

KAS BULLETIN



NEWSLETTER OF THE KANSAS ACADEMY OF SCIENCE

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149th Annual Meeting of the Kansas Academy of Science Fort Hays State University, on April 7th & 8th, 2017

The 149th annual meeting of the Kansas Academy of Science was held on April 7th & 8th, 2017, at Fort Hays State University in Hays, Kansas. The meeting began Friday afternoon with tours of the Sternberg Museum of Natural History. One remarkable *live* exhibit portrayed all but one of the rattlesnake species in the United States! It was a thrill to see the rare mountain rattlers, willardi and pricei. A more complete account of the annual meeting and abstracts of the oral and poster presentations can be found in the Transactions Spring 2017 issue.

KAS Notes the Passing of Dan Merriam

We are saddened to report the loss of Historian and long-time KAS member, Dan Merriam. Dan was a Navy veteran of WWII and a Senior Scientist with the Kansas Geological Survey at the University of Kansas. He was educated in the U.S. at the University of Kansas (BS, MS, PhD) with a minor in archaeology and in Europe at the University of Leicester (England) (MSc and DSc).

In addition to his research at the KGS, he had worked for Union Oil Company and been a distinguished professor and head of the Department of Geology at Syracuse University and Wichita State University; he was also an Adjunct Professor at Emporia State University (Kansas). Merriam also had been a visiting scientist at Stanford University, Leicester University, Dartmouth College, University of Sydney (Australia), Ecole des Mines (France), and GeoForschungsZentrum Potsdam (Germany).

He was an Honorary Member of the American Association of Petroleum Geologists, Society of

Sedimentary Geology, International Association for Mathematical Geology, Kansas Geological Society, and Sigma Gamma Epsilon; a Senior Fellow of the Geological Society of America and a Fellow of the Geological Society of London.



Dan received a gold medal from Hornicka' Pibrat (Czechoslovakia) (1970), appointed to the U.S. National Commission for the United Nations Educational, Scientific and Cultural Organization by the Secretary of State (1979) awarded the Krumbiegel Medal from the IAMG (1981), William Smith Medal from the Geological Society of London (1992), and Haworth Distinguished Alumni Honors in Geology from KU (1995) in addition to presidential citations and certificates

of recognition, appreciation, or merit from several professional organizations.

He had published more than 300 books, scientific articles, and notes mostly on the geology of the U.S. Midcontinent, and Kansas in particular. Most recently he was Historian for the Department of Geology at KU and the Kansas Geological Survey as well as the Historian and Archivist for the IAMG.

New Old Mushrooms Discovered

Excerpted from Fungi Summer 2017
By Britt Bunyard

Two new – make that very old – gilled mushrooms have been discovered! It's rare that fossilized mushrooms turn up (indeed only 10 specimens total are known), but in a span of a few months there have been two such discoveries. The first, given the *Gerontomyces lepidotus*, was discovered in Baltic amber by George Poinar, Jr. The specimen was found in the Samland Peninsula of Russia. It was small (1.8 mm total length) but well preserved and complete pileus (cap) just 1mm in diameter. This new species represents a new piece of the puzzle to understand gilled mushrooms in the Cenozoic.

Next came word, just a few weeks ago of an even older find. Indeed, this is considered the “oldest fossil mushroom.” *Gondwanagaricites magnificus* is the only fossil mushroom known from a mineralized replacement – it was actually in rock and not in amber. The unique specimen extends the geological range of gilled mushrooms back by approximately 14-21 million years and confirms their presence in Gondwana during the Early Cretaceous.



Book Review: “*Laundato Si, On Care For Our Common Home*” by Pope Francis 2015

By Hank Guarisco, editor

Those unfamiliar with this recent papal encyclical may find it odd to be mentioned in a newsletter of the Kansas Academy of Science. However, this 176-page soft-bound book is a masterpiece of simplicity and clarity as the author address the most urgent biological crisis in recent history: the human-caused, sixth great extinction on the planet. Although much as been written on the increasing loss of biodiversity and climate change, *Laudato Si* presents a beautiful synthesis of ecological and religious approaches to this issue.

