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ARTICLES

APPELLATE COURTS AND INDEPENDENT EXPERTS

Douglas H. Ginsburg[†]

The federal courts of appeals increasingly hear cases that have scientific or highly technical content. This is particularly true of the Federal Circuit, because of its jurisdiction over patent cases, and of the D.C. Circuit, because of its review of agency rulemakings and adjudications.[1] Many of these complex cases pose a significant challenge for generalist judges, who typically lack scientific or technical expertise.

The challenge of understanding such cases has led some prominent observers to call for the use of independent expert witnesses or, alternatively, expert staff members to assist the courts of appeals as needed. Perhaps because the use of court-appointed experts in the federal district courts has not proved controversial, the idea of appointing independent experts to assist appellate courts has resurfaced in a serious fashion. Under this proposal, neutral staff or

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† Judge, U.S. Court of Appeals for the District of Columbia Circuit. This Article is based upon remarks presented at the Dean Lindsey Cowen Business Law Lecture on April 4, 2007 at Case Western Reserve University School of Law.

1 The D.C. Circuit is the venue for 54% of all administrative appeals in federal courts nationwide, excluding appeals from the Board of Immigration Appeals, the Internal Revenue Service, and the National Labor Relations Board. *See* Administrative Agency, Bankruptcy Cases, and Original Proceedings Commenced, by Circuit for the Twelve Month Period Ended December 31, 2007 (on file with author). If one focuses upon agencies engaged in scientific and technical analyses, the D.C. Circuit's share is higher still; approximately 67% of appeals from the Environmental Protection Agency, the Federal Communications Commission, and the Federal Energy Regulatory Commission are heard there. *See id.*

outside independent experts would advise judges ex parte and their advice would not be reflected in the record, save perhaps in the opinion of the court.

In my view, it would be a mistake for the federal courts of appeals to retain or consult experts for five reasons. First, the practice is inconsistent with the adversary system. Second, it may cause the judiciary subtly to transfer to the independent expert its non-delegable duty and authority under Article III of the Constitution of the United States to decide cases and controversies.[2] Third, in administrative review cases, which tend to be the most challenging in terms of scientific and technical subject matter, it would undercut the courts' appropriate deference to agency expertise. Fourth, it would sacrifice the virtues of a generalist judiciary. Finally, the practice would be unworkable. Before laying out these objections in greater detail, I discuss the technical challenges faced by judges and the proposals they have elicited that the courts of appeals rely upon independent experts.

I. THE INFORMATION JUDGES NEED

Under the hard look doctrine, which originated in the D.C. Circuit in the late 1960s and early 1970s,[3] a court, in reviewing agency decision making, performs a "searching and careful" inquiry into whether the agency's "decision was based on a consideration of the relevant factors and whether there has been a clear error of judgment" but does not "substitute its judgment for that of the agency."[4] This inquiry often forces a judge to evaluate significant technical complexities.

Consider the antitrust case *United States v. Microsoft Corp.*[5] Although it did not involve review of administrative action, the case is a good example of the difficult technical questions generalist judges may face. A key issue—which, for people under thirty, may not seem challenging, but for the average judge is a bit more daunting—was the extent to which Microsoft's Web browser, Internet Explorer, was so bound to its Windows operating system that it could not be removed without crippling the operating system.[6] If Internet

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[2] *See* U.S. CONST. art. III, § 1.

[3] *See, e.g.*, Patrick M. Garry, *Judicial Review and the "Hard Look" Doctrine*, 7 NEV. L.J. 151, 157 (2006); Reuel E. Schiller, *Rulemaking's Promise: Administrative Law and Legal Culture in the 1960s and 1970s*, 53 ADMIN. L. REV. 1139, 1155–66 (2001).

[4] Citizens to Preserve Overton Park, Inc. v. Volpe, 401 U.S. 402, 416 (1971), *abrogated on other grounds by* Califano v. Sanders, 430 U.S. 99, 105 (1977).

[5] 253 F.3d 34 (D.C. Cir. 2001).

[6] *See id.* at 64–67.

Explorer was in fact inextricably bound to the Windows operating system, then computer hardware manufacturers such as IBM and Dell would have little incentive to pre-install another Internet browser, namely Netscape Navigator, on their machines, nor would consumers have much incentive, after purchasing a new computer, to purchase or download and to install that browser.[7]

Other examples abound. Recently, a panel of the D.C. Circuit reviewed regulations of the Mine Safety and Health Administration that limited concentration levels for diesel particulate matter in underground mines.[8] Although the court, sensitive to the agency's comparative expertise and to its own limitations, explained that it would "give an extreme degree of deference to the agency when . . . 'evaluating scientific data within [the agency's] technical expertise,'" it still had to examine the agency's scientific explanations closely for reasonableness.[9] The court therefore considered, among other issues, whether the agency had shown diesel particulate matter poses a significant risk to miners' health; whether the proxies the agency had used to set the standard were sufficiently accurate surrogates for diesel particulate matter; and whether the standard was one feasible of achievement in the circumstances of an underground mine.[10]

In another recent case, the D.C. Circuit reviewed a rule issued by the Federal Motor Carrier Safety Administration governing the number of hours that truckers could work and drive in seven and in eight consecutive days.[11] In that case, the court vacated the rule because the agency failed sufficiently to consider the effect the rule would have upon the health of the drivers.[12] The court also expressed concern with the agency's justifications for other aspects of the rule.[13] For example, the court questioned the agency's decision to increase the maximum daily driving time to eleven from ten hours in light of statistical evidence that crash risks increase dramatically as driving hours increase after the eighth hour.[14] Although the agency cited several studies and its own cost-benefit analysis, the court noted that the agency had failed to explain how the cited studies justified the increase and that the cost-benefit analysis failed to account for fatigue

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[7] *See id.*

[8] *See* Kennecott Greens Creek Mining Co. v. Mine Safety & Health Admin., 476 F.3d 946, 952–60 (D.C. Cir. 2007).

[9] *Id.* at 954–55 (quoting Hüls Am., Inc. v. Browner, 83 F.3d 445, 452 (D.C. Cir. 1996)).

[10] *Id.* at 952.

[11] *See* Pub. Citizen v. Fed. Motor Carrier Safety Admin., 374 F.3d 1209, 1212 (D.C. Cir. 2004).

[12] *See id.* at 1216–17.

[13] *See id.* at 1217–23.

[14] *Id.* at 1217–19.

generated by time on task.[15] The court was also dubious about the agency's justification for allowing a driver using a sleeper berth—a compartment in the truck where a driver can sleep—to split an otherwise continuous ten-hour rest period; the cited studies did not seem to support the agency's conclusion.[16] These were issues as to which there was a plethora of sometimes conflicting scientific and statistical evidence, all beyond the ordinary experience of the court.

