Making connections

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Kevin Padian

Kevin Padian is professor of integrative biology and curator in the Museum of Paleontology at the University of California, Berkeley, and president of the National Center for Science Education. His research focuses on how major adaptive evolutionary changes get started.

Summarize yourself in the form of a title of a paper in Nature.
Varied adaptive strategy produces developmental stasis in a paedomorphic acephalate.

What was your first experiment as a child?
I didn't much care for experiments, except mixing chemicals in my chemistry set without following the recipes. I much preferred reading about prehistory and visiting the American Museum of Natural History, where I could lose myself in the exhibits.

Who has been the most important mentor in your career?
Certainly in my undergraduate years, Bob Linsley and Jon Swinchatt at Colgate University in Hamilton, New York. Bob didn't just teach his students, he infected them with his love of palaeontology and evolution. 'Swinch' gave his students the confidence and determination that they needed to pursue their goals — whatever they were. I don't go a day without using something I learned from them. And I've been fortunate to have good mentors throughout my whole career.

What makes a good scientific mentor?
Balance. But achieving it, that's the problem.

What gives you the most job satisfaction now? What are your major frustrations?
The greatest satisfaction comes from seeing how talented and motivated each new generation of students is. They seem to have boundless energy and ability, and they make it all worthwhile. The greatest frustration is the incredible administrative load of paperwork, regulations and restrictions that increases with each year. It just wastes so much potentially productive time. You'd think that administrators would be making our jobs easier, not more difficult.

What single scientific paper or talk changed your career path?
When I was a graduate student, I read Alan Charig's 1967 paper that tried to explain the evolution of the archosaur pelvis and hindlimb in functional terms. Like most useful papers, its components were eventually superseded by new methods and data (a nice way of saying that most of it was utterly wrong). But it stimulated a lot of young workers to ask new questions in different ways, and it taught me not to accept everything you read but to try to build on it.

What was the worst/most memorable comment you ever received from a referee?
My thesis adviser, Keith Thomson, was brilliant and all his students thought the world of him. He provided tremendously useful marginal comments on my dissertation chapters. I couldn't read most of them — like my graduate students can't read mine — but that wasn't important. All he needed to do was make a squiggle alongside a passage, and you knew it needed to be fixed. And his detailed comments were kind, frank and perceptive — a tough combination to pull off.

You have the audience in your hands, but some smart-alec asks you the killer question. What's your favourite response?
If you want to keep the audience in your hands, ask the questioner to elaborate. You might learn something. Or he or she could turn out to be a lunatic, which you might put to your advantage.

What book currently resides on your bedside table?
If there's only one book, I'm turning in too early. Currently I've got Robert Richards' *The Romantic Conception of Life: Science and Philosophy in the Age of Goethe*, A.N. Wilson's *The Victorians*, and a couple of pulp westerns and mysteries.

What one thing would you rescue from your burning laboratory?
Specimens that I've borrowed from other museums, because they are literally irreplaceable.

What's the best advice you've ever received?
"Throw the first two strikes high and inside" (Brian Simison); "Check out this new group called The Clash" (Dave Jablonski); "Why don't you apply for that Berkeley job?" (Dave Archibald).

What do you most dislike about having research published?
There's always something to fix or improve when you reread it six months later. But usually my colleagues are kind enough to do it for me.

What would you have become if not a scientist?
It's funny how many prominent colleagues will say privately that they don't think of themselves as competent scientists (and hope no one ever catches on), but at the same time they can't conceive of being anything else. I suppose it would be a fairly cushy job to be an editor for *Nature*…

Is there a tyranny of reductionism in science?
When biology and geology students have to learn physics and chemistry, but the reverse isn't true, we're not valuing the big picture in science education. Mike Bishop, chancellor of the University of California, San Francisco, and a Nobel laureate, stresses the importance of an integrative science education in his recent autobiography. Average people love to learn about stars, Earth and its life. Showing how all the sciences interrelate will help them understand and appreciate molecules and quarks, too.

Name one extravagance you can now get away with because of your eminence.
It's not eminence but advancing age that gives me an excuse for misremembering the names of bright young people that I meet.

What's just around the corner?
Even more amazing revelations in evolutionary developmental biology that will connect genetics, palaeontology and ontogeny. This is the part that Darwin couldn't solve — nor could anyone, until developmental technology caught up with evolutionary questions. We're getting there piece by piece. And the molecules, the fossils and the morphogenetics are making more and more sense together. It's an incredibly exciting time that I've waited for since I was a graduate student.

Whom from the world outside science would you most like to have dinner with?
John Lennon, Pete Townshend and Bruce Springsteen. With a Fender, a Gibson and a Martin nearby.

Do you hope to die before you get old?
Too late! ■