Beginning with an entreaty to all people to care for the earth, our common home, the author then presents a cogent ecological synopsis of the current crisis within the context of societies around the world, and comments on the weak responses of world leaders. Basic earth services, such as equitable climate, water, etc. are actually part of the commons, and should be protected for all people, as well as the non-human inhabitants of earth.

The nature of this grave global problem facing humanity requires the attention and action of those engaged in many different disciplines, scientific as well as religious. The author goes on to clarify the gospel of creation, and the often-misunderstood phrase of “having dominion over the earth.” We can take what we need from the earth for our survival and prosperity, but also have a responsibility to preserve and protect it. The destruction of forests and animal populations, pollution of rivers and oceans, and uncontrolled burning of fossil fuels all in the name of profit (greed) is directly in conflict with “having dominion over the earth.”

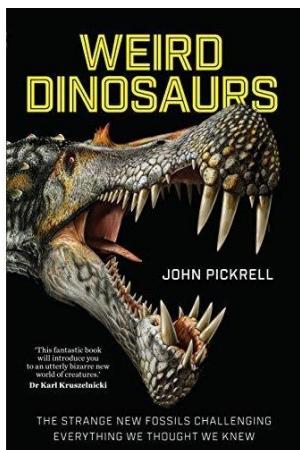
He then goes on to explore the interconnections among ecological, societal, and moral issues of our times. Native peoples and the poor are often more immediately affected by environmental degradation, resulting in disruption of their lives and societies.

The last part of the book gives suggestions of what we can do to alleviate the current crisis. Ecological education ranks high on the list. Our thinking must change if we are to ameliorate the impending ecological crisis. The old school philosophy about pollution: “the solution to pollution is dilution,” no longer applies.

I highly recommend reading this well-written, *inciteful* book.

BOOK REVIEW: WEIRD DINOSAURS by John Pickrell 2016

By Hank Guarisco, editor



Biologists and some non-biologists, have more than a passing understanding concerning dinosaurs. A five-year-old can rattle off long Latin names, like *Brontosaurus* and *Tyrannosaurus*, and active imaginations have conjured up dramatic scenarios involving these enigmatic creatures. However, much of the information we learned during childhood is seriously outdated. The author of "Weird Dinosaurs" introduces us to strange, new

fossils that challenge almost everything we know about dinosaurs. We are presently in a new "golden age" of dinosaur discovery.

A myriad of feathered dinosaurs has been discovered in China. Why China? For two reasons: it is a huge, diverse region that has not been heavily explored for fossils, and the presence of volcanic ash deposits have preserved a Pompeii-like world of dinosaurs in the fine-grained sediments. The down fuzz of *Sinosauropelta* was probably used as insulation, while the large fan of tail feathers belonging to *Gigantoraptor* was most likely used in mating displays. Four-winged flying dinosaurs, one the size of a pigeon (*Microraptor*) and another the size of an eagle (*Changyuraptor*) were found in 2000 and 2014, respectively. Stranger still is *Yi qi* ("strange wing" in Mandarin), that possessed a gliding membrane extending from the wrist to the ankle, much like a flying squirrel. Fossils with evidence of feathers have also recently been found in Burma, Russia, Madagascar, Canada, and Germany.

Moving on to Transylvania and Franz Baron Nopcsa, an eccentric nobleman, realized that 70 million years ago, this part of Romania was actually an island populated by a very unique dinosaur fauna. This fauna included dwarf sauropods (related to *Brontosaurus*) no bigger than a cow or horse, and a giant pterosaur (*Hatzegopteryx*) with a 37-foot wingspan that stood as tall as a giraffe on land.

The rich fossil beds of Canada have yielded many new species of horned dinosaur, related to *Triceratops*. Over 80 different species have been described, 55 of these since 2002. They have a wide range of head ornamentation, including eye and nasal horns, and a large frill with various projections extending from it. This book contains two full pages of color images of the heads of 41 species of these animals.

Alaska has also become a hotbed of paleontological research with the discovery of a pygmy tyrannosaur (*Nanuqsaurus*) and a hadrosaur (*Ugrunaaluk*). Dinosaur trackways and strange dinosaurs were also discovered on the North Slope. Herbivorous dinosaurs with very long claws that were relatives of *T. rex* had walked on their hind limbs and were covered in a shaggy coat of feathers. Although the climate 70 million years ago would have been milder, resembling the Pacific Northwest, these dinosaurs would have had to deal with the long winter and changing seasons. Field work in Antarctica has also uncovered interesting dinosaur remains.

