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Motives for Idealizing the Pragmatic

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MOTIVES FOR IDEALIZING THE PRAGMATIC

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I. INTRODUCTION

I hope that my title is neutral enough so that one can tell that I do not come to debunk or to scorn. I wish to understand a highly human phenomenon, i.e., the way we idealize our most pragmatic activities such as science and law.

Let me start with the obvious: we all, from time to time, idealize science and law. The "Law Day" speech is the classic venue for idealizing law, as anyone who has ever sat through such an event can testify.[1] Although there is no equivalent event called "Science Day," its absence has not prevented scientists from delivering speeches that sound like parodies of the average Law Day speech.[2] To be sure, one could dismiss these examples as not proving much; a ceremonial speech does not reveal much about actual practice. So the more complicated (and important) question is whether we idealize science and law when it really matters, i.e., when we are doing serious work? And furthermore, if we do, is any harm done?

All told, there is much to admire in our tendency to idealize, even though it is dangerous at times. In our book,[3] David Caudill and I tried to show how the judicial tendency to idealize science can have two bad consequences: it can lead toward being too credulous (science is always good) or too dismissive (the scientist in court is not ideal enough). Legal scholars who have studied the problems of using science in the courtroom tend to replicate the judicial error, and they further compound the problem by idealizing the law (generally, by imagining that judges, jurors and lawyers can and should do more than they can).[4] In this article, I do not wish to replay the book, repeating the evidence and analysis present there. Instead, I wish to step back from the book and reflect on what Caudill and I have written. I assume that idealizing science and law, like many things, has both an upside and a downside. We show in our book how idealizing can be dangerous; in this article, I wish to consider what the benefits might be.

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1. *See* FED. R. EVID. 602 (addressing personal knowledge). Because I teach Evidence (among other things), my footnote for this assertion refers to the Federal Rules of Evidence.

2. *See* FED. R. EVID. 201 (addressing judicial notice). An adequate footnote on this point would be a book-length essay, so let me dodge the issue the way I did for the last footnote and cite the Federal Rules of Evidence.

3. *See* DAVID S. CAUDILL & LEWIS H. LARUE, NO MAGIC WAND: THE IDEALIZATION OF SCIENCE IN LAW (2006).

4. *See id.* at 64–75.

Since I wish to speculate a bit on this huge and fascinating phenomenon of idealizing our pragmatic activity, let me work up to it gradually by backing away from the topic marked out by my title and saying something about how I first became interested in studying the use of science in the courtroom and how I came to the task of co-authoring a book. My interest in the topic—science in the courtroom—grew out of my larger interest in legal argument.[5] As a scholar, I have carved out my niche by studying and writing about the rhetoric of Supreme Court opinions.[6] But to study solely the Supreme Court is to narrow one's focus, and as I approached the last quarter of my career as a teacher, I wanted to return to the home ground of my origins. I began my legal career (post-law school) as a trial lawyer, and I wanted to return to my home venue and study argument at trial. To study argument on appeal was proving ever less satisfying.

As an excuse to return to home ground, I talked my dean into letting me teach Evidence. Fortunately, after a few years of stumbling, I turned out to be rather good at it, and so my students and I have lived "happily ever after." Teaching Evidence turned out to be, for me, a classic example of the grass being greener on the other side of the fence. So let me give a warning: even when the grass turns out to be greener, it still needs to be mowed, and the real problem with greener grass is that one must mow it more often. To study argument in the Supreme Court, I only needed to study persuasion, and in particular, the historical relativity of persuasion. But trials are not appellate proceedings; in order to study argument at trial, I needed to study proof as well as persuasion. Indeed, I needed to study science, which brings me to my co-author, David Caudill.