The decision of the Supreme Court in *Whitman v. American Trucking Ass'ns*,[17] which reversed the decision of the D.C. Circuit in *American Trucking Ass'ns v. EPA*,[18] is best known for confirming the rumored death of the nondelegation doctrine.[19] But on remand from the Supreme Court, the D.C. Circuit still needed to consider whether, for example, it was arbitrary and capricious for the EPA to select a relatively stringent annual standard and a relatively lax daily standard for particulate matter[20] and for the EPA to choose 0.08 parts per million as the appropriate National Ambient Air Quality Standard for ozone, as opposed to 0.09 or 0.07, the alternative levels considered by the agency.[21] Again, included in the record were various scientific studies and analyses,[22] and the panel needed to determine whether they supported the agency's position.[23]

In these cases and in others like them, it is not uncommon for the joint appendix filed with the court—the appendix that brings to the court the documents and the part of the rulemaking record that the parties think are most relevant to the issues on review—to be four, five, six or eight volumes and to stack up to two feet.[24] Of course, the joint appendix is only a fraction of the full record, more of which the court may need to examine in certain cases. Former Chief Judge Patricia Wald of the D.C. Circuit described just how bad it can get:

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[15] *Id.* at 1218–19.

[16] *See id.* at 1219–20.

[17] 531 U.S. 457 (2001).

[18] 175 F.3d 1027 (D.C. Cir. 1999) (holding that the EPA's interpretation of the Clean Air Act, upon which the EPA had relied to revise National Ambient Air Quality Standards for particulate matter and ozone, created an unconstitutional delegation of legislative power), *rev'd sub nom.* Whitman v. Am. Trucking Ass'ns, 531 U.S. 457 (2001).

[19] *See Whitman*, 531 U.S. at 473–76 (rejecting the D.C. Circuit's holding that the EPA's interpretation of the Clean Air Act violated the nondelegation doctrine).

[20] *See* Am. Trucking Ass'ns v. EPA, 283 F.3d 355, 372–75 (D.C. Cir. 2002).

[21] *See id.* at 379–80.

[22] *See id.* at 365, 376–77.

[23] *See id.* at 373–74, 379–80.

[24] I recently heard a case, *Natural Resources Defense Council v. EPA*, 489 F.3d 1364 (D.C. Cir. 2007), the materials for which filled a box that had formerly held ten reams of paper—5,000 pages.

> In *Sierra Club* [*v. Costle*], the D.C. Circuit was faced with a record of several thousand pages, twelve volumes of appendices, eight hundred pages of briefs and a forty-five-page, three-column, single-spaced statement of the agency's rationale. The case raised highly complex questions, such as the "technological feasibility" of meeting a ninety-percent sulfur dioxide reduction standard in coal burned in utility plants. Neither I nor the law clerk who worked on the case had any technical background in antipollution equipment or coal mining. As a result, we suffered through endless hours of deciphering innumerable designs of electrostatic precipitators, baghouses, etc. We agonized over statistical projections and even discovered a number of mathematical miscalculations in the agency's own rationale. We sent out a supplemental interrogatory requesting additional data on a technical point, the variability of scrubber performance at a particular plant. Although we asked for a "brief memorandum," we received in reply approximately 150 pages of explanation. At times we were overwhelmed and insecure, isolated in two rooms, surrounded by mountains of documents.[25]

From time to time, many associates in law firms surely feel the same way Judge Wald did. With seniority, they may grow out of it—but the judges will not.

II. INDEPENDENT EXPERTS IN THE FEDERAL COURTS

The idea of government by experts stems from the Progressive movement of roughly the 1880s to the 1920s. Progressives viewed the judiciary, and government generally, as encrusted with inefficient and vestigial practices.[26] As the Progressives sought to make government more efficient, there was a parallel movement toward "scientific management" in business; managers of factories conducted time and motion studies[27] and experimented with altering working conditions[28]

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[25] Patricia M. Wald, *Making "Informed" Decisions on the District of Columbia Circuit*, 50 GEO. WASH. L. REV. 135, 145 (1982). The case to which Judge Wald refers, *Sierra Club v. Costle*, 657 F.2d 298 (D.C. Cir. 1981), involved the D.C. Circuit's review of the EPA's decision to promulgate new source performance standards governing coal-burning power plant emissions.

[26] *See, e.g.*, Roscoe Pound, *The Causes of Popular Dissatisfaction with the Administration of Justice*, 40 AM. L. REV. 729, 742 (1906) (calling the American court system "archaic" because of the organization of the courts and the significant time, expense, and uncertainty they engendered).

[27] *See* FREDERICK WINSLOW TAYLOR, THE PRINCIPLES OF SCIENTIFIC MANAGEMENT

in order to determine the most efficient methods of production. In general it was thought the "scientific"—in this context meaning systematic—study of any social problem would enable experts to discover the one best solution.[29] This is also the principle that brought us eugenics, public housing, and many other such disasters.[30]

In the Progressive Era, experts in various fields, particularly in the sciences (both physical and social), were drawn into government at all levels to an unprecedented degree. To give a prominent example, the Congress established the United States Forest Service in 1905 and President Theodore Roosevelt appointed Gifford Pinchot, the most prominent advocate of scientific forestry and the person generally regarded as the father of American conservation,[31] to be the first chief of the Service.[32]

Against that background, it is not surprising that many judges and lawyers began to believe the business of the federal courts—particularly the trial courts—could be improved with expert help. Learned Hand, a great judge in his time, wrote an article in the *Harvard Law Review* in 1901 in which he said that in any case requiring "specialized and scientific knowledge," there should be "a board of experts or a single expert, not called by either side, [to] advise the jury of the general propositions applicable to the case

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66–68, 84–86 (1911).

[28] *See, e.g.*, G.A. Pennock, *Industrial Research at Hawthorne: An Experimental Investigation of Rest Periods, Working Conditions and Other Influences*, 8 PERSONNEL J. 296 (1930); *see also* Richard Herbert Franke & James D. Kaul, *The Hawthorne Experiments: First Statistical Interpretation*, 43 AM. SOC. REV. 623, 624 (1978) (providing statistical analysis regarding the effect of certain working conditions on worker performance).

[29] *See* SAMUEL HABER, EFFICIENCY AND UPLIFT: SCIENTIFIC MANAGEMENT IN THE PROGRESSIVE ERA, 1890–1920, at ix–xii, 102–16 (1964) (explaining the role of the scientific expert in improving efficiency); Eliza Wing-yee Lee, *Political Science, Public Administration, and the Rise of the American Administrative State*, 55 PUB. ADMIN. REV. 538, 542–43 (1995) (discussing the important role of science and scientific management in public administration and policy development).

[30] *See, e.g.*, DONALD K. PICKENS, EUGENICS AND THE PROGRESSIVES (1968) (detailing the relationship between the development of eugenics and the Progressive movement in America).

[31] *See* SAMUEL P. HAYS, CONSERVATION AND THE GOSPEL OF EFFICIENCY 28–29 (1959) (discussing Pinchot's impact on American forestry); George A. Gonzalez, *The Conservation Policy Network, 1890–1910: The Development and Implementation of "Practical" Forestry*, 31 POLITY 269, 274–77 (1998) (describing Pinchot's application of his European studies in forestry in America). *But see id.* at 280 (identifying other, possibly more accomplished, experts in the field).

