

Dino Cornucopia

Fossil hunter **Peter Dodson** and Swarthmore statistician **Steve Wang** have great news for dinosaur lovers. By their estimate, more than two-thirds of the various kinds of dinosaur fossils are still in the ground, waiting to be dug up. “It is a safe bet that a child born today could expect a very fruitful career in dinosaur paleontology,” says Dodson, a professor in the Department of Earth and Environmental Science as well as the School of Veterinary Medicine.

Using a statistical method called “abundance-based coverage estimator,” Dodson and Wang calculate that 1,844 genera of dinosaurs will eventually be found. About 530 of them have been discovered thus far. Over the last decade, the pace of dino discovery has nearly

Peter Dodson with a fossil of *Gansus yumenensi*, an ancestor to near-modern birds that lived in northwestern China 110 million years ago



Christine DeChia

tripled. If their findings are correct, that upward trend will increase sharply. They project that nearly 400 new varieties will be uncovered in the next 30 years alone. Since fossilization is a rare event, the two scientists expect that nearly half of all dinosaur genera will never be known.

Some experts say the fossil record shows that dinosaurs were already in decline 10 million years before the prehistoric creatures suddenly became extinct, but Dodson and Wang’s method suggests that the population was stable then and that paleontologists have simply not yet found the fossils from that era.

The bad news, the researchers say, is that new discoveries will fall off early in the 22nd century. The grandchildren of the dinosaur-bone hunters born today will have to be content to live after the golden age of dinosaur discovery.

In Sickness and in Health

A study that looked at more than half a million elderly couples found that illness in one partner poses serious health risks for the other. A spouse’s hospitalization for certain ailments, the study showed, increases the partner’s likelihood of dying, highlighting the extent to which longtime couples “become one flesh.” For partners of hospitalized spouses, the short-term risk of dying approaches that of elderly people after a spouse’s death.

The research, by **Paul Allison**, professor and chair of sociology, and Harvard physician and sociologist **Nicholas Christakis, G’92, Gr’95**, indicates that the greatest risk for “interpersonal health effects” is during the first month after the onset of illness. The greater risk of death remains elevated for up to two years.

“What surprised us was that diseases that are highly lethal, like lung cancer



or pancreatic cancer, had very little impact on the partner’s mortality rise,” says Allison. “On the other hand, dementia and other psychiatric diseases showed substantial increases — 10 to 32 percent — in the risk of death for the partner, for both husbands and wives.” The more disabling the disease, the more likely the care-giving spouse will experience sickness or death. Looking toward the implications of their findings, the researchers write, “Health care might indeed be more socially efficient, and more cost effective, than is suggested by looking at individual cases alone.”

Explosive Change

“America is undergoing a transformation as profound as the one driven by the industrial revolution,” write **Michael Katz** and **Mark Stern**. In their book, *One Nation Divisible: What America Was and What It Is Becoming*, the co-authors analyze a century’s worth of data to tell the story of social and economic change in America from 1900 to the beginning of the second millennium. “The great transformation began in the years following World War II,” says Katz, the Walter H. Annenberg Professor of History, “and burst through old social and demographic structures with great force following the oil shock of 1973. It gained a name, globalization, mainly in the 1990s.” Stern is a professor of social welfare and history in the School of Social Policy and Practice, and director of urban studies.

Their book looks at the persistence of inequality in America’s social structure. It probes the nation’s changing ethnic diversity and the “new African American inequality” as well as the varying experiences across overlapping



lines of gender, race and region. The influence of government in shaping American life is also closely analyzed. The broad societal shifts the authors

detect shattered conventional assumptions about American life, upsetting patterns of work, family and social experience. The changes, Katz stresses, were “discontinuous,” not the gradual unfolding of trends already underway. “Americans confronted a transforming world with old ideas whose underpinnings had been exploded,” he says. “Understanding those changes is essential for interpreting the issues around economy, family, immigration, race and the role of government that trouble Americans today.”

100 Caterpillars

There are more than 225,000 species of butterflies and moths in the world. One hundred of their caterpillars from Area de Conservación Guanacaste in northwestern Costa Rica are photographed and described in a new book by Penn biology professor **Daniel Janzen**, research associate **Winifred Hallwachs** and **Jeffrey Miller**,

Totally harmless, *Adeloneivaia jason* manages to look ever so ferocious when discovered

a professor at Oregon State University. The full-page, close-up images capture the exquisite colors and striking features that often elude the casual observer, making *100 Caterpillars*, say the authors, “an expression of art as well as a demonstration of science.” Caterpillars spend most of their life eating, consuming billions of tons of foliage. “Natural selection has crafted caterpillars to convert a vast and diverse palate of vegetable matter, mostly leaves, into an even more vast and diverse array of butterflies and moths,” the authors write.

Janzen, the DiMaura Professor of Conservation Biology, started the ACG caterpillar inventory in 1978, while suffering from boredom brought on by the need to recover from broken ribs. Sitting under a 60-watt bulb, he started collecting moths that came to the front-door light. He estimates that there are over 9,500 caterpillar species in the conservation area. The largest weighs about the same as a mouse.

The book’s gallery of photos contains mostly aposematic caterpillars, those that “warn” predators with brilliant color patterns that they are poisonous or distasteful. “[T]he gorgeous caterpillars in this volume do not necessarily have a gorgeous adult,” the authors write. “The next book will emphasize species with ostentatious adults,” that is, butterflies and moths.

Decline of King Coal

What happens when a region’s principle industry dies, and what happens to the workers and their families? In *The Face of Decline: The Pennsylvania Anthracite Region in the Twentieth Century*, history professor **Walter Licht** answers that question in vivid, multidimensional detail, using as a case study the communities that drew their life from northeastern Pennsylvania’s coal fields. With coauthor **Thomas Dublin**, a professor of history at SUNY Binghamton, Licht combs through newspapers, company records, census data, surveys and personal interviews to trace the trajectory of coal from boom to bust in the last century. The book highlights the decline of anthracite from several points of view: employment and population statistics, national politics, union conflict, community activism and the individual struggles of mineworkers and their families. The authors maintain that institutions — governments, coal companies and unions — failed to help the people as the collapse gathered momentum. They write, “Compared to the more socially conscious initiatives enacted in Western European nations in the face of coal’s worldwide decline in the second half of the twentieth century, the road taken in the Pennsylvania anthracite region appears particularly wanting.” *The Face of Decline* won the 2006 Merle Curti Award, which is given by the Organization of American Historians for the best book on U.S. social, intellectual or cultural history.



Jeffrey Miller