



**"Clams and Climate:
The Beginning of the Ice-House World in Antarctica"**

Presented by Dr. Linda Ivany
Paleontological Society's Distinguished Lecturer

February 17, 2005

The "Greenhouse-to-Icehouse" transition associated with the Eocene-Oligocene boundary is arguably the most significant climate transition in the Cenozoic. Cooling temperatures leading to the growth of ice sheets on Antarctica had a profound effect on both global climate and biosphere dynamics. Because the magnitude of change is most pronounced at high latitudes, Antarctica is an excellent place to explore the effects of climate cooling on marine faunas. Seymour Island, on the Antarctic Peninsula, provides one of the only places where fossiliferous, Paleogene, marine shelf sediments are not ice-covered today and hence can be sampled on land.

The fossils of the Eocene La Meseta Formation preserve a record of climate cooling and corresponding ecosystem change up to (and perhaps across?) the Eocene-Oligocene boundary. Stable oxygen isotope values of shell carbonate allow the reconstruction of a detailed temperature history for the region. Predator-prey relationships among mollusks change in response to the elimination of shell-crushing predators from the Antarctic continent, attested to by the appearance in shelf settings of predation-susceptible taxa like stalked crinoids and a decrease in the frequency of defensive architecture in prey species.

My collaborators and I suggest that climate cooling led to the exclusion of shell crushing predators, and that establishment of circum-Antarctic circulation shortly thereafter prevented larvae from re-colonizing the continent. Even today, the Antarctic shelf fauna contains taxa that would otherwise become easy

meals in warmer shelf settings, suggesting that Eocene-Oligocene cooling and subsequent isolation established the character of high-latitude faunas for the remainder of the Cenozoic.

Presenting February's program is Linda Ivany. She received her Ph.D. from Harvard University in 1997, and is currently a Professor at Syracuse University. Dr. Ivany has a broad research program that spans the fields of paleoecology, paleoclimate, stable isotope geochemistry, and stratigraphy. She is generally interested in how ecosystems and their component taxa evolve and respond to changes in the physical environment. She has field programs currently underway in the US Gulf Coast, Belgium, and Antarctica.

Meeting logistics: The meeting will take place on Thursday, February 17 at the Sheraton Syracuse University Hotel (801 University Ave, Syracuse). A social hour will be held from 5:30 p.m. to 6:30 p.m. at the hotel bar, followed by a buffet dinner. The dinner will start at 6:30 p.m. and our featured speaker, Dr. Ivany of Syracuse University, will begin her program at 7:30 p.m. The cost of dinner is \$20 for members, \$22 for non-members, and \$15 for student members. People may also attend only the presentation portion of the program for a nominal fee of \$3. Parking in the hotel garage is free; the front desk staff at the hotel will validate parking.

Please RSVP by Monday, February 14, 2005 to Bonnie at Parratt-Wolff via e-mail at bolney@pwinc.com or 437-1429.

Calendar

March 24, 2005

The CNYAPG presents Dr. Donald Rodbell of Union College. He will speak about "Climate Change Research in the Tropical Andes: Science and Adventure Travel"