[32] *See* Robert B. Keiter, *Public Lands and Law Reform: Putting Theory, Policy, and Practice in Perspective*, 2005 UTAH L. REV. 1127, 1159–61 (discussing Pinchot's influence on America's utilitarian model for natural resource policy). Pinchot had headed the Division of Forestry within the United States Department of Agriculture since 1898, but did not gain jurisdiction over the national forest reserves until 1905. *See* HAROLD T. PINKETT, GIFFORD PINCHOT: PRIVATE AND PUBLIC FORESTER 47, 57–59 (1970).

which lie within his province."[33] A variant of Hand's policy proposal was ratified by the Supreme Court when it held a federal district court has inherent power to appoint an expert of its own choosing.[34]

Though that power has been used sparingly,[35] it has been used, perhaps most famously by Judge Charles Wyzanski. He hired Carl Kaysen, an economist, to be his law clerk for *United States v. United Shoe Machinery Corp.*,[36] the Government's antitrust case against the company that accounted for about 75% of the market for shoe-making equipment.[37] After two years of pretrial proceedings, the Judge decided he would benefit from having an economist as his law clerk and hired Kaysen, who was then an assistant professor of economics at Harvard and who would become a very distinguished economist on the faculty of Harvard and, later, of MIT.[38] Kaysen reviewed the transcripts and exhibits, discussed the trial with the judge two or three times a week, and then, at the end of the trial, presented the Judge with his analysis of the case.[39]

Enthusiasm for the use of technical experts continued into the 1960s when Professor Arthur Kantrowitz, a physicist, proposed a "Science Court" to consider and answer questions of scientific fact important to setting public policy.[40] Kantrowitz's proposal gave the

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[33] Learned Hand, *Historical and Practical Considerations Regarding Expert Testimony*, 15 HARV. L. REV. 40, 56 (1901).

[34] *See Ex parte* Peterson, 253 U.S. 300, 312–14 (1920) (holding district court did not violate the Seventh Amendment when it appointed an auditor); *see also* FED. R. EVID. 706 (granting courts authority to appoint expert witnesses); Reilly v. United States, 863 F.2d 149, 154–57 (1st Cir. 1988) (holding district court did not abuse its discretion in appointing a technical advisor to assist in calculating damages); Danville Tobacco Ass'n v. Bryant-Buckner Assocs., Inc., 333 F.2d 202, 208–09 (4th Cir. 1964) (holding the Federal Rules of Civil Procedure do not require a master appointed by the district court to be a lawyer because the master is not required to make any rulings of law); Scott v. Spanjer Bros., Inc., 298 F.2d 928, 930–31 (2d Cir. 1962) (approving trial court's practice of appointing impartial medical experts); Note, *Improving Judicial Gatekeeping: Technical Advisors and Scientific Evidence*, 110 HARV. L. REV. 941, 949–50 (1997) (detailing the history of court-appointed experts).

[35] *See* FED. R. EVID. 706 advisory committee's note (noting the infrequency with which experts are appointed and assuming that the court's ability to appoint an expert has decreased the need for it to do so); JOE S. CECIL & THOMAS E. WILLGING., COURT-APPOINTED EXPERTS: DEFINING THE ROLE OF EXPERTS APPOINTED UNDER FEDERAL RULE OF EVIDENCE 706, at 7–8 (1993) (describing results of a survey regarding the prevalence of court-appointed experts); *see also* Ellen E. Deason, *Court-Appointed Expert Witnesses: Scientific Positivism Meets Bias and Deference*, 77 OR. L. REV. 59, 78–79 (1998) (observing that use of court-appointed experts varies between individual judges).

[36] 110 F. Supp. 295 (D. Mass. 1953).

[37] *Id.* at 343.

[38] *See* Carl Kaysen, *In Memoriam: Charles E. Wyzanski, Jr.*, 100 HARV. L. REV. 713, 713–15 (1987).

[39] *Id.* at 714. Kaysen's economic analysis became a matter of public record because he later wrote a book about it. *See* CARL KAYSEN, *UNITED STATES V. UNITED SHOE MACHINERY CORPORATION*: AN ECONOMIC ANALYSIS OF AN ANTI-TRUST CASE (1956).

[40] *See Research in the Service of Man: Hearings Before the Subcomm. on Gov't Res. of the Comm. on Gov't Operations*, 90th Cong. 256–60 (1967) (statement of Dr. Arthur

whole idea of scientific advisers for courts a great deal of prominence. Then in 1975 the Congress enacted the Federal Rules of Evidence,[41] Rule 706 of which provided guidelines for the appointment of expert witnesses by district courts. Rule 706 stimulated greater awareness of the district court's inherent power to call upon independent experts.[42]

The process of appointment and the participation of neutral experts in the federal district courts is no longer controversial. It is important to realize, however, that when the district court appoints an expert, a litigant may challenge the expert's testimony or even his credentials at trial.[43] The expert operates entirely within the confines of an open, adversarial proceeding in which his views become part of the record and are subject to objection and appeal. Contrast Judge Wyzanski's use of his expert law clerk, whose input was ex parte.[44]

During the trial, Judge Wyzanski rejected a challenge by United Shoe to his employment of Professor Kaysen. The judge pointed out

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Kantrowitz, Director, Avco-Everett Research Laboratory); *see also* Arthur Kantrowitz, *Proposal for an Institution for Scientific Judgment*, 153 SCIENCE 763 (1967); James A. Martin, *The Proposed "Science Court,"* 75 MICH. L. REV. 1058, 1058, 1064–65 (1977) (discussing the desirability of various approaches to a "Science Court").

[41] Pub. L. No. 93–595, 88 Stat. 1926 (1975) (codified as amended at 28 U.S.C. app. at 314 (2006)).

[42] *See* FED. R. EVID. 706 advisory committee's note ("The inherent power of a trial judge to appoint an expert of his own choosing is virtually unquestioned."). Several courts have held the trial judge's inherent power goes beyond what Rule 706 authorizes, allowing the judge to appoint technical advisors who, so long as they do not make findings of fact or present evidence, are not subject to the constraints of Rule 706. *See* Renaud v. Martin Marietta Corp., 972 F.2d 304, 308 n.8 (10th Cir. 1992); Reilly v. United States, 863 F.2d 149, 157–59 (1st Cir. 1988); *see also* Deason, *supra* note 35, at 79–81 (discussing the range of functions performed by court-appointed experts); *Improving Judicial Gatekeeping*, *supra* note 34, at 949–50 (same).

[43] *See* Lohnes v. Level 3 Commc'ns, Inc., 272 F.3d 49, 60 (1st Cir. 2001) (holding that the "district court appropriately disregarded [a] belatedly proffered [expert] affidavit" which "deprived [the appellant] of the opportunity to depose the proposed expert, challenge his credentials, solicit expert opinions of his own, or conduct expert-related discovery"); United States v. Craven, 239 F.3d 91, 102–03 (1st Cir. 2001) (vacating sentence because by speaking ex parte with court-appointed expert sentencing court deprived the Government of a "realistic opportunity to challenge the expert's conclusions by cross-examination or otherwise").

