter, both to speculate on why this mythical creature appears in different cultures and to disseminate the exciting news of the Zoo's own dragons.

Concerning the puzzle of the appearance of dragons in varied parts of the world, I can only guess that humans in general have been both fascinated and repelled by large snakes and lizards, and dragons are generally perceived as reptilian. The word "dragon" is derived from the Greek "drakon" or snake, and in Christian tradition the beast has symbolized evil, sin, and paganism; its appearance was designed to strike fear in the beholder.

Fairy tale illustrations and depictions of St. George slaying the dragon reinforce this image: a fearsome, scaly beast, with bat-like wings, and a barbed tail, ferociously breathing fire. Their terrifying appearance made dragons a popular symbol on armorial decorations in the early Middle Ages, where warriors hoped the image would frighten their enemies. The Vikings also used dragons to terrify: they carved a dragon's form on the prows of their ships or painted it on their sails. King Arthur's father, Uther Pendragon, used a dragon on his royal ensign, and even as late as the twentieth century the dragon was incorporated as part of the armorial bearing of the Prince of Wales.

In the East, depictions of dragons did not differ greatly from those of the West, although they were generally shown wingless. In contrast with the West's use of dragons to frighten people, however, the Chinese considered the dragon a beneficent symbol and an embodiment of the principal of yang, representing heaven, activity and maleness. For centuries (until 1911), the dragon was the emblem of the Chinese imperial family. In recent times in the West, there has been a counter trend to the fearsome dragon in such children's songs and stories as "The Reluctant Dragon" and "My Father's Dragon."

The extraordinary coincidence of having dragons depicted so similarly in two widely spread cultures is perhaps understandable, but the dichotomy of their perception, good in the East and bad in the West, is harder to explain. Perhaps the fact that Eastern people saw more large snakes and lizards, both dangerous and benign, than were seen by people in the West caused them to feel less threatened by these reptiles and thus to see them as good omens.

The Far East is still the home of what we call the Komodo dragon, the largest of the monitor lizards. It is confined to a few islands in the Sape Straits between the Indonesian Islands of Flores and Sumbawa. This giant of the lizard family can grow almost ten feet from end to end and can weigh up to 300 lbs. We can only speculate as to why this particular species grew so much larger than its closely related two smaller Australian monitors. The Komodo dragon evidently found conditions ideal for its large growth as it evolved on these isolated small islands. There are only a few thousand Komodo dragons left in the wild, and their existence is threatened more by humans competing for their prey species (deer and wild pigs) than by hunters killing them directly.

The Komodo dragon's impressive appearance makes it an interesting animal to exhibit, and President Sukarno presented the National Zoo with its first pair of Komodo dragons as a state gift in the early 1960's. They were given in exchange for a pair of trumpeter swans, which the United States had donated to his waterfowl collection. The dragons were accompanied on their trip to Washington, D.C. by our then Zoo Director, Ted Reed. One of these giants escaped from its crate in the U.S. Embassy compound in Jakarta, just before it was due to leave, but it was successfully caught without harm to either it or its captors.

This first pair of Komodo dragons never bred at the Zoo, where they were exhibited until their death in the early 1970's. In 1986, when President Reagan visited Indonesia, he was offered another pair, which finally arrived at the Zoo in 1988. Elaborate new quarters were built for them, including a deep soil base in their enclosure where they could dig their own holes. Last January 1992, the female excavated a nest hole and laid 26 eggs in it, but the keepers removed the eggs for artificial incubation. About nine months later, the eggs began to hatch, and thirteen young successfully breached their leathery eggs. The rest of the eggs were infertile. The three-week period over which these thirteen eggs hatched is puzzling, because one would think the hatching would be more synchronous. However, the temperature and humidity variations in an incubator, to say nothing of a large hole in the ground, may be enough to account for this hatching variation, or the eggs may be programmed not to hatch together for complicated reasons aimed at insuring maximum survival of the young. Although we know our female dragon made a nest hole, no Komodo dragon nest has ever been found in the wild. Pieces of egg shell have been seen on the surface, and it is believed that the female probably covers the hole entrance to protect her eggs from predators. The newly hatched young have to dig their way through the hole-covering soil and thus could move egg particles to the surface.

Fortunately, predation is not a problem for the thirteen new dragons, but determining their sex is. In many reptiles, sex is controlled by temperature during incubation because reptiles do not have an "X" and "Y" chromosome as mammals do. To make gender selection even more complicated, high incubation temperatures produce only males in some reptiles and only females in others; the same applies to low incubation temperatures. Not enough Komodo dragon eggs have yet been hatched in incubators to know how temperature conditions affect their sex determination. Even among the thirteen young already hatched, it will take at least two or three years before we can easily determine their sex, such is the genital similarity of preadult dragons.

Quite apart from the excitement of the hatching and the information already learned about the reproductive biology of these intriguing animals is the certainty of how much more new knowledge is to be gained as these hatchlings mature. We know that we have a fertile female, and to increase the odds of producing more young (and less related), the National Zoo is arranging to send the female to the Cincinnati Zoo on a breeding loan to their solitary male. She will stay there for about a year.

With this breakthrough in our knowledge of Komodo dragon biology, we expect to reduce significantly the threat to the relict wild population. With a successful breeding program in zoos, we can reasonably hope to produce enough stock to supplement the threatened wild population. This and other breeding programs are one of the reasons that zoos are so important in protecting the diversity of the fauna of our planet. These programs receive little publicity, thus the public cannot be blamed for perceiving zoos as merely a collection of animals exhibits. We who work in zoos, and you who serve on the Zoo Council, know how valuable is our breeding program. The challenge is to get the word out to the public at large.

When next you read to children about an awesome fairy-tale dragon, be sure to tell them that they can see real live "dragons" at the National Zoo, and, for a while at least, some baby ones, too.

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