David has long been one of my most valued colleagues. We have differed intellectually, but we have always enjoyed exploring our differences. If I may speak by way of a glib hyperbole, I would characterize our differences by saying that David is one of the hip post-modernists, whereas I am an unreconstructed Platonist. When we start talking about any issue, I begin by puzzling over the "form" of the question and the "logic" of the inquiry, whereas David begins by "contextualizing" the issue and by seeing what is "problematic" about our claims to knowledge. As you can imagine, our differences generated a lot for us to talk about, especially when the talk turned to science. And as academics will do, we decided to get extra credit for having fun by memorializing our conversations in print (to date, four articles and a book).[7] Our strategy for generating academic credit

5. In two of my books, *Political Discourse: A Case Study of the Watergate Affair* and *Constitutional Law as Fiction: Narrative in the Rhetoric of Authority*, I have published some studies on argument in the public arena.

6. *See generally, e.g.*, Lewis H. LaRue, *The Rhetoric of Powell's* Bakke, 38 WASH. & LEE L. REV. 43 (1981). In retrospect, this article can be seen as *terminus ab quo* of this scholarly agenda.

7. *See generally* CAUDILL & LARUE, *supra* note 3; David S. Caudill & Lewis H. LaRue, *Post-Trilogy Science in the Courtroom: What Are The Judges Doing?*, 13 J. CIV. LITIG. 341 (2001-02); David S. Caudill & Lewis H. LaRue, *Post-Trilogy Science in the Courtroom, Part II: What Are the Judges* Still *Doing?*, 15 J. CIV. LITIG. 1 (2003); David S.

has obviously worked because a substantial number of lawyers and students turned up at a symposium to hear us (and others) talk.[8]

As you can surely imagine, the chief stumbling block for a Platonist like me was the post-modernist concept of "the social construction of science." David had a hard time bending my mind around this concept, but in the end, I did. In order to be sympathetic, however, I had to reshape the concept so that my dark Platonic soul could assimilate it. So let me describe to you the way a Platonist reshapes the concept of social construction. (Perhaps the verb should be "distort," not "reshape.")

II. SOCIAL CONSTRUCTION

My first hurdle was the way the question was stated. Some of the early stuff that David told me to read described the intellectual choice as believing either that scientific theories were forced on us by nature or else socially constructed.[9] Because I believe in the tidy procedures of logic, I did not like the verb-change from "forced" to "constructed." The logician in me was offended. If we bring the verbs into a parallelism, we should oppose something like "forced on us by nature" versus "forced on us by society," or else "constructed by our biological endowment" versus "constructed by our social endowment." The metaphor of "force" seemed totally inept to me, but the metaphor of "construct" seemed to offer some possibilities worth pursuing.

The second hurdle I had to conquer before David and I could work together on a book was the debunking impulse that seemed to lie behind the social construction thesis, as it appeared in all too many of its versions. Indeed, some of the post-modernist literature that David had me read seemed to be positively paranoid about the possibility that someone might "privilege" science over other forms of knowing. To deal with the second hurdle, I did what I did with the first hurdle and fell back on the tidy procedures of the logicians; my first task was to put the question into a proper logical form by clarifying some of the key terms, stating alternative hypotheses, imagining what might count as evidence pro or con to any hypothesis and so forth.

I will not bore you with the twists and turns of my investigations; let me cut to the chase—science is a social construction. My logical argument is both simple and straightforward. If the knowledge of science were biologically natural, then the overwhelming majority of sane adults would

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Caudill & Lewis H. LaRue, *Why Judges Applying the* Daubert *Trilogy Need to Know About the Social, Institutional, and Rhetorical—and Not Just the Methodological—Aspects of Science*, 45 B.C. L. REV. 1 (2003); Lewis H. LaRue & David S. Caudill, *A Non-Romantic View of Expert Testimony*, 35 SETON HALL L. REV. 1 (2004).

8. The series of articles in this issue of the Villanova Law Review memorialize a symposium that was attended by an astonishingly large audience.

9. I think it better to leave these foolish scribblings in the obscurity of anonymity.

have a basic competence in science; they don't, so it isn't.[10] (This logical move is called "modus tollens," by the way.) I understand, however, that many of you may not share my faith in logic, so let me make a more extended analysis. The central skill that one needs to do well in science is mathematics, especially calculus. For physics, this is clear. For those social scientists who live and die by statistics, it is also clear, although it may be less obvious. The central concept that lies at the intersection of probability theory and statistical theory is the concept of the "random variable."[11] Unfortunately, a complete analysis of random variables requires calculus.[12] To be sure, the ordinary social scientist can go along quite well in routine work by following "the cookbook recipes" for statistical procedures, and thus need not worry about the mathematical foundations of his art. But when the going gets rough (as it often will), someone must step in who has a sophisticated understanding of the mathematics of calculus.

