

Rethinking Expertise, by Harry Collins and Robert Evans. Chicago: University of Chicago Press, 2007, 160 pp., \$37.50 hardbound; 2009, 176 pp., \$22.50 paperback.

What Are You Talking About?

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When University of Chicago evolutionary biologist Jerry Coyne took to the pages of the February 4 *New Republic* with a review essay announcing the triumph of scientific rationalism over religious belief, I was surprised to find he had not directed his atheist ire at H. L. Mencken's fundamentalist yokels from "the forlorn backwaters." In "Seeing Is Believing" Coyne instead targeted his criticism at two recent books *in support of* evolutionary theory: *Saving Darwin: How to Be a Christian and Believe in Evolution* (HarperOne, 2008), by physicist Karl W. Giberson, and *Only a Theory: Evolution and the*

Battle for America's Soul (Viking, 2008), by cellular biologist Kenneth R. Miller. Both scientists offer substantial critiques of the Intelligent Design (ID) movement, on the grounds that ID conflates scientific theory with theological speculation. For Giberson and Miller, both religious believers, Darwinian evolution has earned the status of a demonstrable theoretical framework, while ID lacks the empirical research to justify its counterclaims. The authors set out to explain that ID fails as a *scientific* response to Darwinian evolution because it blurs the line between science and religion—what the late evolutionary biologist Stephen J. Gould called "non-overlapping magisterium," or NOMA for short.

For Jerry Coyne, NOMA is nothing but nonsense. Offering theology the epistemological status of separate-but-equal is, for Coyne, a scientific crime. So he spent most of 9700 words eviscerating his evolutionist colleagues, claiming that the pro-evolution arguments of Giberson and Miller are darkened by their religious beliefs, which Coyne assumes *must* compromise their scientific integrity. Because Giberson and Miller seek to explore how religious persons can both accept Darwinian evolution and maintain

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fidelity to their beliefs, Coyne implies that they lack the courage of true scientific conviction: “Although Giberson and Miller see themselves as opponents of creationism, in devising a compatibility between science and religion they finally converge with their opponents” (<http://www.tnr.com/booksarts/story.html?id=1e3851a3-bdf7-438a-ac2a-a5e381a70472>).

Though a distinguished biologist, Coyne fails to recognize what philosopher Karl Popper famously called “the criterion of demarcation”: the boundary between science and non-science. Whereas Giberson and Miller were outlining criteria for scientific theory (to evaluate ID), Coyne simply asserts his belief that scientific materialism will eventually answer every human question: “[S]cientists have other explanations [than religion], ones based on reason rather than on faith. Perhaps some day...we [will] have a ‘theory of everything.’”

Until then, we could use a more modest theory of scientific knowledge: one that properly delimits science. Enter the work of two sociologists, Harry Collins and Robert Evans, both of Cardiff University in the UK. Their *Rethinking Expertise* is a treatise on the language of science, both an analysis of the discourse of experts and a referendum on scholarly expertise. Collins has devoted his career to researching scientific expertise, and

this book presents the culmination of his research on “the judgments of those who know what they are talking about.” The authors hope this volume will help to establish a new sociology of expertise.

These days, when every faculty member is an “expert” on something, we have good reason to pay attention to such an argument. How secure is public recognition of our expertise?

At the heart of the book is an effort to separate genuine expertise from political advocacy—a separation that has become difficult in “an age of technological populism.” This of course entails their embracing the now unpopular view that disinterested knowledge is possible. As the authors put it, “expertise is the real and substantive possession of groups of experts.” Their emphasis on “real and substantive” renounces the social constructivists, who view expertise mainly as a guise for social control.

Collins and Evans recognize a cultural shift that has moved Western societies away from a realistic view of science and towards a highly skeptical, even cynical view. They argue that works like Thomas Kuhn’s *The Structure of Scientific Revolutions* (University of Chicago, 1962) inadvertently contributed to a public misunderstanding of science as unstable, subject to dramatic reversals, and thus fundamentally unreliable.

In addition to theoretical arguments, the authors point to decades of scientific technologies that have produced public spectacles of unintended consequences: the destructive side-effects of pesticides, the carcinogenic effects of synthetic products, concerns over environmental degradation, etc. Together, theoretical instability and suspicion of technology have produced what Collins and Evans consider a leveling of scientific authority. Gone are the days when a lab coat-clad Ph.D. had the final word.

The authors acknowledge certain benefits to this demystification of science, which “has provided an intellectual grounding for hugely enhancing the rights of the citizens [by] leveling the epistemological playing field.” Such consumer-friendly accessibility to science encourages public interest and activism. Yet, ease of access (like the ubiquitous Google search) can generate a false impression: that the user is knowledgeable, not merely able to lay hands on expert information. The authors further argue that the public misapprehends the “vertical dimension” of science, the steep journey up the heights of scientific knowledge. The philosopher Michael Polanyi offers what Collins and Evans consider a more compelling metaphor: scientists are voluntary participants in “the Republic of Science.” This self-governing community is made up

of “a network of mutual appreciation extending far beyond [the individual scientist’s] own horizon.” Each citizen submits to “the methods of scientific inquiry [that are] transmitted only in the same way as an art, by the affiliation of apprentices to a master. The authority of science is essentially traditional.”