[44] Under the Model Code of Judicial Conduct, "[a] judge shall not initiate, permit, or consider ex parte communications, or consider other communications made to the judge outside the presence of the parties . . . concerning a pending or impending matter. . . ." MODEL CODE OF JUDICIAL CONDUCT R. 2.9(A). The commentary makes clear that this proscription "includes communications with lawyers, law teachers, and other persons who are not participants in the proceeding." *Id.* cmt. 3. Regardless of their status under this rule, it is clear technical advisors may not perform core judicial functions. *See* La Buy v. Howes Leather Co., 352 U.S. 249, 256 (1957) (noting that special masters may not "displace the court"); Kimberly v. Arms, 129 U.S. 512, 524 (1889) (observing that a court may not "abdicate its duty to determine by its own judgment the controversy presented"); *Reilly*, 863 F.2d at 157 ("Advisors of this sort are not witnesses, and may not contribute evidence. Similarly, they are not judges, so they may not be allowed to usurp the judicial function.").

that he was not obliged to notify counsel when he read a book on economics.[45] It is a powerful point: a district judge is at liberty to read what he wants, and he may go study economics if he gets a tough case involving an economic issue.[46] He may read a technical manual and, of course, he may misinterpret it, particularly if he does not have the help of an expert, whether his own or a party's. But unlike an appointed expert, a book or a technical manual can only aid the judge in making a decision; it cannot make it for him. The author of the book is not aware of the particular facts and issues involved in a specific case at the time of writing, so there is no danger the book might suggest a resolution of the case that could supplant the court's own reasoned judgment.[47] Furthermore, it is worth noting that Judge Wyzanski concluded after the fact that it would have been better to have had an independent expert confer with each side in the presence of the other, submit his report to both sides, and be subject to cross-examination on the witness stand.[48]

III. PROPOSING INDEPENDENT EXPERTS IN THE COURTS OF APPEALS

In 1974, Judge Harold Leventhal wrote an important article on the role of the courts in reviewing agency decisions with respect to the environment.[49] He lamented particularly the technical knowledge gap the D.C. Circuit faces, especially when reviewing actions of the Environmental Protection Agency.[50] Then as now, some EPA cases were replete with scientific issues and hence most challenging for the court.

In the final pages of his article, Judge Leventhal advanced the following proposal:

> What an appellate court needs, in my view, is an aide who is not a witness so much as a kind of hybrid between a master and a scientific law clerk, a scientific expert who might be

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[45] Kaysen, *supra* note 38, at 714.

[46] *See* Patricia M. Wald, *Judicial Review of Complex Administrative Agency Decisions*, 462 ANNALS AM. ACAD. POL. & SOC. SCI. 72, 81–82 (1982) (describing the methods judges use to inform their decision making when faced with unfamiliar subjects).

[47] With the advent of the Internet, legal commentary—even on still pending cases—is increasingly available online. The ethical problems raised by judges consulting such sources is discussed in Rachel C. Lee, Note, *Ex Parte Blogging: The Legal Ethics of Supreme Court Advocacy in the Internet Era*, 61 STAN. L. REV. 1535, 1535 (2009) (arguing that "ex parte blogging threatens the impartial administration of justice").

[48] *See* Kaysen, *supra* note 38, at 714–15; *see also* Charles E. Wyzanski, Jr., *The Law of Change*, 38 N.M.Q. 5, 19–20 (1968).

[49] *See* Harold Leventhal, *Environmental Decisionmaking and the Role of the Courts*, 122 U. PA. L. REV. 509 (1974).

[50] *See id.* at 532.

> available, at the call of the appellate court, not to give evidence or resolve factual or technical issues, but to advise a court so that it could better understand the record.[51]

Admittedly, upon first reading, that seems innocuous enough. In the same vein, the judge went on to say, "The expert could be drawn from the scientific community at large or from a pool of scientific aides established for exclusive use of the courts."[52] Although Judge Leventhal acknowledged that the independent expert might have an excessive influence upon an appellate judge, he was undisturbed by that possibility because the court sits in panels of three, so there would still be a diversity of perspectives brought to bear even upon a technical issue.[53] It is unclear how much consolation that is, however, if all the judges are to rely upon the same expert, a possibility Judge Leventhal did not seem to consider.

Judge Leventhal also explained that because an appellate court, unlike a trial court, does not engage in fact-finding and "determines only whether there is a rational and legitimate basis for the resolution of the facts by others," an expert's influence would be far from decisive.[54] For these reasons, he concluded, "[t]he appellate court . . . may rely on the general guidance of an aid, his translation, as it were, from a recondite language, without having to accept advice on whether a given view of the factual issues is 'correct' or not."[55]

Judge Leventhal's proposal took root neither in the courts nor in the academy,[56] but the idea of appellate courts retaining independent experts has found a recent adherent in Justice Stephen Breyer. He has long been a fan of independent experts in the district courts, suggesting in his concurrence to *General Electric Co. v. Joiner*[57] that experts could "help [trial courts] overcome the inherent difficulty of making determinations about complicated scientific, or otherwise

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[51] *Id.* at 550.

[52] *Id.* at 552.

[53] *See id.* at 554.

[54] *Id.*

[55] *Id.*

[56] *But cf.* Sheldon L. Trubatch, *Informed Judicial Decisionmaking: A Suggestion for a Judicial Office for Understanding Science and Technology*, 10 COLUM. J. ENVTL. L. 255, 264–67 (1985) (proposing creation of a judicial agency that would provide technical memoranda to appellate judges); Joel Yellin, *High Technology and the Courts: Nuclear Power and the Need for Institutional Reform*, 94 HARV. L. REV. 489, 555–57 (1981) (proposing the Congress establish "a committee of scientists, engineers, and lawyers to act as standing masters in complex environmental cases," to whom questions would be referred by the federal courts of appeals, and who would make findings with regard to technical issues subject to "clearly erroneous" review, and "suggest standards for technical analysis within the administrative agencies" (footnotes omitted)).

[57] 522 U.S. 136 (1997).

technical, evidence."[58] Justice Breyer has written also in support of efforts to create a national register of experts in order to make it easier for judges to find and to appoint technical advisers.[59]

More recently, Justice Breyer revived Judge Leventhal's call for the appointment of experts by appellate courts.[60] In the context in which he was speaking, it was economics rather than the physical sciences that led Justice Breyer back to the idea of a court-appointed expert on appeal, but for analytic purposes there is no important distinction between the two fields. Lamenting "the difficulty of maintaining some form of judicial review in highly technical subject matter areas—such as telecommunications and information technology—that implicate sophisticated economic reasoning,"[61] he went on to say:

> Suppose it were easier for courts to retain their own experts in such matters, perhaps experts suggested by the parties, who would retain the right to supplement the views of any such experts with expert views of their own. Might such a system increase the courts' ability to determine, for example, the outer bounds of what is reasonable in technical subject matter areas? I do not say that the Supreme Court should retain its own experts, even in highly complex technical cases. But the lower courts, not just trial courts but also appellate courts, might do so on occasion in a range of cases involving scientific and other technical subject matter.[62]

As detailed below, there are five reasons I think not.