If we grant the importance of calculus, then a simple question follows: is knowledge of calculus constructed "by our biological endowment" or "by our social endowment?" I can assume, I suppose, that everyone who heard this lecture and those who now read it have the normal equipment that Mother Nature has granted us. But I will not assume that this vast (or miniscule) audience knows enough calculus to play in the scientific sandbox.[13] It is rather obvious, I think, that one must go through an arduous form of training, which has both social and personal costs, before one can know enough calculus to speak the magic words. I could go on with other skills that are necessary, but I trust that the point is obvious. (Were I to go on, I would talk about the intellectual skills one needs to conduct a valid public opinion survey or a valid laboratory experiment, plus the social skills that one needs to round up the human and financial capital that makes the whole enterprise possible.)

But even if we grant that science is socially constructed, how could this have anything to do with whether science is or is not a privileged way of knowing about the world? Why have some (not all) of the post-modern-

10. One can contrast other human capacities that seem to be constructed by our biological endowment, such as perceiving the world in three dimensions and conversing in our native language. We are not born with these capacities fully developed, but we "grow" these capacities as we grow up.

11. *See* DAVID WILLIAMS, WEIGHING THE ODDS: A COURSE IN PROBABILITY AND STATISTICS 47-49 (2001) (using concept of random variables to unite mathematics of probability and statistics).

12. Our intuitive grasp of probability and statistics rests on the concept of "relative frequency in the long run." Yet there is no way to use this concept as a foundation because there is no way to give a firm basis to the notion of "in the long run," nor is there any principled way to state how long the run must be. Consequently, the professionals use a mathematical dodge; they define functions that generate random variables, and then use these functions to model randomness. As you probably know, to use mathematical functions well, one needs to use calculus.

13. By the way, let me confess that I do not know enough to play; my competence in math is that of an interested amateur.

ists thought that the social construction thesis supports the debunking thesis? While I will certainly agree that physicists have no privileged knowledge on how to live a good life, I also gladly grant to physicists a privileged knowledge about why the earth rotates around the sun. So what's the big deal? If you want to know about cosmology, study physics. If you want to know about the structure of the family, study sociology. If you want to know about the evil that lies deep in the human psyche, study Shakespeare. And if you want to know the basic rules of ethics, pay attention to your grandmother.

Let me pause over the debunking phenomenon a bit because I think that it is an example of a pervasive fallacy that is rampant among intellectuals, i.e., the fallacy that I was taught to call the "genetic fallacy." This fallacy rests on the thesis that the way in which ideas are generated conditions their possible claims to truth. For example, there are those who believe that the ideas generated by one's political opponents are necessarily false. One can gather good examples of this phenomenon by observing how the members of the chattering class, be they conservative or liberal, seem to think that showing how an idea fits into the world view of their opponents is enough to discredit it.[14] To be sure, all rational thinkers take into account the source of the information presented to them in judging its credibility, but even a madman can tell the truth. To dismiss out of hand any idea presented by one's political opponents is to reason poorly.

To be sure, the particular version of the genetic fallacy that I wish to challenge is more subtle, and indeed, it has an intellectual respectability that the typical political pamphleteer lacks. The debunking fallacy takes a form that seems initially quite plausible. If I understand it correctly, the argument that science is not the privileged way for understanding nature runs as follows: (1) science is a social construction; (2) the current social construction of science is historically contingent and relative because it is the product of the unfathomable twists and turns of history; (3) therefore, current scientific theories are contingent and relative; and (4) furthermore, this shows that science is not a privileged way of knowing. This argument has hidden within it both good sense and bad. The good is the point that our current knowledge is not final; it is subject to the contingency of being modified and rejected in the future. The bad is to think that this fact of contingency shows that scientific knowledge is not the privileged way to know how the world is put together. The obvious point is that the current cosmology will be overturned, if it is overturned, by future cosmology, not by future sociology or poetry. Current science will be modified by future science, not by other ways of knowing. Those who study the social construction of science have absolutely nothing of value to say about the future of cosmology or about its weaknesses or strengths. They have a great deal of value to say about how cosmology has developed.

