

EVOLUTION AND ENVIRONMENT IN THE  
PROPERTY SCHOLARSHIP OF JAMES KRIER

CAROL M. ROSE\*

I have known Jim Krier since I started teaching law in 1978. We were both at Stanford at the time, and we were both new there too, but unlike me, Jim was already a tenured professor, coming in from UCLA.

I have to say that my experience with Jim was quite mixed. In one way, he was a real menace. He was one of two people (the other was Lawrence Friedman) beside whom I could not sit in a faculty meeting. Both of them had the habit of dropping acerbic but hilarious asides about the proceedings, and as a very junior faculty member, I just could not afford to get the giggles. So I got into the habit of waiting until Jim and Lawrence had both taken a seat, and then plopping down somewhere else, next to some more sober person.

That was the menace side. The other side was the education I got from watching and listening to Jim at faculty workshops. Stanford had then and still has now a lot of very smart faculty members. But I never heard anyone rip right into the center of an argument the way Jim did, exposing the weaknesses or pointing out the strengths of what we all were hearing. It was a revelation to me. I have heard him do it again many times in subsequent years, after we both went on to other law schools but came together at conferences. In fact, although we were never colleagues again, I have seen a good deal of Jim at meetings and confabs for what I have come to call the Property Mafia, many of whose members have received Brigham-Kanner prizes or have been on panels for the recipients.

To me, the most memorable of Jim's conference performances occurred at a conference that was held at the University of Colorado under the auspices of a foundation for biological and social research. There were a number of sociologists, anthropologists, and biologists on the panels. The idea seemed to be to convince property and environmental law teachers that we should all become devotees of

---

\* Ashby Lohse Professor of Water and Natural Resource Law, University of Arizona Rogers College of Law; Gordon Bradford Tweedy Professor of Law and Organization (emer.), Yale Law School; J.D. Univ. of Chicago, 1977; Ph.D. Cornell Univ., 1970.

sociobiology, and that we should recognize that our legal as well as other institutions were more or less determined by an evolutionary biology that was dominated by selfish genes. Not surprisingly, the law teachers soon became quite restive with what sounded to us like something out of Herbert Spencer's survival of the fittest. All practices seemed to be treated as the natural and inevitable consequences of evolutionary biology, including social injustices, inefficiencies, and inequities that many of us thought were not a matter of inexorable nature at all, but were rather more contingent and capable of change.

One of our lecturers was giving the standard rap that likened institutional patterns to evolutionary changes in organisms, whereby institutions mimic organisms by selecting for evolutionary fitness. Among other things, the speaker had to confront some unused or dysfunctional features of the organisms themselves, like the human appendix or the panda's thumb. His explanation was that these were merely leftovers or failed experiments—a set of aberrations on the path to reproductive success. Jim got up and said, “You know, this really doesn't work. Right, the panda's evolution may have given it some appendage that is irrelevant to its long-term survival. But we don't think there is anything the matter with the animal. We think there is something the matter with the theory.” The house burst into applause. The obvious implication was that if the theory could not fully explain the panda's body, it was not going to explain social institutions fully either.

I want to come back to Jim's rather complicated relationship to evolutionary theories, but first I would like to mention again some of his truly stellar achievements in property law. There is of course the casebook he pioneered with the late Jesse Dukeminier.<sup>1</sup> Since its appearance, this book has transformed property teaching in the United States, and over a longer run it has transformed property scholarship. The reason for its success is that it dragged property teaching out of a relentless concentration on categorization, and instead convinced both teachers and students that the subject has some real intellectual content. Some of those students have attended Brigham-Kanner conferences, and they and others form a modern

---

1. JESSE DUKEMINIER & JAMES E. KRIER, *PROPERTY* (1981). The casebook has now gone through seven editions, the seventh (2010) including new editors Greg Alexander and Michael Schill.

generation of property scholars who would never have pursued the subject of property if they had not seen how engaged it can be with modern scholarship—not only with law and economics but also with legal history, art and architecture, and with just plain goofball human nature. Dukeminier and Krier were not the very first in the transformation of property teaching—I think of the casebooks of the late Curt Berger,<sup>2</sup> as well as Lance Liebman’s foray with Charles Haar<sup>3</sup>—but it was to first to systematize that transformation.

