Culture Clash
Goldberg, Steven

Published by NYU Press

Goldberg, Steven.
Culture Clash: Law and Science in America.
Project MUSE. muse.jhu.edu/book/15796.

For additional information about this book
https://muse.jhu.edu/book/15796

For content related to this chapter
https://muse.jhu.edu/related_content?type=book&id=508409
Adams, John, 27
Adams, John Quincy, 33
Administrative agencies: central role in science funding, 44–47; central role in technology regulation, 87–90; judicial review, 54–56; policy decisions, 17
Administrative Procedure Act of 1946, 54
Adversary system: absence in peer review, 57; central role in legal system, 18; importance in regulation of technology, 89, 178
Anderson, W. French, 125–26
Andrews v. State, 117 n. 14
Andrus v. Sierra Club, 143
Apter v. Richardson, 59
Astrology, 8
Babbage, Charles, 151
Bazelon, David L., 18
Beauty: in law, 19; in science, 19, 116
Becquerel, Edmund, 146
Bell Laboratories, 146, 148
Berger, Peter L., 80
“Big science, little science,” 121–22, 144–45, 154
Board of Trustees of Stanford University v. Sullivan, 41
Bowers v. Hardwick, 78 n. 72, 81 n. 95
Brandeis, Louis D., 114–15
Brandenburg v. Ohio, 31 n. 46
Breeder reactor, 98
Brilliance in science and law, 6, 7, 19
Brophy v. New England Sinai Hospital, 170–71
Buchanan, Allen, 171
Buckley v. Valeo, 40
Burke, Edmund, 5
Bush, Vannevar, 181
Bushnell, David, 32
Carter, James E., 147
Carter, Stephen, 77, 78, 81
Charron, William, 171
Church of the Lukumi Babalu Aye, Inc. v. City of Hialeah, 80 n. 90
Comptroller General, 50
Computers, 99–103, 178. See also Artificial Intelligence
Congressional Research Service, 50
Cooley, Thomas, 115
Copyright, 102–3
County of Allegheny v. American Civil Liberties Union, 81 n. 93
Courts: limited role in science funding decisions, 54–68; major role in disability funding decisions, 63–64; major role in regulatory decisions, 90–94
Cruzan v. Director, Missouri Department of Health, 170, 172

Daniel v. Waters, 75 n. 51
Darwin, Charles, 7, 72–73, 113–14, 156–57, 176
Daubert v. Merrell Dow Pharmaceuticals, 20–23
Deconstructionist view of science, 10
Definition of death, 166–77. See also Artificial Intelligence
Demuth Development Corp. v. Merck and Co., Inc., 30 n. 36
Department of Defense, 44, 48, 51, 108, 154
Department of Science: absence of, 48; dangers of, 52–53
De Solla Price, Derek J., 122
De Tocqueville, Alexis, 5
Diamond v. Diehr, 101 n. 43
DNA typing, 116–17
Doe v. Commonwealth, 77–78

“Earmarking” of research funds, 45–46
Edelman, Gerald, 159, 165–66, 176
Edwards v. Aguillard, 76–77
Einstein, Albert, 7, 132, 175
Eisenhower, Dwight D., 80, 147
Enlightenment: idea of progress, 70, 81; view of religion, 70; view of science, 3, 26–28, 69. See also Progress
Environmental Protection Agency, 87–88, 90, 148
Epperson v. Arkansas, 74–75, 77

Falsifiability, 8
Firestone v. First District Dental Society, 30 n. 34
Food and Drug Administration, 87–88, 90, 125
Foundation on Economics Trends v. Lyng, 143

Frank, Jerome, 19
Frankfurter, Felix 19
Franklin, Benjamin, 27
Fraud in scientific research, 57
Free speech: relation to science, 28–31; relation to technology, 86–87; tension with government funding, 39–43
Freneau, Philip, 28
Freud, Sigmund, 155, 156, 157
Funding of scientific research: agriculture, 36; census, 32; central role of administrative agencies, 44–47; coinage, weights, and measures, 33–34; grant vs. contract, 48–49, 61–62; importance of science community, 66–67; levels of federal spending, 37–38; military, 32–33; plans for a national university, 31; role of peer review, 56–57; spending for the general welfare, 35–37; state governments, 37; surveys, 31; tension with free speech, 39–43