14. *See* FED. R. EVID. 201; FED. R. EVID. 602.

In short, I wish to assert that science is indeed a social construction, while also asserting that science is the privileged way of learning how the world is put together.

III. THE LURE OF THE IDEAL

So what is the problem? Why do people, especially scientists, reject out of hand any contention that science is a social construction? In large part, I think it is rejected because of the packaging. All too often, the thesis is advanced by those who wish to debunk, and scientists quite properly respond adversely to those who have such an agenda. They quite properly suspect that those who debunk are not competent in the substance of science, and so they reject the thesis as pretentious and incompetent. Scientists, however, also seem to reject the thesis when it is presented by those who do not wish to debunk, and it is this rejection on which I wish to opine. The case in which I am interested might be represented by the following colloquy:

> Outsider: "Part of the social construction of science is its financial base, and funds do not rain down freely, falling equally upon all scientists without regard to the agenda of their research."
>
> Scientist: "True, but that fact is an inessential feature of science; such accidents do not affect the inner core of true science."

If you wish, you can conduct your own survey and see if you turn up something that resembles the above; my colleague David Caudill has done a preliminary (and non-randomized) inquiry to get some feel for the way that typical scientists might respond, and he got results that resemble this colloquy. Furthermore, he has told me that his preliminary inquiry has turned up results that are consistent with what others have found.[15]

We need not get bogged down in adjudicating this dispute; we need not decide who is right, the Outsider or the Scientist. Were we to do so, we would need to pull apart exactly what the Outsider and the Scientist wish to assert (the passages above are too ambiguous to be tested), we would need to establish criteria that would guide the investigation (what sort of evidence would be relevant to testing these claims) and then we would need to do some hard empirical work. As you might guess, I do not intend to conduct this sort of inquiry. (I lack the good character that is needed to conduct hard empirical work.) Instead, I am interested in teasing out why scientists, who know quite well the grubby reality of science as they live it, insist that "true" science, or "real" science, is something other than messy practice with which they are familiar. It does seem to me that scientists have an image of an ideal of science and that this ideal picture is very important to them.

15. *See* CAUDILL & LARUE, *supra* note 3, at 91–103, 110–18 (2006) (reporting on some depositions of scientific testimony in tobacco litigation and on interviews with three professors in university psychology department).

Let me start with a single example: the most celebrated scientist of the twentieth century, Albert Einstein. I am able to provide this example because of a book by Peter Galison, which we cite in our book.[16] By chance, I had purchased this in a bookstore on a whim, and when I suggested to David that it would fit well in our book, he was delighted because he was already familiar with Galison's work and agreed with me that it was first-rate. Many of us remember the photographs of Einstein's shaggy appearance, and those of us who do are likely to have heard stories about his eccentric habits. We have read the stories about how he sat in his study in Princeton, New Jersey, and wrote pads of equations, hour after hour. He seemed to embody the image of the detached scientific intellect, and unlike others who are above the fray, he seemed to be gentle and benign. Einstein himself described science as an ideal that is pure and removed from grubby reality. In 1933, Einstein gave a political speech in London's Royal Albert Hall, he warned his audience about the dangers ahead and he pleaded with governments to pull back from the crisis. And then, as has been often reported, he pulled back from talking about the crisis before the world (perhaps it was too much), and he began to talk about the life of a scholar and of his need for solitude. "There are certain occupations, even in modern society, which entail living in isolation and do not require great physical or intellectual effort. Such occupations as the service of lighthouses and lightships come to mind."[17] The lovely metaphor of a scientist as a lighthouse keeper fits well with our popular image of Einstein. Sixteen years later, when he wrote up some notes about his life, he stated firmly, "[T]he essential in the being of a man of my type lies precisely in *what* he thinks and *how* he thinks, not in what he does or suffers."[18]