IV. WHY APPELLATE COURTS SHOULD NOT USE INDEPENDENT EXPERTS

Judge Leventhal and Justice Breyer has each been, in his own time, among the leading intellectual lights of the law. Indeed, in the field of administrative law, they are truly firsts among equals, which is why I take their proposal seriously. Nonetheless, I believe their

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[58] *Id.* at 149.

[59] *See* Stephen Breyer, *The Interdependence of Science and Law*, 82 JUDICATURE 24, 27 (1998) (observing such a register "will provide a slate of candidates to serve as court-appointed experts in cases in which the court has determined that the traditional means of clarifying issues . . . are unlikely to yield the information that is necessary for a reasoned and principled resolution of the disputed issues").

[60] *See* Stephen Breyer, Economic Reasoning and Judicial Review, AEI-Brookings Joint Center 2003 Distinguished Lecture 12 (Dec. 4, 2003), *available at* http://www.aeibrookings.org/admin/authorpdfs/page.php?id=840.

[61] *Id.* at 11.

[62] *Id.* at 12.

proposal to give appellate judges independent access to experts is mistaken.

First. The idea of an independent court-appointed expert is antithetical to the adversary process at the heart of our common law legal system.[63] Evidence is submitted to the court in the presence of all parties. The party with the more persuasive case prevails. Unlike a judge in the inquisitorial system of the civil law used throughout Europe,[64] a common law judge does not conduct his own investigation. When a common law trial or appellate court engages in ex parte contacts, it departs from the adversary process and, hence, risks compromising the fairness of the proceedings.[65] That is why such contacts with courts are generally prohibited, even while they are permitted in agency proceedings.[66]

Federal Rule of Evidence 706, as mentioned above, specifically provides for court-appointed, independent experts to serve as witnesses on the record of an adversarial proceeding in the trial court. It therefore provides no support for the Leventhal and Breyer proposals, in which an expert employed by an appellate court would have no contact with the parties and would communicate with the court off the record and in confidence. In short, according to the proposal, the expert's advice would be neither known to, nor subject to challenge by, the litigants.

The idea of the court receiving ex parte advice from an expert can be deeply troubling to the parties. In the *Microsoft* case, the court of appeals considered having an independent expert speak to the judges prior to oral argument about the fundamentals of computer technology.[67] Although the parties agreed such a session could be beneficial, they were concerned the expert would touch upon issues in

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[63] By the common-law system, I refer not only to the law derived solely from judicial decisions; the United States has a common-law approach to statutory law as well. *See* Antonin Scalia, *Common-Law Courts in a Civil-Law System: The Role of United States Federal Courts in Interpreting the Constitution and Laws*, *in* A MATTER OF INTERPRETATION: FEDERAL COURTS AND THE LAW 3, 13 (Amy Gutmann ed., 1997).

[64] *See, e.g.*, Howard M. Erichson, *Mass Tort Litigation and Inquisitorial Justice*, 87 GEO. L.J. 1983, 2006–11 (1999) (contrasting the inquisitorial approach, in which a judge gathers and sifts through the evidence, with the adversarial approach, in which the parties perform those tasks).

[65] *See supra* note 44 (setting forth the canons of judicial conduct, which prohibit a judge from initiating, permitting, or considering ex parte contacts).

[66] *See* Home Box Office, Inc. v. FCC, 567 F.2d 9, 57 (D.C. Cir. 1977) ("[I]nformal contacts between agencies and the public are the 'bread and butter' of the process of administration and are completely appropriate so long as they do not frustrate judicial review or raise serious questions of fairness.").

[67] *See* United States v. Microsoft Corp., No. 00-5213 (D.C. Cir. Oct. 18, 2000) (notice advising parties of proposed review session on fundamentals of automation and requesting responses to proposal).

the case and they therefore asked to preview the proposed presentation.[68] As a result the court decided not to hear from an expert after all.[69] Had we proceeded as the parties suggested, we probably would have created, at the appellate level, a mini-trial in which much of what was said would be challenged by one side or the other.

As the *Microsoft* experience illustrates, independent experts would intrude into and undermine the adversary system. The parties will either object altogether—and with reason—to the possibility of the court receiving ex parte information or, in their attempt to ameliorate the potentially adverse effect of any such information, will make the use of an independent expert more trouble than it is worth.

Second. An independent expert advising the judges off the record might unduly influence the appellate court. In a complex case, the judges may defer substantially to the explanations they receive from the court-appointed expert; indeed, there would be little point in appointing an expert if the judges did not do so. These experts are not authorized under Article III of the Constitution to exercise the "judicial Power of the United States"; they are neither subject to the nomination and confirmation process nor vested with the life tenure and salary protections deemed critical to the independence of the judiciary, yet they would influence the outcome of cases and may effectively decide them.

Judge Leventhal alluded to this problem but maintained that "a system which enhances understanding by the judge is preferable to one in which the judge must grab, or stab, at a record that seems to be important but which incorporates confusing and extraneous impressions."[70] But Judge Leventhal failed to appreciate that independent experts will undoubtedly do more than simply help the appellate court to understand the record. In most, if not all, instances they will inevitably provide subjective advice and judgment.

Suppose the appellate court hears a patent infringement case involving a dispute over the design of a hydraulic pump. Judges lacking a scientific or an engineering background—which is to say, all but a few judges—will not know how a hydraulic pump works. For the court to employ an expert to explain how the pump works would not raise the concern of undue influence. The expert would

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[68] *See* Plaintiffs' Joint Response to the Court's Request for the Parties' Views Regarding the Proposed Review Session at 1, 6, *Microsoft*, 253 F.3d 34 (No. 00-5213), *available at* http://www.justice.gov/atr/cases/f6700/6830.pdf.

[69] *See Microsoft*, No. 00-5213 (D.C. Cir. Oct. 18, 2000) (informing the parties that, upon consideration of their responses, the Court had decided not to proceed with the proposed review session).

[70] Leventhal, *supra* note 49, at 553.

simply be conveying general, objectively verifiable knowledge, i.e., facts about the hydraulic pump. The judge could just as well find that information in a book or, more likely today, on the Internet.[71]

The difficult cases, however, and the only ones of interest in evaluating this proposal, task judges with exercising their judgment with respect to issues of scientific, mechanical, or economic feasibility—that is, issues upon which experts disagree. That is why the record in such cases is replete with contradictory expert testimony. Each side has engaged its expert precisely because there is room for disagreement. The role of the court-retained expert on appeal would be to help the judges sort out and resolve conflicts between the parties' respective experts. Even if the court's experts were nominally limited to explaining the undisputed facts and the grounds for the conflicts, those explanations often would drift inexorably into controversial territory.

Microsoft again comes to mind. Deciding whether Microsoft had in fact impeded the ability of competitors to offer an efficient alternative to Internet Explorer required the court to make a judgment. The record contained the opposing views of the experts testifying for the parties,[72] but there was no objectively correct answer that a neutral computer science expert could have given the court. Unlike the explanation of the hydraulic pump, neutral experts likely would not converge upon the same answer. The issue, like most scientific and technical issues raised in court, was one of degree and of levels of confidence. Under the proposals of Judge Leventhal and Justice Breyer, therefore, the appellate court would end up employing the independent expert not only for his knowledge but also for his judgment.

