Illustrator's books and art have influenced paleontologists, artists and Michael Crichton

New life for dinosaurs

By Frank D. Roylance
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Climb the stairs to Gregory Paul's third-floor Charles Village apartment and you may quickly find yourself slipping back 100 million years or more into the Mesozoic Era.

The Baltimore artist's walls are filled with lush portraits of dinosaurian wildlife in action. Tyrannosaurs step off across mud flats on a sunset hunt. A pair of feathered archaeopteryx cavort like gulls at the surf line of an ancient beach.

The dynamic scenes are part of his work for the new Princeton Field Guide to Dinosaurs — but Paul, 56, a self-taught paleontologist, full-time illustrator, author and dino-consultant to TV, museums and the movies, is no newcomer.

For 30 years, scientists say, Paul's art and published research have contributed to the revolution in scientific thinking that has upended old perceptions of dinosaurs as sluggish, dim-witted and dead.

His influence, "goes both to the artists and to the scientists," said Matthew Carrano, curator of Dinosauria at the Smithsonian Institution's National Museum of Natural History.

"He was one of the few people who were doing these images where you have super-active dinosaurs and feathered dinosaurs. He was getting it out there in the public mind well before it was the standard scientific story," he said.

Thomas R. Holtz, a dinosaur paleontologist in the geology department at the University of Maryland, College Park, said Paul's art "represents a real turning point in the history of paleo-reconstruction and the visual portrayal of dinosaurs."

A 1988 book by Paul, called "Predatory Dinosaurs of the World," was particularly influential.

"It was one of the first books Michael Crichton used while writing [the 1990 sci-fi novel] 'Jurassic Park,' " Holtz said. "It's fair to say the world at large knows [the fast, hungry and terrifying] velociraptor from Greg Paul, through Michael Crichton."

Curiously, it was the old vision of dinosaurs that prevailed when Paul was growing up in Northern Virginia. "This was back in the classic era," Paul said, "when dinosaurs were seen as fairly standard, big reptiles, slow and clumsy and so on."

Like any kid, he was fascinated by their size and strange forms: "It's an alien world that's gone. Dinosaurs are the closest things we have to aliens."

As he began to draw them, he was puzzled. They didn't look much like reptiles, but were "more erect-limbed, and more like giant mammals or birds. So when it started coming out in the early '70s that they had high metabolic rates [like birds and mammals], it made sense to me," he said.

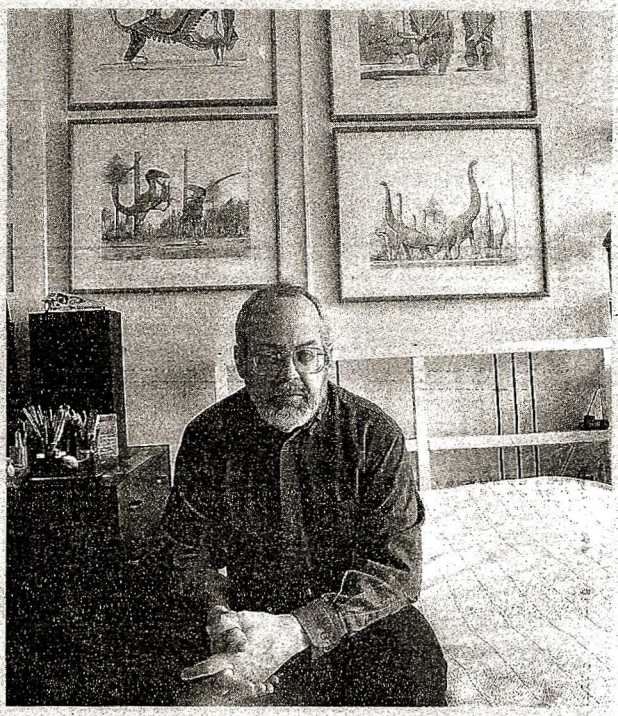
Scientists such as John Ostrom and his protege at Yale University, Robert Bakker, by then were arguing that dinosaurs were in fact warm-blooded and active, and that their direct descendants were still alive today, in the form of birds — now a widely accepted idea.