The reality is far more complex. As we all know, Einstein rethought the problem of understanding time by focusing intently on the way in which time is measured. What we may forget is that Einstein did not invent a new way of measuring time. He started with the procedure that surveyors and cartographers had already developed, i.e., one starts with two clocks, synchronizes them, then sends a signal from one clock to the other and adjusts for the time that the signal has taken to travel the distance. Furthermore, the scientific community was able to accept and understand Einstein's theories about time because they already knew about the technical procedures that had been used in mapping the earth.

Not only did Einstein start with a commonplace of technology in his day, he was well aware of the most recent technical refinements in flashing signals around the globe. Most of us know that Einstein worked in the Swiss patent office, but Galison has done us a service by doing the archival

16. *See* PETER GALISON, EINSTEIN'S CLOCKS, POINCARÉ'S MAPS: EMPIRES OF TIME (2003).

17. *Id.* at 27.

18. *Id.*

work on the activities of the patent office; he shows that the problems of measuring time and distance by sending signals were part of the regular business of the patent office and that numerous patents were granted for technological innovations in this area. And by the way, we should not romanticize Einstein's tenure in the patent office as a time of servitude from which he was liberated by his publications. In fact, Einstein enjoyed his days in the patent office. He stated: "Working on the final formulation of technological patents was a veritable blessing for me. It enforced many-sided thinking and also provided important stimuli to physical thought."[19] So, why did he view science as something detached from worldly entanglements?

Consider an analogy: religion. Every serious believer knows that churches, temples and mosques are comprised of people, and so most know that these institutions are imperfect. In fact, it is quite easy to get believers to tell stories about how imperfect these institutions are. But still, they believe that religion is more than just the assembly they attend. Indeed, it is hard to see how one could be serious about religion unless one did believe that religion was something more than, and something better than, the group with whom one worships. Consider another analogy: universities. Look at any university up close; it is not a pretty sight. And yet academics are intensely loyal to their ideal of what an academy should be, and sometimes they even cite, with utmost seriousness, John Henry Newman's great essay, *The Idea of a University*.[20]

Oscar Wilde once wrote, "The truth is rarely pure and never simple."[21] Caudill and I agree, and we have based our book on that thesis. Yet we are not cynics (nor was Wilde, by the way; he was a moralist who preached by mocking); we do not scoff at the belief that scientists should seek the truth, nor their belief that they should hope that science could be pure, nor even that a pure and simple truth is an ideal worth pursuing. Academics and religious believers hold analogous beliefs, and we do not scoff at them either. Perhaps our refusal to scoff is due to our bad character, to that trait of excessive civility that is one of the many bad practices of which we southerners are guilty. But I would like to believe that we have some sound philosophic basis for our civility, and so let us ask: what is the role of the ideal in scientific practice?

IV. THE ROLE OF THE IDEAL

If we want to understand the role of the ideal in Einstein's work, we need to turn away from Peter Galison's book to Max Jammer's book, *Ein-*

19. *Id.* at 241.

20. *See* JOHN HENRY NEWMAN, THE IDEA OF A UNIVERSITY (Daniel M. O'Connell, ed., Loyola Univ. Press 1927) (1873).

21. OSCAR WILDE, THE IMPORTANCE OF BEING EARNEST 8 (Methuen & Co. Ltd., 1966) (1899).

stein and Religion.[22] The evidence in this book shows that Einstein was quite pious when he was young, but that at age twelve, he refused to go through the bar mitzvah ceremonies because he had ceased to believe.[23] Those who turn away from traditional religion can go on to live in radically different ways. Given the complexity of responses that are possible, perhaps it is best to quote the mature Einstein, who in 1940 looked back and wrote:

> It is quite clear to me that the religious paradise of youth, which was thus lost, was a first attempt to free myself from the chains of the "merely personal," from an existence which is dominated by wishes, hopes, and primitive feelings. Out yonder there was this huge world, which exists independently of us human beings and which stands before us like a great, eternal riddle, at least partially accessible to our inspection and thinking. The contemplation of this world beckoned like a liberation, and I soon noticed that many a man whom I had learned to esteem and to admire had found inner freedom and security in devoted occupation with it. The mental grasp of this extrapersonal world within the frame of the given possibilities swam as [the] highest aim half consciously and half unconsciously before my mind's eye. . . . The road to this paradise was not as comfortable and alluring as the road to the religious paradise; but it has proved itself as trustworthy, and I have never regretted having chosen it.[24]

Einstein's own words make it clear that religion was to him the precursor of science, because in both, one takes a perspective that goes beyond one's ego. I do not suggest that all scientists agree with Einstein on such matters. I doubt that very many scientists are as self-conscious about the spiritual dimension of science as Einstein was, but I do suspect that an element of Einstein's perspective lurks within. Consider, for example, the invectives that one hears scientists utter when they are confronted with the anti-Darwinian opinions that circulate among us. When one listens, I think that one should observe the undertones as well as what is said. Each of you can judge as seems fit, but it does seem to me that I hear what I am inclined to label as "religious fervor."

My own view is that scientists ought to feel moral outrage when the basic principles of science are denied by those who reject them for religious reasons. If they did not feel outrage, this would be evidence that they were not serious about their own enterprise. Scientists identify with science, and when the basic principles of science are rejected, their identity

22. *See generally* MAX JAMMER, EINSTEIN AND RELIGION (1999).

23. *See id.* at 16, 24–26.

24. *Id.* at 28 (quoting Albert Einstein, *Autobiographical Notes*, *in* ALBERT EINSTEIN: PHILOSOPHER-SCIENTIST 5 (Paul Arthur Schilpp ed., 2d ed. 1951)).

is threatened. One cannot be casual when the fundamental basis of one's identity is attacked.

To be sure, science is basically a secular practice, and one can do the work of science from day to day without ever thinking about the broader, more philosophical nature of the enterprise. But when one looks at the complexity of the practice, one can observe that the enterprise has a spiritual dimension, a moral dimension and an ideal dimension. How important these aspects are is a variable, and discerning the strength of these several variables is an empirical task that is beyond my agenda for today. For today, it is enough to insist that these dimensions may be what those who resist the talk of "social construction" have in mind. I have no problem with those scientists who resist the social construction thesis on the grounds that the ideal of science is what they hold most dear. "More power to them" is my response. But when they come into court, the spiritual and moral dimensions of science do not come with them; when they testify, they affect the balance of power between two contesting parties; when they tip the scales of justice, we ought to be aware of the pragmatic limitations on what they have to say. The ideal core of science is beside the point in a courtroom, which is the point of our book. Yet the scientist does not live routinely in the courtroom, and the complex phenomenon that we call "science" cannot be understood by focusing too closely on judicial proceedings.

As we look at the larger phenomenon, we see something that I am inclined to call "spiritual." Perhaps this is a loose use of the word "spiritual," so let me tie it down somewhat. Einstein pointed to the heart of the matter when he spoke of going beyond one's personal subjectivity, of aligning one's thoughts and actions with a more objective view of the world. In theological circles, I have heard the word "transcendent" used to indicate what is going on. If one goes beyond the narrow bounds of one's own personality, one is trying to transcend the limitations of a (childish?) ego. When scientists leave off from being self-interested technicians and become excited about what they are doing, then I think they transcend themselves. I hope that the word "spiritual" is a good label for this phenomenon.

I also wish to assert that complex practices such as science are not morally neutral. I will grant that if a practice does not change one's character, then it is morally neutral. But I take it for granted that such practices as law, science or scholarship do change the type of person that one is. Whether this change is for the better or the worse, it is unlikely that the change would be morally neutral.