Galileo, 27, 71–72
“Golden Fleece” awards, 51, 53–54
Goodell, Rae, 104
Gottschalk v. Benson, 100 n. 40
Graff, Gerald, 4
Grassetti v. Weinberger, 59–60
Gray v. Romeo, 171
Green, Harold, 93
Green, Michael, 171

Hamilton, Alexander, 27, 35, 37
Hazen, Robert, 109
Heisenberg, Werner, 19
Himmelfarb, Gertrude, 4
Holmes, Oliver Wendell, 17
Howard Hughes Medical Institute, 119
Human Genome Initiative: “big science, little science” controversy, 121–22; congressional oversight of, 120; employment issues, 127; gene therapy, 124–27; goal of, 117–18; historical background, 112–16, 118–22; implications for determinism and free will, 128–31; insurance issues, 127; privacy issues, 124–27; role of science counselors, 123–26
<table>
<thead>
<tr>
<th>Index Term</th>
<th>Page numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>In re Conroy</td>
<td>175</td>
</tr>
<tr>
<td>International Thermonuclear Experimental Reactor (ITER)</td>
<td>145</td>
</tr>
<tr>
<td>In the Matter of Karen Quinlan</td>
<td>170</td>
</tr>
<tr>
<td>Japan: government support for technology</td>
<td>72</td>
</tr>
<tr>
<td>Jasanoff, Sheila</td>
<td>90, 105</td>
</tr>
<tr>
<td>Jefferson, Thomas</td>
<td>27, 28, 33, 47, 70, 71</td>
</tr>
<tr>
<td>Kafka, Franz</td>
<td>65</td>
</tr>
<tr>
<td>Katz v. United States</td>
<td>114 n. 4</td>
</tr>
<tr>
<td>Kirschstein, Ruth</td>
<td>122</td>
</tr>
<tr>
<td>Kleppe v. Sierra Club</td>
<td>142–43</td>
</tr>
<tr>
<td>Kletschka v. Driver</td>
<td>57–58</td>
</tr>
<tr>
<td>Kuhn, Thomas</td>
<td>9, 10</td>
</tr>
<tr>
<td>Langton, Christopher</td>
<td>153</td>
</tr>
<tr>
<td>Lapp, Ralph</td>
<td>3</td>
</tr>
<tr>
<td>Lincoln v. Vigil</td>
<td>45, 56</td>
</tr>
<tr>
<td>Line item veto</td>
<td>53–54</td>
</tr>
<tr>
<td>Lovins, Amory</td>
<td>148–49</td>
</tr>
<tr>
<td>Lynch v. Donnelly</td>
<td>81 n. 92</td>
</tr>
<tr>
<td>Lysenkoism</td>
<td>53</td>
</tr>
<tr>
<td>Madison, James</td>
<td>27, 31, 35–36, 37, 70–71</td>
</tr>
<tr>
<td>Mansfield Amendment</td>
<td>51</td>
</tr>
<tr>
<td>Marinoff v. HEW</td>
<td>60–61</td>
</tr>
<tr>
<td>Marshall, John</td>
<td>7</td>
</tr>
<tr>
<td>Mathematics, history of</td>
<td>15</td>
</tr>
<tr>
<td>Mazlish, Bruce</td>
<td>157</td>
</tr>
<tr>
<td>McCarthy, John</td>
<td>152</td>
</tr>
<tr>
<td>McGowan v. Maryland</td>
<td>81 n. 94</td>
</tr>
<tr>
<td>McLean v. Arkansas</td>
<td>76</td>
</tr>
<tr>
<td>Mendel, Gregor</td>
<td>112–14</td>
</tr>
<tr>
<td>Metpath v. Imperato</td>
<td>30 n. 38</td>
</tr>
<tr>
<td>Miller v. California</td>
<td>29–30</td>
</tr>
<tr>
<td>Mission-oriented research</td>
<td>24, 106</td>
</tr>
<tr>
<td>Mississippi v. Louisiana</td>
<td>53</td>
</tr>
<tr>
<td>Moravec, Hans</td>
<td>159</td>
</tr>
<tr>
<td>Mozert v. Hawkins County Board of Education</td>
<td>79 n. 77</td>
</tr>
<tr>
<td>National Academy of Sciences</td>
<td>11, 50, 121, 149</td>
</tr>
<tr>
<td>National Aeronautics and Space Administration</td>
<td>48, 147, 154</td>
</tr>
<tr>
<td>National Environmental Policy Act</td>
<td>139–44</td>
</tr>
<tr>
<td>National Institutes of Health</td>
<td>24, 44, 28, 56, 59, 60, 61, 89, 119–20, 125</td>
</tr>
<tr>
<td>National laboratories</td>
<td>48</td>
</tr>
<tr>
<td>National Science Foundation</td>
<td>24, 44, 48, 56, 88–89, 108, 154</td>
</tr>
<tr>
<td>Near v. Minnesota</td>
<td>30 n. 43</td>
</tr>
<tr>
<td>News media and science</td>
<td>50</td>
</tr>
<tr>
<td>Newton, Isaac</td>
<td>6, 7, 26, 27</td>
</tr>
<tr>
<td>Nuclear fission</td>
<td>96–98, 132–33, 178</td>
</tr>
<tr>
<td>Nuclear fusion: alternative approaches, 136–38; contrast with solar energy, 148–49; funding cutbacks, 144–45; historical and technical background, 131–35; international program, 145; limits on judicial control of research, 139–44; potential social problems, 135–36, 137–38; promises of breakthroughs, 131</td>
<td></td>
</tr>
<tr>
<td>Nuclear Regulatory Commission</td>
<td>87–88, 90</td>
</tr>
<tr>
<td>Obscenity</td>
<td>29–30</td>
</tr>
<tr>
<td>Occupational Safety and Health Administration</td>
<td>148</td>
</tr>
<tr>
<td>Office of Management and Budget</td>
<td>49, 51, 105</td>
</tr>
<tr>
<td>Office of Science and Technology Policy</td>
<td>49, 121</td>
</tr>
<tr>
<td>Office of Technology Assessment</td>
<td>50, 107, 121</td>
</tr>
<tr>
<td>Ohmstead v. United States</td>
<td>114 n. 3, 115 n. 5</td>
</tr>
<tr>
<td>Oppenheimer, J. Robert</td>
<td>13, 18, 104</td>
</tr>
<tr>
<td>Pacific Gas and Electric Co. v. State Energy Resources Conser-</td>
<td>97 n. 31</td>
</tr>
<tr>
<td>vation and Development Commission</td>
<td></td>
</tr>
<tr>
<td>Parker v. Flook</td>
<td>100–101 n. 41</td>
</tr>
<tr>
<td>Patents: computer software</td>
<td>99–103</td>
</tr>
<tr>
<td>Patents: constitutional basis</td>
<td>34–35</td>
</tr>
<tr>
<td>Patents: early history in the United States</td>
<td>47</td>
</tr>
<tr>
<td>Pauling, Linus</td>
<td>104, 116</td>
</tr>
</tbody>
</table>
| Peer review: central role in research funding decisions       | 46, 56–57, 178, 180; im-
Peer review (Continued)