A recurring situation is one in which an administrative agency, such as the Environmental Protection Agency or the National Highway Traffic Safety Administration, believes a regulated industry could alter its processes or products in order to achieve some regulatory goal, such as decreasing tailpipe emissions or increasing fuel economy. The initial problem is that firms in the industry have superior access to and understanding of the information relevant to their own operations and products. Although the agency might be able

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[71] *See, e.g.*, Hydraulic Pumps—Part 1, http://www.hydraulicspneumatics.com/200/FPE/Pumps/Article/True/6401/Pumps (last visited Jan. 18, 2010) (explaining the mechanics of hydraulic pumps); Hydrostatic Pumps, http://www.hydraulic-equipment-manufacturers.com/hydraulic-articles1.html (last visited Jan. 18, 2010) (same); *see also* Wald, *supra* note 46, at 81–82 (noting judges have constant access to written publications that may assist them in resolving technical questions).

[72] *See* 253 F.3d at 65–66 (noting "contradictory testimony in the record").

to overcome that disparity by acquiring its own in-house expertise, neither the agency nor the regulated firms themselves will know by how much or by when the firms could do better. So, while the EPA contends certain improvements are feasible within a certain time and the industry argues they are not, nobody knows for sure.[73] When the issue is the feasibility of a proposed regulation, it is not necessarily an explanation of the facts, but the proper inference to be drawn from the facts, that the court would want from an expert. That often demands a subjective judgment and perhaps the weighing of competing values. How promising is the technology the agency claims the industry should be pursuing? Does it require trading some safety for some fuel economy and, if so, how much? The independent expert's ex parte communication, untested in the crucible of the adversary system, might unduly influence the judge's answer to those questions.

To be sure, a law clerk's communication with a judge is ex parte, and the law clerk could also have an undue influence upon the judge's thinking, especially if that clerk has the technical training the judge lacks. The critical difference is that if a law clerk does exert an undue influence, it is owing to a failure on the part of the judge and to a passing or happenstance event. It is episodic and not by design or intent, not a systemic flaw in the way judges come to understand their cases. Independent experts, on the other hand, would be hired precisely in order to provide expert advice and, therefore, the risk of their unduly influencing the court is much greater.[74]

Third. Independent experts undercut agency expertise and accountability. The hallmark of U.S. regulatory law is the deference that appellate courts show administrative agencies in most cases. In matters of statutory interpretation, there is *Chevron U.S.A., Inc. v. Natural Resources Defense Council, Inc.*,[75] in which the Supreme Court held that courts are to defer to an agency's interpretation of the statute it administers if that statute is at all ambiguous and the agency's interpretation is even a "permissible" one.[76] In nearly all other regards, courts apply another indulgent standard of review,

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[73] I wrote about this asymmetry of information in the auto industry in 1980. Nothing has changed. *Compare* Douglas H. Ginsburg, *Making Automobile Regulation Work: Policy Options and a Proposal*, 2 HARV. J.L. & PUB. POL'Y 73, 83 (1979), *reprinted in* GOVERNMENT, TECHNOLOGY, AND THE FUTURE OF THE AUTOMOBILE 10–34 (Douglas H. Ginsburg & William J. Abernathy eds., 1980) (automobile manufacturers may collude to present "uniformly pessimistic view of the possibilities for technological innovation"), *with* Nat'l Petrochemical & Refiners Ass'n v. EPA, 287 F.3d 1130, 1136–43 (D.C. Cir. 2002) (discussing the EPA's lack of information about automobile manufacturer's ability to comply with emissions requirements).

[74] *See* Deason, *supra* note 35, at 140–41.

[75] 467 U.S. 837 (1984).

[76] *Id.* at 842–43.

asking only whether the decision of the agency was arbitrary or capricious[77] or unsupported by substantial evidence.[78]

These standards are thought to enhance both the efficiency and the legitimacy of government, or more specifically, of the Executive Branch, which relies heavily upon specialized agencies to administer statutes and to issue technical regulations. The agencies, of course, develop expertise in the field or the industry they are charged with regulating. Allowing the appellate courts to employ independent experts would lead those courts to substitute their own views, or more probably their own experts' views, for those of the agency and the agency's experts.

There is another, sometimes more important, reason appellate courts defer to agencies. Administrative decision making often involves a choice among competing values and reflects the policy preferences of the incumbent administration.[79] A good example is the National Labor Relations Board, which was established in 1935 with the passage of the National Labor Relations Act.[80] The genius of the Act was to proceduralize what theretofore had been violent labor disputes, getting them out of the streets, literally, and into hearing rooms where the parties could tell their stories and let their lawyers do their fighting for them.[81] The Labor Board routinely makes decisions about whether an election in which the employees ostensibly voted for or against having a union was conducted fairly, that is, without "interference" or "coercion"—economic or psychological—by the union or the employer.[82] But is the Board really an expert on the psychology of employees or on election propaganda? The empirical evidence suggests the decisions of the Board reflect more the majority's partisan views than any expert insight into the psychology of voters in union elections, and that is why the Board's position on these matters changes whenever the

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[77] *See* 5 U.S.C. § 706(2)(A) (2006).

[78] *See id.* § 706(2)(E). "Substantial evidence" is not as high a standard as a "preponderance." *See* Consolo v. Fed. Mar. Comm'n, 383 U.S. 607, 619–20 (1966) (describing the substantial evidence standard as "something less than the weight of the evidence"); Patricia M. Wald, *The Rhetoric of Results and the Results of Rhetoric: Judicial Writings*, 62 U. CHI. L. REV. 1371, 1391 (1995) (noting substantial evidence review of agency decision making "may be much less than a preponderance of evidence").

[79] *See Chevron*, 467 U.S. at 865–66.

[80] Pub. L. No. 74-198, § 3, 49 Stat. 449, 451 (1935) (codified as amended at 29 U.S.C. § 153 (2006)).

[81] *See* Paul H. Sanders, *Some Comments on Labor Dispute Settlement Processes*, 27 VAND. L. REV. 5, 12–13 (1974) (laws such as the NLRA divert conflict "from physical violence and economic coercion into the very serious 'war game' we call collective bargaining").

[82] *See* 29 U.S.C. §§ 158(a)(1), (b)(1) (2006) (identifying unfair labor practices by employers and unions).

political party in the majority changes.[83] The Board has changed its position three and four times on some very specific questions of what is coercive in electoral labor law.[84] Because the NLRB and other agencies, unlike courts, are accountable, albeit indirectly, to the democratic process through the election of the President and the Senate (who, respectively, nominate and confirm agency heads), the deferential standard of judicial review lets the agencies, rather than the courts, choose among competing values.

