

Frozen zoo' may offer help for endangered species

United Press International
SAN DIEGO — Try to imagine the woolly mammoth, a prehistoric creature extinct for more than 10,000 years, suddenly springing to life again.

The idea is fantastic.

But Dr. Kurt Benirschke, research director of the San Diego Zoo, says it is possible. He is curator of the world's only "frozen zoo."

The frozen zoo is actually a small metal container in the zoo's research laboratory. It is about the size of a small refrigerator.

In this container are the living cells from more than 400 species of animals, stored in liquid nitrogen at 250 degrees Fahrenheit. Soon, it will include living embryos, semen and eggs.

Right now, the primary work of the "frozen zoo" is to keep a warehouse of living cells on hand "to check the future progeny and ancestry of the endangered species at the San Diego Zoo," Benirschke said.

For example, if a lowland gorilla is born with a genetic defect, the cells of its parents can be thawed out and the chromosomes examined to find out why. The process has also led to the discovery of genetic differences between animals that were once considered to be alike.

But more fantastic projects are on

the horizon. They include embryo transplants, artificial insemination and even cloning.

There are cases on record in which nearly perfect specimens of a mammoth could someday be recovered with living cells intact.

"If you had such intact cells of a mammoth," Benirschke said, "one could dream of ultimately taking an elephant embryo, injecting into it cells of the mammoth, implanting the embryo back into the elephant, and producing a mammoth at the San Diego Zoo."

"It's a dream. The problem is that it is very, very unlikely that you can find mammoth cells that are undamaged. The natural freezing process is so slow that ice crystals would most likely form that would destroy the nucleus of the cells. When we freeze cells here, we use protectants to guard against formation of ice crystals."

Benirschke is reluctant to talk about such sensational ideas as bringing extinct species back to life.

"Why do you talk about the mammoth?" he asked. "The purpose of our research, and what is possible, is preventing the extinction of endangered species."

The researcher cited a prediction by Dillon Ripley, secretary of the Smithsonian Institution, that three-quarters of the animal species living today will be extinct in 25 years because of man's encroachment on their natural habitats.

"You need to be in a position to have self-sustaining colonies of animals that you wish to save," he said. "You have to draw up a list of 200 or 500 species that you know are going down the tubes."

The researcher envisions a master plan in which zoos and animal preserves around the world would take on the responsibility of sustaining a breeding colony of a certain species.

The "frozen zoo" would play a major role in such an international effort, he said. Frozen animal embryos and semen could be easily shipped from zoo to zoo, thawed, and placed inside females of a species. In the case of embryo transplants, even stand-in mothers of another but similar species would do, such as a lion being given the embryo of an endangered snow leopard.

The transplants, along with artificial insemination, would guard against in-breeding of a zoo population, achieve maximum reproduction of its stock, and help replenish a species depleted by natural disaster, such as a flood, he said.

Last Nov. 21, veterinarians at the San Diego Wild Animal Park removed an embryo from a Cretan goat and implanted it into the womb of a Barbados sheep. At the same time, two pigmy goats received Cretan goat embryos, and as a control experiment, to check procedure, a Cretan goat embryo was implanted into a like species. All of the embryos were live and not frozen.

"Early pregnancy is promising," said Dr. Barbara Durrant, who heads the project.

The embryo transplants are the first ever involving zoo animals of different species. In an earlier project, Durrant removed a rat embryo from a pregnant female, froze it in liquid nitrogen, then thawed and implanted it into an adult female, leading to the birth of Crystal.

A future embryo transplant may involve the scimitar horned oryx that Durrant hand-raised from birth at the zoo. She is looking for an Arabian oryx, the animal responsible for the unicorn legend, as a donor. Also planned is an embryo switch between the Przewalski horse from Mongolia, now extinct in the wild, and a domestic horse.

"Obviously what can be done with people or mice or cattle can be done with endangered species," Benirschke said.