The casebook was also by no means Jim’s first contribution to property law. I am not a person who thinks that early work always forecasts the whole range of later scholarly interests, but still, I know that there are sometimes some early glimmers. I think that is true in Jim’s early work too. I specifically asked the 2012 Brigham-Kanner conference organizers to include some of Jim’s environmental work, and some of this came early in his academic career. Here he was an early proponent of the idea of applying property concepts to environmental controls, building on the work of the Canadian economist J. H. Dales.<sup>4</sup> I was also interested to see how he, like Bob Ellickson, was very quick to explore the applications of Guido Calabresi’s work on “liability rules.” Jim cited Calabresi’s opening salvo on the topic even before the appearance of Calabresi’s now-iconic 1972 article with Douglas Melamed, *One View of the Cathedral*, an article that famously distinguished “liability rules” from “property rules.”<sup>5</sup> And of course some of Jim’s later work again grappled with the property

---

2. CURTIS J. BERGER, *LAND OWNERSHIP AND USE* (1968).

3. CHARLES M. HAAR & LANCE LIEBMAN, *PROPERTY AND LAW* (1977).

4. J. H. DALES, *POLLUTION, PROPERTY AND PRICES* (1968). Jim cited and worked with Dales’s analysis in several of his early environmental articles, among others *The Pollution Problem and Legal Institutions: A Conceptual Overview*, 18 *UCLA L. REV.* 429 (1971); *Environmental Watchdogs: Some Lessons from a Study Council*, 23 *STAN. L. REV.* 623 (1971); *Resource Allocation, Information Cost, and the Form of Government Intervention*, 13 *NAT. RESOURCES J.* 89 (1973) (with W. David Montgomery); *The Irrational National Air Quality Standards: Macro- and Micro-Mistakes*, 22 *UCLA L. REV.* 323 (1974).

5. Guido Calabresi, *Transaction Costs, Resource Allocation and Liability Rules—A Comment*, 11 *J. L. & ECON.* 67 (1968); Guido Calabresi & Douglas Melamed, *Property Rules, Liability Rules and Inalienability: One View of the Cathedral*, 85 *HARV. L. REV.* 1089 (1972). Jim cited Calabresi’s earlier article prominently in *The Pollution Problem and Legal Institutions: A Conceptual Overview*, 18 *UCLA L. REV.* 429, 436 (1971). Bob Ellickson also used Calabresi and Melamed’s formulation in an early article: Robert C. Ellickson, *Alternatives to Zoning: Covenants, Nuisance Rules, and Fines as Land Use Controls*, 40 *U. CHI. L. REV.* 681 (1973).

rule/liability rule distinction.<sup>6</sup> Jim's environmental law casebook with Dick Stewart<sup>7</sup> is still one of the best ever produced, even though environmental law has taken many new directions since the casebook's original publication. As Jim told me with his characteristic pithiness, he was bailing out of the environmental casebook because he felt himself turning into a chronicler of minuscule regulatory changes.

Now I am going to come back to the topic of evolution in Jim's work. Somewhere in those early years, Jim encountered Harold Demsetz's short but important essay, *Toward a Theory of Property Rights*.<sup>8</sup> For those who don't know this piece, it is an evolutionary story, more or less, about the ways that property rights evolve when it is worth the effort to create them. The piece keys off the historical example of the colonial era's fur trade in the Hudson Bay area, when European buyers began to purchase beaver pelts from native hunters. In the past, the native groups had only used these furs for subsistence purposes, but the payoffs from the fur trade encouraged them to hunt so extensively that they seemed to be driving the animals to the verge of complete annihilation. This was the first snapshot in the Demsetz story: a common pool problem where open access to the wildlife stock seemed about to destroy that stock. The second snapshot in the article depicts the same group of native hunters somewhat later, after they had succeeded in establishing a set of informal familial property rights to hunting areas. With their ability to control access to these areas, the "owners" now maintained them as habitat for the animal stocks, and they calibrated their hunting to sustainable and profitable levels.

I think it is fair to say that the evolutionary component of Demsetz's story, taken together with other stories about the evolution of property rights or of other methods of resource management, has been one of the central preoccupations in Jim's scholarship. He included a substantial part of Demsetz's article in the very first edition of the Dukeminier and Krier property casebook, and my guess is that this inclusion is one reason why Demsetz's article is now so canonical.

---

6. See, e.g., *Property Rules and Liability Rules: The Cathedral in Another Light*, 70 N.Y.U. L. REV. 440 (1995) (reconsidering the advantages and disadvantages of the different rules).

7. JAMES E. KRIER & RICHARD B. STEWART, ENVIRONMENTAL LAW AND POLICY: READINGS, MATERIALS AND NOTES (1978).

8. Harold Demsetz, *Toward a Theory of Property Rights*, 57 AM. ECON. REV. 347 (1967).

The casebook made the piece familiar to generations of property students and scholars.