In technical cases involving economics or the physical sciences the applicable statute may require this weighing of competing and often wholly incommensurable values. The Federal Power Act, for example, provides that when deciding whether to license a hydroelectric power project, the Federal Energy Regulatory Commission,

> in addition to the power and development purposes for which licenses are issued, shall give equal consideration to the purposes of energy conservation, the protection, mitigation of damage to, and enhancement of, fish and wildlife . . . , the protection of recreational opportunities, and the preservation of other aspects of environmental quality.[85]

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[83] *See* Julius G. Getman & Stephen B. Goldberg, *The Myth of Labor Board Expertise*, 39 U. CHI. L. REV. 681, 682 (1972) ("The assumption that the Board has the ability to assess the actual impact of employer—or union—conduct is a fiction."); Mitchell H. Rubinstein, *Our Nation's Forgotten Workers: The Unprotected Volunteers*, 9 U. PA. J. LAB. & EMP. L. 147, 164–65 n.92 (2006) (highlighting the Board's changing attitude over whether graduate students may be considered employees, and providing additional authority that suggests the political nature of the Board); Ronald Turner, *Ideological Voting on the National Labor Relations Board*, 8 U. PA. J. LAB. & EMP. L. 707, 708–09 (2006) (noting studies and the author's experiences, both of which indicate "the ideology of a Board member can serve as a predictive indicator of that member's vote" (footnote omitted)); *cf.* William N. Cooke et al., *The Determinants of NLRB Decision-making Revisited*, 48 INDUS. & LAB. REL. REV. 237, 241, 254–55 (1995) (concluding political preference influences a relatively small number of "important and complex cases"). *But see* Paul M. Secunda, *Politics Not as Usual: Inherently Destructive Conduct, Institutional Collegiality, and the National Labor Relations Board*, 32 FLA. ST. U. L. REV. 51, 52 (2004) (arguing the NLRB is a "collegial administrative body whose adjudications are not significantly tainted by the blight of political bias").

[84] *See* Midland Nat'l Life Ins. Co., 263 N.L.R.B. 127, 129–30 (1982) (noting a history of reversals and counter-reversals with respect to regulation of misleading campaign propaganda and then reversing the standard itself); *see also* Turner, *supra* note 83, at 717–52 (providing examples of issues in which the political ideology of NLRB members has noticeably shaped the outcome of the Board's decision).

[85] 16 U.S.C. § 797(e) (2006). For another mixture of conflicting values see the Communications Act of 1934, 47 U.S.C. § 151 (2006) (listing often conflicting goals of "mak[ing] available . . . to all the people of the United States . . . a rapid, efficient, Nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges, [assisting] the national defense, . . . [and] promoting safety of life and property through the use of wire and radio communications").

How the agency can give equal consideration to these incommensurable values is a mystery known only to a self-deluding Commissioner. More to the present point, how could a reviewing court determine whether to accept the agency's claim to have done so? Under current doctrine, the reviewing court defers to the agency's determination if the agency tells a plausible story consistent with the statute and the record.[86] If the court were to employ an expert, either he would have nothing important to say, or he would tell his own story from his own point of view, which might not be consistent with that told by the agency tasked with making the unavoidable tradeoffs between, in this example, more power versus more environmental quality. By law, the story told by the court's expert would be irrelevant so long as the agency's story was plausible; yet, having retained the expert, the court would likely focus upon the expert's assessment rather than upon the limited scope of its authority to review the agency's determination.

In a 1977 article, then Chief Judge David Bazelon questioned some of the features of the "Science Court" proposal mentioned above.[87] In particular, he cautioned against interference with agency expertise and value judgment:

> [W]here administrative decisions on scientific issues are concerned, it makes no sense to rely upon the courts . . . to substitute their own value preferences for those of the agency, to which the legislature has presumably delegated the decisional power and responsibility.[88]

Employing experts is an invitation for the court to do just that.

Fourth. Independent experts undermine the virtues, such as they are, of a generalist judiciary. Some states have specialized courts, such as the separate Texas courts for criminal and for civil appeals[89] and the Delaware Chancery Court.[90] In contrast, the jurisdiction of the

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[86] *See* Nat'l Ass'n of Home Builders v. Defenders of Wildlife, 127 S. Ct. 2518, 2529–30 (2007) (stating that an agency decision is not vacated unless the agency "has relied on factors which Congress had not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise" (quoting Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29, 43 (1983)) (internal quotation marks omitted)).

[87] *See* David L. Bazelon, *Coping with Technology Through the Legal Process*, 62 CORNELL L. REV. 817 (1977).

[88] *Id.* at 822.

[89] *See* TEX. CONST. art. V., § 3 (describing separate final appellate jurisdiction of the Supreme Court and of the Court of Criminal Appeals).

[90] *See id.* (noting the Chancery Court is able to act quickly on corporate governance matters because it does not hear criminal or civil tort cases).

U.S. Courts of Appeals is defined geographically—except for that of the Federal Circuit, which hears appeals from district courts throughout the country in patent cases and a few other specified subjects.[91] Every other federal court of appeals, from the D.C. Circuit to the First to the Eleventh, accordingly hears cases in virtually every field of federal law and, in diversity cases, fields governed by state law.[92] The D.C. Circuit, for example, hears federal criminal matters, as well as federal and D.C. civil cases, and reviews rulemakings and adjudications from virtually every federal agency and department except the Executive Office for Immigration Review.

Federal appellate judges are therefore necessarily generalists. Some of them, maybe most, have particular interests and perhaps expertise in a particular area of the law, usually because they practiced in that area before going on the bench. Nonetheless, every judge on the court of appeals (and in the federal trial courts) is expected to hear and decide any type of case that comes before him.

There are some advantages to this system, which is most likely why we retain it despite periodic proposals for more specialized courts.[93] One of the advantages is that neither the bar nor the bench may "hide behind specialized vocabulary and 'insider' concerns."[94] Members of the bar are forced to explain complex legal and technical issues in a manner intelligible to a generalist judge who, in turn, is tasked with authoring an opinion the parties and the public can understand.[95] This whole process engenders a needed clarity and transparency in the law. Twenty-five years ago, Anthony Oettinger, the director of Harvard's Program on Information Technology Policy, told me that whenever he needed a description of a complicated technical matter, he would look not to trade publications, nor scientific or technical journals, but to the law reports. There, he found generalist judges, aided by the briefs of high-priced lawyers, described the technology with precision, but also with a clarity that a layperson could understand.

A general docket also enables the judges to see the similarities among different fields of law, which facilitates the "cross-fertilization

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[91] *See* 28 U.S.C. § 1295 (2006) (setting forth jurisdiction of the Federal Circuit).

[92] *See* Diane P. Wood, *Generalist Judges in a Specialized World*, 50 SMU L. REV. 1755, 1755–59, 1763 (1997) (discussing the breadth of cases that a federal judge oversees).

[93] One such proposal, which came from the ABA Standing Committee on Federal Judicial Improvements, was to create within the Circuits specialized panels on which certain judges would serve for three years and hear only, for instance, energy regulatory cases. *See* ABA Standing Committee on Federal Judicial Improvements, *The United States Courts of Appeals: Reexamining Structure and Process After a Century of Growth*, 125 F.R.D. 523, 544–46 (1989).

