Frozen zoo' may offer help for endangered species

United Press International AN DIEGO — Try to imagine woolly mammoth, a prehistoric

ature extinct for more than 10,000 rs, suddenly springing to life

The idea is fantastic.

and comba But Dr. Kurt Benirschke, rearch director of the San Diego Zoo, ays it is possible. He is curator of the orld's only "frozen zoo.

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

n this container are the living s from more than 400 species of Mess cod mals, stored in liquid nitrogen at 250 degrees Fahrenheit. Soon, it abat eithedso will include living embryos, seare capalinen and eggs.

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Right now, the primary work of d on anithe "frozen zoo" is to keep a ware-nouse of living cells on hand "to l as the theck the future progeny and ancesgress tom ry of the endangered species at the womenfuzoo," Benirschke said.

For example, if a lowland gorilla is om with a genetic defect, the cells if its parents can be thawed out and he chromosomes examined to find out why. The process has also led to liscovery of genetic differences beween animals that were once consi-lered 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 the woolly mammoth have been discovered in the snows of the frozen tundra of Siberia. Benirschke said it is within the realm of possibility that 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

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 crys-

Benirschke is reluctant to talk about such sensational ideas as bring-ing extinct species back to life.

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 com-

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 threequarters 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 anim-als 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. Diego Zoo. "It's a dream. The problem is that it is very, very unlikely that you can effort, he said. Frozen animal embryos and semen could be easily 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 artifi-cial 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 be-tween 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.

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 hogsheads 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 cen-turies, a pinch of salt on 10,000 tons

of potato chips, one misspelling on all the front pages of 2,000 newspap-ers publishing daily since the invention of the printing press

1	'ASCO T	IRE & \	NHEEL
		n by AGGIE G	RADS
47.4 II	open monday i	TOTAL BARMENT	
	ALE	Retail	Distributo

pany would have to give up the busi-	SAI	5	Price	Special
ness. There are three conventional ways		A7814	\$ 33.52	\$23.52
of dealing with acute or chronic com-		Manufacture of the part of the state of the	and the second states and the second	and the second states the second states and the second states and the second states and the second states and the
puter sickness in a company, Izzo	Flyer	E7814	\$ 37.75	\$27.75
said. One is to sell the equipment to	(poly.)	G7814	\$ 39.97	\$29.97
a computer operating firm and then buy service from that firm. Another	En general	G7815	\$ 40.81	\$30.81
is to contract with a firm like Izzo's to come in and take over the complete	Super			
operation until the problem is solved. This may take a year to 18	Stag	N7815	\$ 84.52	\$72.55
months, he said. The third is to hire a	bold tread	10-15	\$ 92.00	\$79.21
competent consultant to give advice	with raised	12-15	\$110.35	\$95.54
and fight the battle yourself with his help until things are straightened	white letters	9.50-16.5	\$105.10	\$90.87
out. Naturally, Izzo thinks his method		SUP	ER	
is the cheapest in the long run and the most certain to succeed. The	16 3333		200 2	3700 S. College
least desirable, he said, is just		STA	G	846-1912

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 covergirl 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 testi-mony of Leslie Hammond, a stock-

broker who lived next door to Jacob-son on the seventh floor of his Man-Jacobson was not home at the time Tupper was murdered and claimed that the restaurateur was killed by hattan apartment building. Tupper lived down the corridor on the same

Hammond's testimony corrobo-rated 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 The defense had maintained

drug dealers over a narcotics sale Cain moved out of Jacobson's apartment and into Tupper's two weeks before the murder. She testi-

Page 7

fied 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.

COUPON DOUBLE

THE BATTALION



SPECIAL NOTICE **Optional Board Plan**

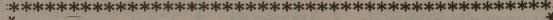
Summer Students may dine on the board plan during the first session of summer school at Texas A&M University. Each board student may dine three meals each day except Sunday evening if the seven day plan is selected, and three meals each day, Monday through Friday, if the five day plan is preferred. Each meal is served in the Commons.

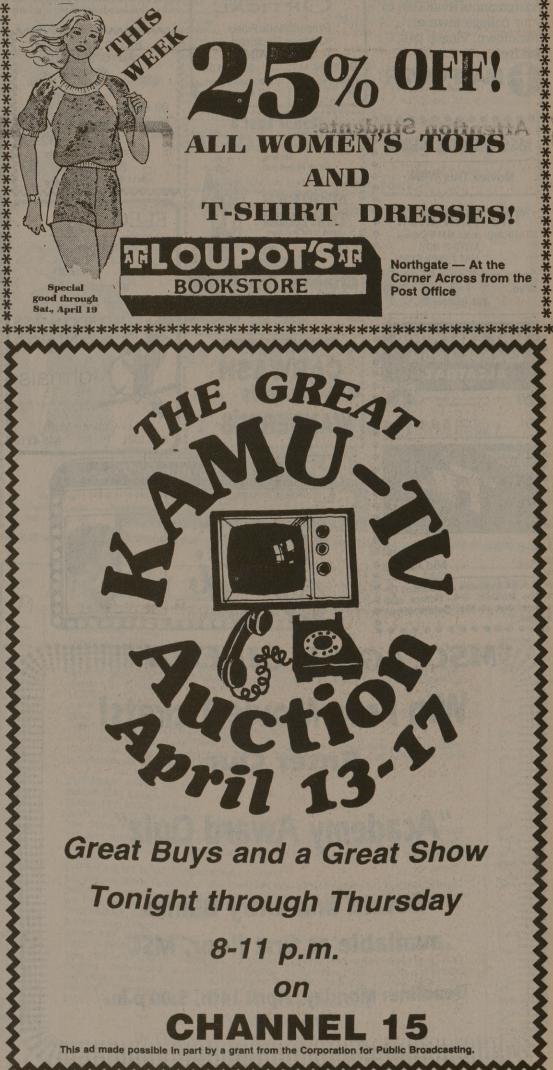
Fees for each session are payable to the Controller of Accounts, Fiscal Office, Coke building.

Board fees for each plan are as follows:

Plans	First Session
Seven Day - \$160.95	June 2 through July 3
Five Day - \$145.71	and
plus tax	July 7 through July 9
students, including graduate stude	nts may purchase either of the

Day board plans.





or Computers still conot understood

United Press International NEW YORK — Twenty-five years r the inception of the electronic nputer, the data processing dertments in many companies still perate like runaway locomotives,

headaches and outright disas-

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

Top executives, Izzo said, being

galunderstaffed.

Too often top management is 110 operation — the hardware instead of

As a result, you find such oddities, he says, as a company believing its EDP department costs \$5 million a

actual business

ays Joseph E. Izzo. Izzo runs a consulting firm with ces in Los Angeles and Chicago specializes in acute data proces-

nfamiliar with the computer tend to support be afraid of it and lack confidence in atheir ability to control its operation s invasithe way they control the rest of the

> In consequence, he said, many data processing departments are months, he said. The third is to hire a verstaffed and underproductive. A are inefficient because they are

tching the wrong part of the EDP e people," Izzo said. "When things go wrong, they are tempted just to

ter new hardware and ignore the washing your hands of the computer al problem, which is their own faire to learn about the system and its side operator permanently ersonnel

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

cumstances," he said, "to find the EDP executives living in a little rld of their own and spending ir time on development of reports

room and turning it over to an out-

"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



