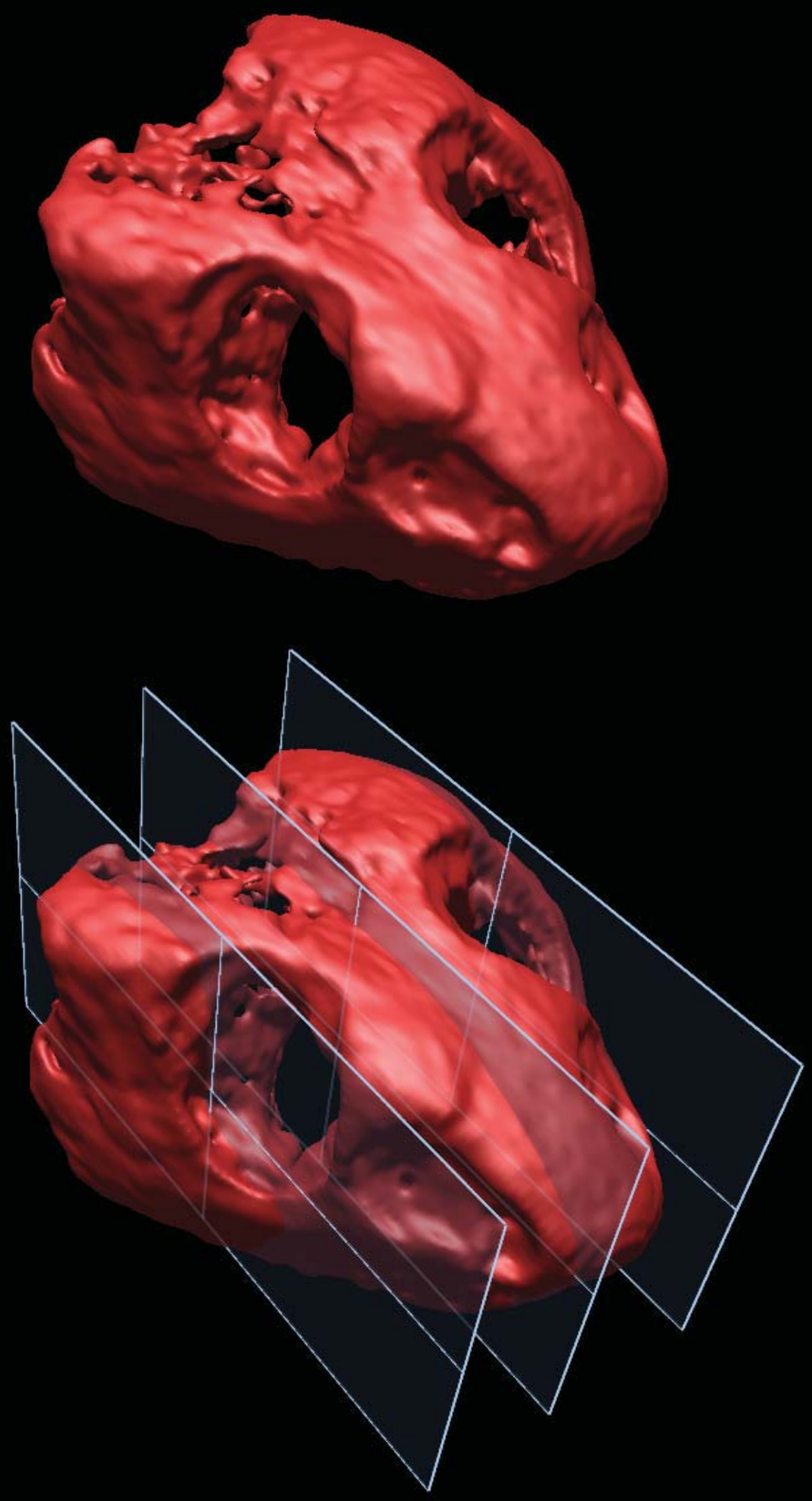

SKULLDIGGERY

In 2004, Adam Striegel, a University of Pittsburgh undergraduate on a geology class field trip near the Pittsburgh International Airport, picked up a softball-sized rock that appeared to be a fossilized skull. He thought it should be examined further.

Eventually, the fossil ended up in the hands of Carnegie Museum of Natural History paleontologist David Berman. He identified it as the skull of a 300-million-year-old trematopid amphibian, evolutionary kin of the frog and thought to represent a new genus and species. Researchers know of only two other such fossils. So, how to divine the details of this find without risking damage to the fossil by chipping away stone? Skull in hand, Berman recently approached Douglas Robertson, associate professor of radiology and director of the Musculoskeletal Imaging and Biomechanics Laboratory at Pitt. Robertson took 1-millimeter-thin readings of the rock-encased skull with a 64-slice CT scanner—"The latest and greatest in clinical scanners," Robertson says. It differentiated the density of the rock surrounding the fossil and the fossil itself. Robertson, an MD/PhD, took data from the scan and created a 3D image that can be flipped, spun, and turned any which way, so that paleontologists can closely study the prehistoric amphibian while keeping the actual fossil protected.

Priceless study subjects may be routine to Robertson by now. He has used CT scanners to create a model of a 5,300-year-old funerary mask. He has served up x rays of dinosaurs. More typically, he employs imaging technology to design longer lasting and better functioning replacement joints for patients. *—Joe Miksch*

IMAGING DOUGLAS ROBERTSON