Inspired by the lively dinosaur illustrations of Charles Knight and William Berry, Paul began to see dino-art more as wildlife art.

Beyond a handful of art courses, and a few years at a community college, Paul is self-taught. He moved to Baltimore in 1979 for "informal studies," and to work with Bakker, then a professor in the Johns Hopkins University's department of earth and planetary sciences.

Paul stayed in Charles Village after Bakker left Hopkins in 1984. But he never pursued a degree. "I didn't want to be an academic. I don't deal well with bureaucracy. I think I'd be very bad at it," he said.

It hasn't seemed to matter. Paul became as immersed in dinosaur science as he was in illustration. He has published scores of technical papers, abstracts, letters, reviews and articles in respected, peer-reviewed journals.



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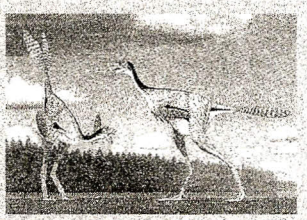
Above, Gregory Paul in his Charles Village apartment with some of his sketches. Below, his illustration of Caudipteryx zoui for the Princeton Field Guide to Dinosaurs.



"They get published because they're good scientific papers," Carrano said.

Paul has also written six books and co-written another. And he was a consultant for the "Jurassic Park" movie.

Paul's ideas can make waves.

"Greg ... is notorious in paleontology as a taxonomic 'lumper,' " Holtz said. "He tends to put a lot of species in fewer categories, as opposed to people who would split them up." His new field guide is no exception and has its critics.

Holtz said Paul's lumping may have confused Crichton, who chose velociraptor as the name of one of the species bent on eating the humans in his novel. Paleontologists argue that Velociraptor was no bigger than a turkey. The predator in Crichton's book was closer in size to its cousin, Deinonychus. Filmmaker Steven Spielberg made it even bigger than that.

"Now everyone in the world knows it as velociraptor," Holtz said. But for all the paleontologists' complaints, "We've all seen [the movie] lots of times," he added.

Paul has acquired a wealth of anatomical knowledge and uses it to produce meticulous reconstructions of dinosaurs. He reassembles skeletons on paper based on his study of the recovered fossil bones, then adds muscles based on the clues in the bones. Skin and (sometimes) feathers follow, often derived from fossil impressions.

When the notion of feathers on certain species of dinosaurs, and direct links to modern birds, first entered the scientific discussion, Carrano said, "Greg was willing to go farther at the time than most scientists were."

Holtz believes Paul didn't go far enough. "Our understanding now is they would be far more feathered."

Paul approached the Princeton University Press about doing the field guide, and Robert D. Kirk, the editor of the Field Guide series for the past 11 years, was immediately on board.

The 316-page guide to more than 700 species includes a long introduction to dinosaurs' biology, behavior and the world they lived in. Paul then catalogs each major dinosaur group and the most widely accepted species within them, with concise data on what is known about each.

More than two-dozen color wildlife scenes illuminate key sections, and each species is further illustrated with meticulous drawings of skulls, musculature and many drawings of the creatures in the flesh.

Paul takes inspiration where he finds it. The mud flats, pines and towering thunderheads behind his tyrannosaur on the hunt were based on a photo of a B-52 on wet tarmac at a Strategic Air Command base. The surf curling behind his pair of archaeopteryx came from a photo snapped at Assateague Island.

He sticks close to the science, though. His depictions showing dinosaurs in herds or pods of juveniles, for example, come from analyses of fossil tracks, skin texture, feathers and even some colors from fossil evidence.

The publisher gave Paul's art plenty of space. The book is a hardback measuring 8¾ inches by 11¼ inches — a first for the series.

"We were going to do it in a more traditional-size field guide, softbound," Kirk said. "But the shape of some of these dinosaurs just doesn't lend itself to this sort of treatment."

Besides, Kirk added, "it's not as though you're going to stuff it in your back pocket and stomp around Baltimore and identify these things."

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