If Polanyi is right, distinguishing between informed tourists and naturalized citizens in the territories of traditional science is essential to understanding scientific expertise. For, as Collins and Evans have found, when scientific findings are universally accepted (e.g., nuclear fission, thermodynamics), there is little concern. But, when scientific theories are disputed, the differences are critical. In publicly disputed areas like Darwinian evolution (i.e., ID), global climate change, and genetically-modified foods, the terms of debate depend on scientific authority—on whom to trust. And, winning the intellectual high ground requires decisive demonstration of one’s expertise.

Rethinking Expertise presents a “Periodic Table of Expertise” that graphically displays the elements of human knowledge: “ubiquitous expertises,” as with a person’s facility in his native language; “dispositions,” which include analytic flair and linguistic fluency; “specialist expertises,” which form a continuum of knowledge, from trivial to primary sources to

contributory expertise; and “meta-expertises,” like those of the connoisseur or art critic. Within this framework the authors highlight the importance of “interactional expertise,” which they define as mastery of a discipline’s conceptual language from inside the expert-community without full participation in the community—those who can talk the talk but can’t walk the walk. The authors claim that interactional expertise has been conceptually neglected, though interactional experts abound, including sociologists, specialist-journalists, and peer reviewers in funding agencies.

While admitting the limits of interactional expertise, Collins and Evans argue for a more robust scientific republic, where the voices of interactional experts would offer reflections on science by way of interdisciplinary relationships. Specialists, they say, should benefit from conversations with informed generalists.

The philosophy of science presents the most obvious example of interactional expertise. As Stanley Rosen reminds us in an essay in *Is There a Human Nature?* (University of Notre Dame Press, 1997), “every fundamental human problem remains today much the same, and exactly as problematical, as it was twenty-five hundred years ago.” By remembering that science is but one form of human

inquiry, the researcher learns to respect the limits of his expertise. Otherwise, the specialist might dismiss philosophical speculations, as did the scientist who stated bluntly, “Philosophy of science is about as useful to scientists as ornithology is to birds.” It is a myopic witticism. Birds fly without the aid of ornithologists but science flies on the basis of rigorous philosophical judgments about the nature of knowledge and evidence.

Rethinking Expertise is rich in examples. Collins and Evans examine interactional expertise among early AIDS activists (non-scientists) who became thoroughly familiar with the research, eventually contributing to the study of the disease. They follow the careers of conmen and frauds, and cite courtroom transcripts of the interactional expert on the witness stand. They also examine experts at work on three original experiments on color-blindness, perfect pitch, and gravitational wave research, testing for the existence of interactional expertise—e.g., the ability of a color-blind person to pretend to possess the perceptual ability of a color-sighted person, or vice versa.

Rethinking Expertise is perhaps best seen as a synthesis, connecting commonsense intuitions and the arguments of philosophical authorities. Herbert Dreyfus’s arguments against Artificial Intelligence (AI) are knit up

with Ludwig Wittgenstein's "family resemblance" criteria of science and Michael Polanyi's notion of "tacit knowledge" to offer a broadly humane view of expertise. Following Polanyi, the authors reject AI's mechanical, programmable approach to expertise, explaining that expertise is "deep understanding" through "social immersion" in the Republic of Science. Ultimately, Collins and Evans are seeking to protect that self-governing community from the external threat of non-scientific political conflicts, for they believe that "logic and science are always too fragile for the purposes of policy-making because they are too pure."

But, is this too weak a depiction of science? The genus of modern *scientia* is a robust organism planted in real-world soil that flourishes through careful empirical observations and imaginative hypothesis testing. No wallflower, science can withstand public scrutiny. However, the authors' admonition—beware the leveling effect of democracy—should be heeded, for scientific data can easily be manipulated by demagogues, who never worry about justifiable means. To avoid such manipulation, the public must be well-educated in the history and philosophy of science in preparation for deeper reflection on the role and limits of science in contemporary free societies.

But let us understand: to reason with anti-science crusaders—as well as advocates of scientism—will be hard work. Promoting a philosophically-sound, humanistic vision of science will require an understanding of human culture as a vastly complex, interdependent form of existence. Though science and politics are important, they must be recognized as dependent upon other cultural achievements, including the philosophical impulse to wonder—and the quest for truth.

In his withering review, Coyne left no room for anything outside his grand, unifying theory of evolutionary genetics. His claim to possess the narrow scientific key that unlocks the mysteries of the universe is merely an intolerant Gnostic view of the world. And Coyne is using his bully pulpit to discourage well-educated readers from entertaining alternative hypotheses—namely, the more holistic discourse of interactional experts like Giberson and Miller.

When Coyne skewers his colleagues for considering science in light of theology, he dismisses their interactional expertise. As believers, Giberson and Miller seem to have done some serious thinking on theological and philosophical questions arising from their work, and they are attempting to relate science and religion—both legitimate forms of human

inquiry—through careful analysis. In fact, they are working to distinguish the two domains. By contrast, the cold rationality of Coyne’s scientific materialism resembles what in *Orthodoxy* G.K. Chesterton once called the “madman...who has lost everything except his reason.”

Collins and Evans must have had scientists like Coyne (or Dawkins) in mind when they offered this caveat on expertise: “[T]oo often, science’s spokespersons have claimed to be the

custodians of universal truths akin to those offered by morality or religion. Ownership of the universal and eternal has to be given up if the defense of science is to have integrity.” That’s a good reminder for scientific experts who have used the prestige of expertise to advance non-scientific claims.

Only by recognizing the limits of human expertise will free societies be able to determine who knows what they’re talking about—and who is merely confessing unbelief.