But Jim has always been skeptical of the Demsetz story. Shortly after I met him, I heard him describe what he thought was the most important problem in the story: the article begins with overhunting, a common pool problem about overexploiting a resource, to which the solution is a system of property rights. But as Jim astutely observed, the establishment and operation of a property regime itself is another common pool problem, involving joint efforts on establishment and maintenance. The upshot is that the hunters could overcome a common pool issue in hunting only if they could overcome a higher level common pool problem in governance. The two common pool issues have the same basic structure, and Jim's question was, if they could not solve the first, how could they solve the second? What exactly happened in the gap between the first snapshot of overhunted animals and the second of sustainable management in a system of property rights? Demsetz just gave the snapshots, without saying how the first problem morphed into the second solution. Jim also claims that when he confronted Demsetz with this question, Demsetz answered that this was why he called the article "*toward* a theory of property rights."

During the 1980s, I heard Jim make this argument about the Demsetz piece a number of times, and I even cited his oral comments about it before Jim put it in writing, because I thought it was an extremely important insight.<sup>9</sup> But to the best of my knowledge Jim did not get around to putting it into an article until 1992, when he wrote *The Tragedy of the Commons, Part II*.<sup>10</sup> This was a review essay about a book on Free Market Environmentalism, where the book's authors told what was basically the Demsetz story about the evolution of property rights, as applied to the management of environmental resources. As Jim pointed out, this evolutionary story assumes the proof—that at some level people can solve common pool problems—without saying how it happens. Of course, it is true that

---

9. Carol M. Rose, *The Comedy of the Commons: Custom, Commerce, and Inherently Public Property*, 53 U. CHI. L. REV. 711, 719 (1986); Carol M. Rose, *Rethinking Environmental Controls: Management Strategies for Common Resources*, 1991 DUKE L. J. 1, 4.

10. James E. Krier, *The Tragedy of the Commons, Part II*, 15 HARV. J. L. & PUB. POL'Y 325 (1992).

people do solve common pool problems at least some of the time. But sometimes they fail, too. When people do solve these dilemmas, how do they do it? Jim's position was that we need to be more humble about these issues, and we need to look to actual experience to see when and where we can solve these problems, and when and where we can't.<sup>11</sup>

So where did Jim's skeptical turn come from? I think I know, and here is one place where a look back to his early work is definitely illuminating. The place to look is his early environmental work, and in particular, his 1977 book with Edmund Ursin on the history of air pollution regulation in California.<sup>12</sup> Jim reprised a bit of this book in his 1994 article, *The End of the World News*, where he mentioned that he had worked on the book a half-dozen years before its publication.<sup>13</sup> That means that he began thinking about this history and working through it no later than the early 1970s.

The book recounts California's and especially the Los Angeles basin's experience with smog, the unpleasant and unhealthy air pollution that results when sunlight interacts with the gases that come out the exhaust pipes of automobiles. The Los Angeles basin is a notorious trap for air pollutants, and given the city's smog-producing combination of strong sunshine with a burgeoning car culture, foul air had become a noticeable issue by the 1940s. No substantial market interests were addressing the smog issue at that time, and indeed it was not in anyone's particular pocketbook interest actually to do much about this classic common pool problem. *Pollution and Policy* recounts how California regulators also took a long time to get on the case, and when they did, how they more or less muddled about, zeroing in on easy targets and paths of least resistance. The first—and mistaken—regulatory target was a factory that made synthetic rubber.<sup>14</sup> No doubt it seemed obvious that the cause of the pollution could not be *us*, with our little bitty cars and their little bitty exhaust emissions. But of course it was us, in the accumulation of

---

11. *Id.* at 339–48.

12. JAMES E. KRIER & EDMUND URSIN, *POLLUTION AND POLICY: A CASE ESSAY ON CALIFORNIA AND FEDERAL EXPERIENCE WITH MOTOR VEHICLE AIR POLLUTION, 1940–1975* (1977) [hereinafter KRIER & URSIN, *POLLUTION AND POLICY*].

13. James E. Krier, *The End of the World News*, 27 *LOY. L.A. L. REV.* 851, 855–56 (1994) [hereinafter Krier, *The End of the World News*] (describing initiation of work on the book).