Portance of panel membership, 66; limited role in regulation of technology, 89

Penrose, Roger, 159, 164–65, 176

People v. Castro, 117 n. 16

Pollock, John, 159

Pope, Alexander, 26

Popper, Karl, 8

President of the United States: access to science advice, 49; appointment power, 49; desire for payoffs from science, 50

Press, Frank, 121

Priority: in law, 114–17; in science, 7–8, 114, 116

Process, central role in law, 13–20, 106

Progress: central role in science, 7–13, 20–23; enlightenment roots, 70, 81; importance to science counselors, 106–7; role in formation of American values, 81–83, 95, 146, 149–50

Proxmire, William, 53

Pure science: basic characteristics, 23–24, 106; necessity of protecting, 182–83; uncertain nature of progress, 12, 112–14, 132, 183. See also Funding of scientific research

Quinn, Kevin, 173, 175

Rawls, John, 81

Recombinant DNA research, 123–24

Regina v. Hicklin, 29

Regulation of technology: central role of administrative agencies, 87–90; constitutional basis, 84–86; lack of consensus in scientific community, 89–90; limited role of First Amendment, 86–87; vital role of the courts, 90–94

Regulatory gap, 2, 94–96, 103, 109, 136, 138, 155, 179, 180–83

Reischauer, Edwin, 72

Religion: civil religion in the United States, 79–80; creationism, 75–77; diversity in the United States, 80–81; framers’ views and the First Amendment, 69–72; theory of evolution and the law, 72–79. See also Values