Finally, I would like to point out that moral and spiritual practices are guided by an ideal, and indeed, any complex practice is likely guided by an ideal. Of course, any human action is purposeful, or as philosophers sometimes say, "intentional." When one brushes one's teeth, one acts purposefully and one's intentions govern the action. But I mean something

more than mere intentionality when I use the phrase "guided by an ideal." Consider the scientific practice of designing, and then executing, an experiment. While each act along the way is intentional, it is also something more. When scientists set up experiments, their actions are guided by their memory of all they were taught about good scientific practice. They have a notion of what a good experiment looks like, and they use this notion as a norm that regulates their practice. They also know that other scientists will use these norms to criticize or praise what they have done.

Once we see the role of normative ideals in the practice of science, then we can understand the temptation for idealizing science. Scientists judge themselves and others by the norms of good science, so it is tempting to identify science with these norms. Recall that I set out an imaginary colloquy between a Scientist and an Outsider, in which the Scientist concedes that the agenda of science is often shaped by the flow of funding. As the old saying goes, he who pays the piper calls the tune. A scientist would have to be naïve beyond belief to be unaware of this reality. And yet, I can understand why scientists resist the description, say there is more to science than that and insist that the true core of science is contained in the normative ideals that prescribe how science should be done.[25] Indeed, I trust that much good can come from the belief that the true core of science is found in its normative ideals; the norms of science are used as a guide to generating better science. Let such be granted. Yet I do not wish to grant such a thesis when the scientist comes into court. Doing so would be a mistake. When scientists come into a courtroom, they are not (by definition) practicing science, which is one of the reasons many of them dislike the trip. When they testify, they depart from their daily practice and attempt to apply science to a particular issue that is usually a rather narrow "what happened" sort of question, and a whole new level of uncertainty can be generated in applying the general rules of science to the particular events that we litigate.[26] Since they are not "doing science" when they come into court, a wholly different set of rules must apply. We have described in our book the pragmatic view of science that is appropriate for judging expert testimony, so let me wave my hand in the direction of our book and move on to the issue of idealizing law.

25. There is a complex issue that I will mention in this footnote and then pass by. The normative ideals that guide scientific practice have changed through time, and even in our own time, these ideals differ among the many separate islands of scientific practice. But a footnote is not the place, and I am not the person, to offer a careful description of these changes and differences.

26. Perhaps the largest unknown that can generate error is the risk of lab error. In every human activity, humans make errors, and laboratories are operated by humans; unfortunately, those who run laboratories, including the labs that do criminal forensic investigations, have resisted efforts to investigate and quantify their rate of error.

V. LEGAL ARGUMENT

Legal argument is often thought to be an unethical practice, and even lawyers rather regularly give apologetic and defensive arguments for our common practices. But I shall build on the above and try to show that legal argument, as it is commonly practiced, is guided by an ideal.

Let me start with the grubby reality. When we lawyers go to court, we argue to judges and juries, and we know that these humans are imperfect. There were lawyers present in the audience when this lecture was first presented, and there will be lawyers among those who read this article; I am confident that these lawyers have experienced what I experienced. There are judges who are lazy, ignorant or bigoted, although one does not often get the lethal combination of all three of those vices. And perhaps they, like me, also believe that jurors are better than judges, but merely because there are twelve of them. Jurors, too, are likely to be lazy, ignorant and bigoted, but at least with twelve of them one has a chance that vice can cancel vice. (As is well known, James Madison built his entire political theory on the thesis that vice can cancel vice.)

One of my own most memorable experiences in this regard dates back to the days in 1965 when I worked for the U.S. Department of Justice and argued civil rights cases before southern judges. To say that I had a less than ideal audience would be to understate the matter, and indeed, one of the judges of whom I have a highly vivid memory was regarded by many (including most of the local lawyers, who had zero sympathy for my legal position) as one of the worst judges on the federal bench.

Yet consider one fact: not one of the local lawyers, who were defending what even they (looking back) would now consider a very bad cause, ever made an appeal to this judge's obvious bigotry. Why not? Every lawyer will testify, "It would obviously anger the judge and destroy one's credibility as a lawyer; it would be an incredibly stupid tactic to make an obvious appeal to prejudice." I agree; but why? In our daily conversation with each other, we routinely appeal to prejudice, and our appeals are often persuasive. In politics, appeals to prejudice are routine and are generally successful. So, what is different? I am reasonably confident that those who spoke to the judge in question at the country club did make appeals to prejudice and that he was not offended. But I also have a high degree of confidence that any lawyer who would have made similar appeals in court would have committed legal suicide.