This is a very well-written book that presents the latest information concerning recent advances in our knowledge of dinosaurs throughout the world.

Fungi vs Bugs: Fungi 2 Bugs 0

Excerpted from Fungi Summer 2017
By Britt Bunyard

Bioforsk, the Norwegian Institute for Agricultural and Environmental Research, is having successful field trials where the aim is to reduce tick populations in livestock grazing pastures and other places where ticks can find suitable mammal hosts. A naturally-occurring control is the tick pathogenic fungus called *Metarhizium*. This fungus is found in soils around the globe and is being studied for its potential to infect and kill ticks, plus many other arthropods.

Another recently developed biocontrol agent (Aprehend), containing the fungus *Beauveria bassiana*, is being tested against insecticide-resistant bed bugs.

Entreaty to a Box Turtle

Slow turtle within your shell
born under a Cancer Moon.
Quick to pull your head within
sometimes, none too soon.

The Trickster gnaws upon your house
but he is not a wolf.
At most you lose a portion of the eave
of your hard roof.

You ventured onto a smooth, flat road
asphalt beneath your feet.
Your neighbor is a flattened toad
and there is nothing to eat.

Rumble noise and rushing wind
assault the air above.
Quickly pull your head within
like a hand within a glove.

The menace goes away, for now
but this game you cannot win.
Please return the way you came
and spurn this awful din.

Made to survive in a world
with grass beneath your feet.
Please remain on shortgrass plains
where there is enough to eat.

By Hank Guarisco July 2017



Book Review: Wolf Nation by Brenda Peterson 2017

By Hank Guarisco, editor

This enlightening 292 page hard-bound book recounts both historic and modern attitudes toward an iconic species, the gray wolf. Modern dogs and wolves are both descended from a common ancestor, a long-extinct species of wolf. Along with the expanded settling of the West, was an attitude of dominating nature. This included aggressive campaigns against predators which continue to the present day. It was shocking and disheartening to discover that a branch of the USDA, "Wildlife Services," spent one billion dollars in 2014 fulfilling its mission: "to resolve wildlife conflicts to allow people and wildlife to coexist." Unfortunately, the result of this federal agency fulfilling its mission in 2015 resulted in the killing of 3.2 million wild animals, including 384 gray wolves, 284 mountain lions, 480 black bears, 731 bobcats, 3,045 foxes, 20,334 prairie dogs, 21,557 beavers, and hundreds of thousands of red-winged blackbirds and cowbirds.



The author recounts numerous encounters with individually recognized wolves by many visitors since their recent re-introduction into Yellowstone National Park in 2007. Family dynamics, and the nature of the gray wolf has become clear to

many people, including biologists. The mere presence of this keystone species has had a ripple effect on the natural habitat of Yellowstone. Elk and deer are more wary and do not linger along exposed creeks to consume all of the vegetation.

The public view of wolves is undergoing a transformation, although there are still many ranchers and hunters who view predator destruction as necessary. Various tribes of native peoples have always had a great respect for the gray wolf. Since the wolf has made a modest recovery and individuals have begun to repopulate several more western states, some states have instituted wolf hunting again, much to the chagrin of biologists and nature aficionados. However, reducing the number of wolves often has the opposite effect on livestock predation. When the alpha male or female is killed, younger less experienced wolves in the pack often resort to preying on easier to catch domestic animals.

The author details the political landscape in the lower 48 states as well as in Alaska. There was a great uproar after president Obama forbid shooting wolves from airplanes in Alaska's sixteen wildlife refuges. Of course, they were still hunted by more traditional methods. The attitudes of some ranchers have become more tolerant. Instead of killing all the wolves in the area, livestock management is changing. Wolf packs are monitored and cattle are moved away from them. Plastic flagging that blows in the breeze can also deter wolves.

Anyone interested in wolves will find that this well-written book contains a wealth of information, and is delightful to read.



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The 150th KAS Annual Meeting will be held at Washburn
University on April 6 - 7, 2018.