Rhoden, Nancy, 174–75

Rifkin, Jeremy, 125

Rittenhouse, David, 26, 27, 28, 32, 33

Roth v. United States, 29

Rush, Benjamin, 26, 27, 28, 32

Rust v. Sullivan, 41

Sagan, Carl, 104

Schuck, Peter, 4, 15

Schumacher, E. F., 149

Science counselor, 2, 103–8, 123–26, 135, 179, 181–83

Scientific community, self-governing nature, 11, 46, 56–57, 66–67, 178. See also Funding of scientific research; Regulation of technology

Scientists’ Institute for Public Information v. Atomic Energy Commission, 140–42

Scopes trial, 73–74

Searle, John, 159–64, 176

Silkwood v. Kerr-McGee Corp., 97 n. 32

Singer, Peter, 156–57

Smith, David Randolph, 171

Smith v. State, 75 n. 50

Snow, C. P., 3, 4, 50

Solar energy: access to sunlight, 149; contrast with nuclear fusion, 148–49; historical development, 146–47; environmental concerns, 147–48

Stanley v. Georgia, 31 n. 45

Steele v. Waters, 75 n. 52

Superconducting supercollider, 50, 144

Superconductivity, 108–11

Technology: link to science, 11, 12, 13. See also Regulation of technology

Technology assessment, 107–8. See also Regulation of technology

Teller, Edward, 104

Texas v. Johnson, 87 n. 10

Turing, Alan: role in development of artificial intelligence, 152; “Turing test,” 159–60

“Two Cultures,” 3, 4, 5, 181

Ujvarosy v. Sullivan, 61

United States Congress: access to science advice, 49–50; desire for payoffs from
science, 50; oversight of Human Genome Initiative, 120; role in regulation of technology, 87; role in science funding, 44–47

United States v. Butler, 37
United States v. Eichman, 87 n. 10
United States v. O'Brien, 86 n. 7
United States v. Sullivan, 85 n. 2
United States v. The Progressive, Inc., 30 n. 44
Updike, John, 166

Veatch, Robert, 166, 171
Von Neumann, John, 153

"War on cancer," 51
Warren, Samuel D., 115
Washington, George, 32
Watson, J. D., 93, 115–16, 124
Webster v. New Lenox School District No. 122, 78 n. 73
Weisskopf, Victor, 24
Wikler, Daniel, 171
Wilson, James Q., 92
PRAISE FOR THE BOOK

“Culture Clash—with its rare blend of creativity, verbal skill and balanced judgment—helps to clarify the understanding of law and science in American life.”
—New York Law Journal

“A lucid and entertaining mix of constitutional law and history.”
—American Journal of Human Genetics

It is an article of faith in America that scientific advances will lead to wondrous progress in our daily lives. Americans proudly support scientific research that yields stunning breakthroughs and Nobel prizes. We relish the ensuing debate about the implications—moral, ethical, practical—of these advances. Will genetic engineering change our basic nature? Will artificial intelligence challenge our sense of human uniqueness? And yet the actual implementation of these technologies is often sluggish and much delayed.

Steven Goldberg here provides a compelling look at the intersection of two of America’s most powerful communities—law and science—to explain this apparent contradiction. Rarely considered in tandem, law and science highlight a fundamental paradox in the American character, the struggle between progress and process. Science, with its ethic of endless progress, has long fit beautifully with America’s self image. Law, in accordance with the American ideal of giving everyone a fair say, stresses process above all else, seeking an acceptable, rather than a scientifically correct, result. This characteristic has been especially influential in light of the explosive growth of the legal community in recent years.

Exposing how the legal system both supports and restricts American science and technology, Goldberg considers the role and future of three projects—artificial intelligence, nuclear fusion, and the human genome initiative—to argue for a scientific vision that infuses research with social goals beyond the pure search for truth. Culture Clash reveals one of the most important and defining conflicts in contemporary American life.

STEVEN GOLDBERG is Professor of Law at Georgetown University Law Center. A former law clerk to Supreme Court Justice William J. Brennan, Jr., he has also served as an attorney in the Office of the General Counsel of the United States Nuclear Regulatory Commission.

NEW YORK UNIVERSITY PRESS
Washington Square
New York, NY 10003