

2013 MEDALS & AWARDS

PENROSE MEDAL

**Presented to
Steven M. Stanley**



Steven M. Stanley
University of Hawaii

Citation by Noel P. James

Steve Stanley is one of the world's pre-eminent paleobiologists who has fundamentally changed the way we think about and interpret the rock record. This experimentalist, natural scientist, lateral thinker, and synthesizer has left a profound mark on American science. He is recognized internationally as a paleontologist/neontologist who has specialized in the ecology and paleoecology of mollusks. His seminal research, beginning with the still-cited studies on the adaptive morphology of bivalves (and published by GSA), has continued throughout his career, and he would be a worthy nominee on the basis of this science alone. Steve has, however, worked across disparate fields such as detailed functional morphology, species selection patterns, causes of mass extinction, and Precambrian evolution. A member of the National Academy of Sciences he has been given numerous honors including the Schuchert Award, the Paleontological Society Medal, the Twenhofel Medal, and the Mary Clark Thompson Medal of the National Academy.

Steve is, however, much more than this, as evidenced by his books that address larger fundamental problems in paleontology. His books "The Principles of Paleontology" and "Earth System History" are fundamental texts in many universities. But it is his two provocative books on evolution, and another on early humans that have both challenged current dogma and brought modern paleontological concepts to the general public,

that set him apart from his contemporaries. These are judged by many to be amongst the most original and influential books on paleontology published over the last 50 years.

But Steve too has undergone evolution. In recent years he has teamed up with Laurie Hardie to address one of the most fundamental problems in sedimentary geology, namely, how has the evolution of the world ocean affected the paleontological record of calcareous organisms? These papers connect seemingly disparate fields; plate tectonics, geochemistry, biomineralization, paleontology and sedimentology. His experimental work showed that coccolithophorids produced the vast Cretaceous deposits of chalk because seawater chemistry favored their calcitic mineralogy. This work has transformed our thinking about how the fossil record in general and carbonate rocks in particular have changed through geologic history. So, by linking the changing chemistry of the oceans with the evolution and persistence of calcareous marine organisms, he has laid the conceptual groundwork for the way we can use proxies to assess and track ocean change, especially ocean acidification.

Steve Stanley embodies what the Penrose Medal is all about, outstanding achievements that mark major advances in the science of geology. The Society honours both itself and this remarkable scientist by awarding him this accolade.

Response by Steven M. Stanley

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