[94] Wood, *supra* note 92, at 1767.

[95] *Id.*

of ideas."[96] For example, there is no question the technology of telecommunications is completely different from that of any energy industry; yet, a judge exposed to both energy and telecommunications regulation might see they have more in common than a specialist in either field might ever have realized. Much as local telephone companies have been required to make elements of their networks available for lease by competitors on a non-discriminatory basis,[97] natural gas pipelines too have been required to operate as common carriers, serving all shippers, including competing producers, upon the same terms as their own affiliated producers.[98] It is therefore unsurprising that, in writing opinions in either field, the D.C. Circuit finds occasion to cite decisions arising from the other industry. In fact, as the court noted in one FCC case, "sections of the Communications Act are, in large part, identical to the analogous provisions of the Natural Gas Act."[99] As a result, familiarity with decisions under one statute may inform the court's understanding of the other.

Generalist judges may even see opportunities for cross-fertilization between industries that are not subject to similar regulatory regimes.[100] Many of the problems across regulated industries are the same, a fact that would not be noticed except by one familiar with several regulatory regimes. If an appellate judge were to rely upon an expert familiar with the economics or the technology of one specific industry, then he would be more likely to miss useful parallels that he would, as a generalist, otherwise see.

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[96] *Id.*

[97] *See* 47 U.S.C. § 251(c)(3) (2006); *see also* Covad Commc'ns Co. v. FCC, 450 F.3d 528, 531–33 (D.C. Cir. 2006) (discussing requirements for unbundling telecommunication service offerings under the Telecommunications Act).

[98] *See* Nat'l Fuel Gas Supply Corp. v. FERC, 468 F.3d 831, 833–36 (D.C. Cir. 2006) (discussing the common carrier requirements of the Natural Gas Act of 1938, 15 U.S.C. § 717c(b)(1) (2006)).

[99] Las Cruces TV Cable v. FCC, 645 F.2d 1041, 1047 (D.C. Cir. 1981). This is not surprising; the Communications and Natural Gas Acts trace their lineage back to the Interstate Commerce Act of 1887, ch. 104, 24 Stat. 379, which was the basic template for the regulation of network industries that persists, at least in general outline, to this day. *See Las Cruces*, 645 F.2d at 1047.

[100] Richard A. Epstein, in comparing the pharmaceutical industry, with its "patent monopolies," to the telecommunications sector, with its "network monopolies," wrote: "In terms of product line, few industries could be more disparate than the pharmaceutical and telecommunications industries. But despite the differences in their products, their uneasy relationship to state power is remarkably similar. Competitive solutions do not work with either patents or network industries." Richard A. Epstein, *Justified Monopolies: Regulating Pharmaceuticals and Telecommunications*, 56 CASE W. RES. L. REV. 103, 125 (2005) (footnote omitted).

The generalist judiciary also provides a safeguard against "regulatory capture."[101] Because experts are by their nature specialized, they are likely to be more susceptible to capture by the regulated industry's point of view than is a federal judge, who has to decide cases arising under a number of industry-specific regimes as well as those that raise issues common to all industries. Generalist judges are unlikely to have social or professional ties to parties or industries before the court, are unconcerned about future employment in the regulated industry, and are not subject to industry assumptions and biases. They therefore bring to cases both an outsider's perspective and the independence of mind to challenge established practices or orthodoxies that a specialized expert might lack.

Fifth. The idea of having experts assist appellate courts is likely impractical. As Judge Leventhal pointed out[102] and Justice Breyer seems to imply,[103] there are several ways the courts of appeals could gain access to experts. Leventhal believed the best way was to go outside the judiciary, perhaps to a pool comprising those recommended by, for example, the National Academy of Science.[104]

This sourcing issue highlights the threshold problem of knowing what kind of "expert" one wants. Consider a telecommunications or electric utility case in which the court is charged with determining whether rates approved by the FCC or by the FERC for leasing unbundled elements of an incumbent's network to competitors are reasonable. Should the court hire a telecommunications or an electrical engineer, respectively, or an economist, a cost accountant, or a financial analyst? The parties' own choice of experts will not always be a guide; the parties may have engaged experts in several fields when making their record before the agency, but the issues on review are usually narrower than those before the agency, leaving the court to determine for itself in which field it needs to engage its own expert. To surmount that initial hurdle would itself seem to require a certain amount of expertise by the judges to identify the problem as, for example, one of cost accounting as opposed to engineering or economics.

The *New England Journal of Medicine* identified a related problem in an amicus brief filed with the Supreme Court:

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[101] *See* Wood, *supra* note 92, at 1767.

[102] *See* Leventhal, *supra* note 49, at 552 (discussing possibilities).

[103] *See* Breyer, Economic Reasoning and Judicial Review, *supra* note 60, at 12 (wondering whether an appellant court would be more inclined to use an expert if one were more readily available).

[104] *See* Leventhal, *supra* note 49, at 552.

> A court's emphasis on the qualifications of expert witnesses is very different from the standards of science, in which *ad hominem* considerations are minimized. Scientists are trained to look at the strength of the data, not the credentials of the researcher.[105]

In choosing an expert to assist them, generalist judges would have no alternative to looking at the candidates' credentials; the judges are by hypothesis in no position to evaluate the quality of the experts' publications.

Finally, the very idea of an expert is arguably misplaced in fields where there are varying schools of thought; if there is no consensus approach among the experts, then how are judges to choose whom to appoint? One from each school of thought? That just recreates the adversary process, but does so at an arcane level of discourse and off the record. As President Franklin Roosevelt, whose cabinet was referred to as a brain trust, lamented: "There are as many opinions as there are experts . . . ."[106]

CONCLUSION

The English novelist Samuel Butler remarked "the public . . . though they do not know enough to be experts, yet know enough to decide between them."[107] In this respect, a generalist judiciary is very much like the public it serves. Appellate courts do not need to acquire technical expertise of their own by hiring experts. They need only to refine their skill at determining whether the agency whose decisions they are reviewing exercised care and reason when choosing among the views of competing experts.

In sum, I believe Judge Leventhal's and Justice Breyer's proposals to bring experts into the appellate process would do more harm than good. To be sure, judicial review in the administrative state imposes a significant challenge to the generalist judge. But I am more confident that judges are up to the challenge than I am that court-retained experts can somehow be fitted into the adversary system on appeal.

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[105] Brief of Amici Curiae The New England Journal of Medicine & Marcia Angell, M.D., in Support of Neither Petitioners Nor Respondents at 17, Gen. Elec. Co. v. Joiner, 522 U.S. 136 (1997) (No. 96-188).

[106] Franklin D. Roosevelt, Radio Appeal on the Scrap Rubber Campaign (June 12, 1942), *in* 11 THE PUBLIC PAPERS AND ADDRESSES OF FRANKLIN D. ROOSEVELT 270, 272 (Samuel I. Rosenman ed., 1950).

[107] Samuel Butler, *Formers of Opinion*, *in* FURTHER EXTRACTS FROM THE NOTE-BOOKS OF SAMUEL BUTLER 81–82 (Augustus Theodore Bartholomew ed., 1934).