I am sure you can guess the punch line: legal argument is regulated by a norm that says that one must argue to an ideal judge, not to the judge who is in the room. Consider the basic norms. We lawyers know that when we argue to judges, the judges do not really understand the facts of the case. (How could they? They haven't had the time to spend as many hours on the case as we have.) And yet, one never says, "Judge, I know that you are ignorant of the basic facts in this case, so let me enlighten you." One assumes that, but one conceals the assumption. Furthermore,

we know that the judges do not know the law that governs the case as well as we do. (Once again, how could they? Where would they get the time to do the research that we and our associates have done?) As one of my seniors once told me, "You must argue as though the judge were ignorant of the law and the facts, and you must conceal that assumption." And if the judge is also lazy and bigoted, one tries to maneuver around that fact, while trying not to allude to it. This could be called hypocrisy, and rather often, it is. Yet it is also an expression of hope; one hopes that the judge will do the right thing.

So let me say clearly, on behalf of all of the lawyers who might read this, to all of the judges: whether you are a poor example of a judge or a noble philosopher, we never argue to you, the actual person that you are; we argue to whom you ought to be. I think that a philosopher would say that we make a hypothetical argument. We say, "If you want to follow the law and the facts, here is how you would decide the case." And since we lawyers know, when we argue to judges, that everyone in the room knows that there is more than one way to interpret the facts and more than one way to interpret the law, we know that more than one argument can be made. So we try (and normally fail, I assume) to present an ideal version of the best argument that can be made for one side of the dispute. (We fail because we too do not spend enough time; we too are not smart enough; we too are bigots and poor examples.)

I think that the greatest slander on lawyers is that we do not sincerely speak the truth. We do. We say, "I truly believe that this is the best argument that can be made for my client." We certainly have our faults, but not saying what we truly believe is not one of them. Our fault, if it be one, is in our choice of clients. But once we take up a case, we tell the truth, albeit a hypothetical truth, which is different from no truth at all.

Please note that my defense of legal argument does not rest on the thesis that there is no truth to be had. There is, I think, a true version of the facts that are at the core of every legal dispute. (Herein, you can see the dark shadow of Plato falling over my head.) But I am quite confident that we are almost always ignorant of that truth. (And by the way, I think that Plato also asserts this fact about our ignorance; after all, he wrote that we live in a cave.)[27] Consequently, there is generally an honest argument about the facts that can be made on each side.

Furthermore, there are honest arguments about the law that can be made on each side, for the simple reason that the law contains massive inconsistencies. Lawyers must argue from authoritative materials, from the constitutional provisions, statutes, regulations and precedents that we have inherited. It is an obvious fact that our authorities were generated over time and by many different hands. It would be a miracle if these sources were consistent, and they obviously are not. Because it is folly to

27. *See* PLATO, THE REPUBLIC, BOOK VII, lines 514a-520a (using Stephanus pagination).

question the ways of Divine Providence and to complain about the absence of miracles,[28] we must live with inconsistent authority, and as logicians point out, inconsistent premises generate inconsistent conclusions. So there are always two good arguments about the law that can be made.

VI. CONCLUSION

Let me end by repeating that the practice of law and the practice of science are both complex human practices and by noting that the complexity that intrigues me the most is the way we humans have mixed together the ideal and the pragmatic. I think that one must be cautious in judging the good and the bad of the mixing. In our book, Caudill and I have pointed out an example of how it can go bad. But the life of Einstein is an example of how it can go well. So I offer no generalizations, other than some firmly-held beliefs about the "logic" and the "form" of a well-conducted inquiry.

28. The world is in great need of some miracles, but were a rational deity to decide to clean up some of the mess, I suspect that making life simpler for lawyers would be toward the bottom of the list of priorities.