

## Awards and Citations

# Presentation of the 2018 Paleontological Society Medal to Anna K. Behrensmeyer

Scott L. Wing

Department of Paleobiology, Smithsonian National Museum of Natural History, Washington, DC, 20013, USA <[wings@si.edu](mailto:wings@si.edu)>

There are several paths to being a great paleontologist. You can be an intrepid discoverer of fossils and fossil deposits. You can influence the field through fresh hypotheses, innovative analyses, and novel syntheses. You can teach and popularize paleontology so that others can see how satisfying and important it is to know the history of life. Very few of us have ever been outstanding in all three of these ways, but Kay Behrensmeyer is, and that's why she is so deserving of the Paleontological Society Medal.

Kay's fascination with the natural world was kindled by childhood explorations of her family's farm in Illinois, and to this day fieldwork remains the wellspring of her work. She began working in East Africa as a student, later expanding her field program to Pakistan and the western United States. Kay has found remarkable things—early stone tools in Koobi Fora, hominin footprints in East Turkana, pterosaurs in the Triassic of Arizona, dinosaurs in the Jurassic and Cretaceous of the Rockies, and diverse mammals in the Miocene of Pakistan. But Kay's goal in fieldwork is always more than fossils, it is to reconstruct the paleoenvironmental and paleoecological context for evolution. Any of you who have been in the field with Kay know that she observes and understands the meaning of the subtlest lithological and taphonomic details. She also fearlessly goes wherever she must to see the rocks. And when I say “fearlessly,” I really mean it. Have you ever been in the field with someone who inadvertently made you feel like a wimp for fretting about a nearby green mamba—a snake known to be very alert, nervous, extremely agile, and so venomous that its bite can kill you in under an hour? I have. I think Kay intended to be reassuring when she remarked that at least it was not as deadly as a black mamba, but somehow this only made me feel more inadequate to the situation.

Exploration and discovery may be Kay's inspiration, but it is her ideas that are most important to the rest of us. Early in her career she realized that no fossil assemblage could be interpreted without understanding taphonomic influences. So, in the early 1970s, she began surveys of surface bone assemblages in Amboseli National Park, Kenya, to see how they represented the living mammal community. Forty-three years and more than 30 papers later, hers is the longest longitudinal taphonomic study ever conducted, and documents, in part, how surprisingly well bone assemblages record changes in faunal composition. It's no coincidence that the recognition of taphonomy as an essential part of paleontology coincides with Kay's career. She completed her Ph.D. in 1973, and in the next several years published what

became some of the most highly cited articles ever on taphonomy. The word “taphonomy” undergoes an exponential rise in frequency of use at just this time, according to a Google “N-gram.” Kay would be the first to insist that the word and sub-discipline date from the 1940s, and that taphonomy is vital because of contributions from many of her colleagues, but nevertheless it's pretty clear that her early work and continued efforts kicked it into high gear.

Kay's influence would be much less, though, if she thought of taphonomy as simply the “bad news” that fossil assemblages are distorted mirrors of the living communities from which they were derived. Instead, she drives herself and others to see that there is information in taphonomic distortion, and not to forget that our goal is understanding paleocommunities and paleoenvironments. She realizes that taphonomy is to paleontology something like adaptive optics is to astronomy. It helps you see the past more clearly, but also provides information about a host of processes you might not have been thinking about. This is why her papers influence not only paleontology, but also anthropology, ecology, geochemistry, paleopedology, and sedimentology.

Unconventionally for someone so committed to and inspired by fieldwork, Kay was an early advocate for using community databases to synthesize paleontological information. She started the Evolution of Terrestrial Ecosystems (ETE) program at the Smithsonian in 1987 with the modest goal of understanding the interaction of the environmental theater with the ecological and evolutionary play throughout the history of life on land. She knew from the start that this would have to be a community-wide effort, and Kay saw an ETE database as a way to structure, store, and compare paleoecological information. Databases of stratigraphic ranges or sedimentary deposits were producing important insights, but Kay wanted more—to integrate the occurrences of fossil taxa at individual fossil localities with information about their paleoenvironmental and paleoecological context. If to present-day ears this sounds like the Paleobiology Database, it is probably no coincidence, since John Alroy spent time with ETE both before and after grad school. And the influence of Kay's ideas continues to be felt in the modern incarnation of ETE as a collaboration with Kate Lyons.

The influence of Kay's ideas among professional paleontologists is huge, but she has been and continues to be someone who changes the world even more through being a mentor, teacher, and popularizer. She has pulled into her orbit many remarkably talented students ranging from high-schoolers to

postdoctoral fellows, and she has helped them become accomplished professionals in their own rights. She has organized countless workshops. She has produced children's books and games. But it is Kay's work on exhibits that deserves special mention because it's something you may not even be aware of. She was one of two lead scientists for the Smithsonian's 'Hall of Mammals,' which opened in 2003. A few years later, she joined the team that developed the new permanent 'Hall of Human Evolution.' About the time that hall was opening, the 'Deep Time' initiative, which includes planning and designing 30,000 ft<sup>2</sup> of new fossil displays at the Smithsonian, began to ramp up. Kay has headed this combination research, education, and exhibits initiative for the last seven years, while at the same time serving on the core team for the permanent exhibit AND the temporary exhibit that keeps dinosaurs on display while the permanent fossil halls are closed. For each exhibit, she helped define the central scientific themes, worked with the designers to plan layouts, selected specimens, painstakingly distilled information to the bare essentials—and wrote and edited, and wrote and edited, and wrote and edited—the text panels that express the ideas cogently and clearly. I have watched her work on this for seven years. It has been as unforgettable as

the field site with the green mamba—and when it comes to mistakes in exhibits text, it is Kay who is deadly.

The effect of Kay's exhibit work is staggering. More than five million people walk through the doors of the Smithsonian's Museum of Natural History every year. Almost all will visit the exhibits on Mammals, Human Evolution, or Fossils. Most of these people will visit only once or twice in their lives. Permanent exhibits typically last 20–30 years. So, it's likely that in the first three decades of the twenty-first century, more than 100 million people will visit the halls that Kay has worked on. Her name isn't in lights, but working with a team, she will have presented the history of life on our planet to a bigger audience than any other paleontologist in history. This is almost a metaphor for Kay's career—she has been both a leader and a team player in order to accomplish great things.

Thank you, Kay Behrensmeyer, for inspiring us to explore, for influencing our thoughts, and nurturing your students and colleagues, and for helping millions of people understand the past so that they can become better citizens of the planet they are rapidly changing.

November 4, 2018