14. KRIER & URSIN, *POLLUTION AND POLICY*, *supra* note 12, at 53–54.

small individual increments to a big dirty sky. In fits and starts, California muddled along toward this unwelcome recognition, in a laborious and error-laden trial and error process that Jim labeled “exfoliation.”<sup>15</sup> And of course, the exfoliation process is not really over yet, often requiring the jolt of crises like the one that got the federal government to take air pollution seriously, the killer smog in Donora, Pennsylvania, in 1948.<sup>16</sup>

The lessons from California’s smog regulation have informed much of Jim’s work. Exfoliation too was and is an evolutionary process, but it is not smooth, and its outcome is not certain in any given case. That lesson about contingency is visible in Jim’s critique of “technological optimism,” the view that bigger and better technology can solve our resource and pollution issues. One notable technological optimist whose work began to be noticed in the 1980s is Peter Huber, a prolific writer with both a law degree and advanced degrees in engineering. When Huber’s and others’ work in a similar vein began to capture attention, Jim observed the same problems in their analysis that he earlier had seen with Demsetz: markets and politics have parallel issues in dealing with common pool problems.<sup>17</sup> In both markets and politics, we don’t bother to learn about things that don’t earn; and things that do earn gain adherents who can outshout other sources of learning, at least until some crisis occurs.

The psychological lessons from the exfoliation process got a fresh look in Jim’s 1990 article with the economist Roger Noll, on the implications of cognitive psychology for risk regulation.<sup>18</sup> Here Jim worked with Noll to identify some of the common cognitive mistakes that people make in assessing any kind of empirical issues: too many searches for confirmation of preexisting beliefs, too much reliance on simple analogies that come to mind easily (like recent news or personal experiences), too much concern about losing what we have as opposed to considering what we might gain by taking some

---

15. *Id.* at 289; see also Krier, *The End of the World News*, *supra* note 13, at 855.

16. KRIER & URSIN, *POLLUTION AND POLICY*, *supra* note 12, at 8, 104–06, 263–66.

17. James E. Krier & Clayton P. Gillette, *The Un-Easy Case for Technological Optimism*, 84 MICH. L. REV. 405 (1986). The article cites Huber at 406, note 2, among other locations. See Peter Huber, *Safety and the Second Best: The Hazards of Public Risk Management in the Courts*, 85 COLUM. L. REV. 277 (1985).

18. Roger G. Noll & James E. Krier, *Some Implications of Cognitive Psychology for Risk Regulation*, 19 J. LEGAL STUD. 747 (1990).

measure. The article organized a body of psychological research that had been accumulating over the previous decade, notably with the work of Daniel Kahneman and Amos Tverski,<sup>19</sup> but also work by others like Paul Slovic<sup>20</sup> and Baruch Fischhoff.<sup>21</sup> But it was still a little too new for most law professors, even though these kinds of errors could have profound effects on risk perceptions and the legislation based on those perceptions. The Noll and Krier article is not cited in anything like the volume that it deserves, illustrating what I think has been the main flaw in Jim's scholarship: he is often so far ahead of the curve that later scholars have not realized that he was there first.

In any event, systematic cognitive errors help to explain why human approaches to social problems do not always take a straight-line path of evolutionary success, or sometimes even to success at all. Most fundamentally, the takeaway from Jim's work is that any straight-line evolutionary story is likely to be bogus, at least at least when it comes to management systems for resources. No system of resource management—not even a system of property rights—is necessarily the next evolutionary success.

Of course, property rights systems do emerge and do manage resources reasonably well sometimes, even many times. It is easy to point to successful evolutions of property rights regimes and make fun of the doubts—like admitting that, yes, things do work in practice, but do they work in theory? But the fact is that the theory does matter, because theory is basically the way we understand *why* things evolve as they do. If we do not know why things develop as they do, we may find ourselves in catastrophic situations that we cannot reverse.<sup>22</sup> Evolution, or at least institutional evolution, is considerably more contingent than a set of stepwise moves toward more and more effective systems, based on improved technology or

---

19. See, e.g., Daniel Kahneman & Amos Tverski, *Prospect Theory: An Analysis of Decision Under Risk*, 47 *ECONOMETRICA* 263 (1979).

20. See, e.g., Paul Slovic, *Perception of Risk*, 236 *SCIENCE* 289 (1987); DANIEL KAHNEMAN, PAUL SLOVIC, & AMOS TVERSKY, *JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES* (1982).

21. See, e.g., Baruch Fischhoff, *Cost-Benefit Analysis and the Art of Motorcycle Maintenance*, 8 *POL'Y SCI.* 177 (1977).

22. Krier, *The End of the World News*, *supra* note 13, at 862–64 (observing that climate change could present problems so massive that the ordinary pattern of institutional trial and error has no room to recover from irreversible miscalculations).



improved economic understanding or both. Instead, there are many, many opportunities for bungling and false steps—and some of those bumbles may be exceedingly difficult to reverse. Yes, some factors help to build successful institutions, including property rights institutions. But as Jim's whole career has taught us, one of the tasks of legal scholars, and economics scholars too, is to try to find out what those factors are and how they work together.