

Birthtime for bongo: Antelope of a different color

If two recent births are any indication, it's okay to fool Mother Nature. Three weeks ago, a Quarter Horse at the Louisville Zoo made headlines by giving birth to a zebra, the fruit of an interspecies embryo transfer. Last week, not to be outdone, a relatively common African antelope at the Cincinnati Zoo bore a bongo, a rare species of antelope valued at \$25,000 each. The infant zebra is the first ever born to a horse, and the baby bongo is the world's first offspring from an embryo transfer between two different genera.

Another odd birth is on the way: The London Zoo is expecting a zebra from a donkey late this summer, says William Foster, veterinarian at the Louisville Zoo who, with Scott Bennett, an equine specialist, performed the Louisville Zoo's zebra embryo implant "on a shoestring budget."

This flurry of embryo transfers has important implications for the survival of rare species. Officials at the Louisville Zoo say that the procedure that allowed the birth of the zebra to the horse may help "in the conservation efforts of . . . species such as the rhino and elephant," and may be used to "save a species from total extinction." In addition, embryo transfers could offer a simple way to provide genetic input into zoo animal populations from wild species.

The Cincinnati group, headed by Director of Research Betsy L. Dresser, has particular reason for optimism. Their bongo baby was conceived in the Los Angeles Zoo and rushed by jet to a surro-



Rick Norton

A newborn bongo, the first offspring from an embryo transfer between genera, gets acquainted with her surrogate mother.

gate mother almost 2,000 miles away. That cross-country trip distinguishes the Cincinnati Zoo's calf as the first offspring from a "transcontinental exotic embryo transfer," says zoo spokeswoman Carleen Kearns. The system eliminates the problem of transportation, she says. "Now we

can go to Africa, which we're planning to do, extract the embryo, bring it back, and we can have a bongo born here without transporting the [donor] animal." It should also be possible to collect embryos from other animals and implant them in surrogate mothers in distant zoos, she notes.

Dresser and a colleague carried seven one-week-old bongo embryos cross-country in vials of culture medium taped under their arms. That kept the embryos near body temperature during much of the roughly ten hours they spent between wombs. ("Little did the people on the plane know they had a herd of bongos riding with them," comments Warren D. Thomas, Director of the Los Angeles Zoo.) On the next trip, planned for June 23, Dresser will cryopreserve embryos she collects. "We're going to take a freezer to Los Angeles and freeze embryos on-site," she says. "We need to know [if this works] before we go to Africa," she explains.

Meanwhile, researchers at the Los Angeles Zoo are gearing up to study the social behavior of animals born from embryo transfers. "We intend to run a very detailed, longitudinal study of the behavior of bongos born to and raised by bongo mothers as opposed to bongos born to and raised by eland mothers," Thomas says. Bongos "tend to be fairly adaptive, and it would surprise me if we weren't able to recondition them to the behavior patterns born into them," he adds. The Los Angeles Zoo has 24 bongos, the largest herd in captivity. —G. Morse

Do crustal slabs rotate as world turns?

The effects of the earth's rotation are evident all around, from the swirling exit of water down the drain to the massive gyres of ocean and atmospheric currents. If the earth were not rotating, water and wind would follow straight courses; instead their paths are curved, toward the right in the Northern Hemisphere, and toward the left in the Southern Hemisphere. This apparent force is called the Coriolis effect. The deflection is greater at low latitudes because it is proportional to the speed and latitude of the moving substance. Now, John Sumner of the University of Arizona in Tucson suggests that the movement of the earth's crustal plates too is skewed as the planet turns.

In support of this hypothesis, presented in Cincinnati at the spring meeting of the American Geophysical Union, Sumner cites observations from a number of sources, including the maps drawn from SEASAT data collected in 1978 (SN: 12/4/82, p. 364). The maps of the seafloor show fractures trending from north to south, with a gentle concave curvature toward the equator. He also notes the lack of sub-

duction zones above 60° north or south latitude, and that deep-focus earthquakes occur only below 40° north or south. He attributes both qualities to the Coriolis effect because the force, both vertical and horizontal, is more pronounced at lower latitudes due to the speed of the earth's rotation.

Critics object that the force is too weak to affect the crustal plates, Sumner says. However, he says, the effect is greater on slowly moving substances or objects than on fast ones. The plates move only an inch or two each year, and over millions of years, he says, the influence of the force is significant.

The principal problem is that Sumner specifically avoids stating the size of the Coriolis effect, says John C. Mutter of Lamont Doherty Geological Observatory in Palisades, N.Y. "The force from the Coriolis effect must be real, but it is probably minuscule compared with the kinds of forces that act on plates," he says. Such forces could be the push from a spreading ridge or the pull of a colder, dense slab as it ducks back into the mantle. —C. Simon

Navy prefers to bury subs

The U.S. Navy has decided that it prefers to bury the defueled nuclear engine compartments of retired nuclear submarines on government-owned land. Originally, the Navy had proposed scuttling these compartments in the deep ocean along with the rest of the submarine (SN: 9/10/83, p. 169). In its newly released final draft environmental impact statement, the Navy selected land burial at either Hanford, Wash., or near Aiken, S.C. A final order will be issued after a 30-day waiting period.

The Navy also rejected another alternative that would mean keeping retired submarines in protective storage at a Navy ship facility for disposal at a later time. The ocean-dumping proposal had met fierce opposition from groups and individuals concerned that residual radiation, even at low levels, could contaminate the ocean environment. The Navy estimates that of the 120 nuclear-powered submarines in operation, about 100 will be retired in the next 20 to 30 years. □