Love-trio killer convicted

United Press International
NEW YORK — Howard "Buddy" Jacobson, once the leading horse trainer in the nation, Saturday was found guilty of murder in the slaying of his rival for the affections of cover-girl Melanie Cain.

The jury found that Jacobson, 49, had murdered John Tupper, a restaurateur with whom Cain, 24, had been living.

Earlier, the jury heard the testimony of Leslie Hammond, a stock-

broker who lived next door to Jacobson on the seventh floor of his Manhattan apartment building. Tupper lived down the corridor on the same floor.

Hammond's testimony corroborated Cain's testimony that Jacobson was there shortly before the slaying, and discounted statements by a doorman in the building next door who said he saw Jacobson leave at 9 a.m.

The defense had maintained

Jacobson was not home at the time Tupper was murdered and claimed that the restaurateur was killed by drug dealers over a narcotics sale.

Cain moved out of Jacobson's apartment and into Tupper's two weeks before the murder. She testified for 9 days as the key prosecution witness and the credibility of the model's account appeared to be a key issue for the jury of nine men and three women.

Computers still not understood

United Press International
NEW YORK — Twenty-five years after the inception of the electronic computer, the data processing departments in many companies still operate like runaway locomotives, says Joseph E. Izzo.

Izzo runs a consulting firm with offices in Los Angeles and Chicago that specializes in acute data processing headaches and outright disasters.

"It is less likely," he said, "that the fault for the runaway locomotive syndrome rests with the computer operations people than with the top management of a company."

Top executives, Izzo said, being unfamiliar with the computer tend to be afraid of it and lack confidence in their ability to control its operation the way they control the rest of the business.

In consequence, he said, many data processing departments are overstuffed and underproductive. A few are inefficient because they are understaffed.

"Too often top management is watching the wrong part of the EDP operation — the hardware instead of the people," Izzo said. "When things go wrong, they are tempted just to order new hardware and ignore the real problem, which is their own failure to learn about the system and its personnel."

Failure of top management to come to grips with the need to understand and control the computer department can lead to all sorts of absurdities, Izzo said.

"It's not uncommon under such circumstances," he said, "to find the EDP executives living in a little world of their own and spending their time on development of reports and systems that are of little use to management and may not have much to do with the company's

actual business.

As a result, you find such oddities, he says, as a company believing its EDP department costs \$5 million a year, when the real cost is above \$10 million. Or the case in which the EDP department worked three months on a project to cut five days off the production cycle of one of a company's product lines only to be told when they finished that unless 10 or 15 days could be cut, the company would have to give up the business.

There are three conventional ways of dealing with acute or chronic computer sickness in a company, Izzo said. One is to sell the equipment to a computer operating firm and then buy service from that firm. Another is to contract with a firm like Izzo's to come in and take over the complete operation until the problem is solved. This may take a year to 18 months, he said. The third is to hire a competent consultant to give advice and fight the battle yourself with his help until things are straightened out.

Naturally, Izzo thinks his method is the cheapest in the long run and the most certain to succeed. The least desirable, he said, is just washing your hands of the computer room and turning it over to an outside operator permanently.

"During the years ahead," he said, "only those companies are going to get by whose top managements stop being afraid of the computer and learn to control the data processing department themselves just as they do any other operation."

"Those who don't will find all their operations bogging down like a California company I encountered not long ago whose management couldn't understand how they had accumulated a two-year backlog of undelivered orders."

How small is it?

United Press International
SARNIA, Ont. — Scientists at Dow Chemical of Canada Ltd., trying to explain the concept of one part per trillion, have conceived of an awesomely dry martini.

One part per trillion, the scientists say, would be roughly equivalent to a drop of vermouth in 250,000 hogs-heads of gin.

Dow's researchers also proffered

"the relationship of one flea to 360,000,000 elephants" to lend scale to the ratios with which they work.

One part per trillion would also be equivalent to one second in 320 centuries, a pinch of salt on 10,000 tons of potato chips, one misspelling on all the front pages of 2,000 newspapers publishing daily since the invention of the printing press.

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