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## BIBLIOGRAPHY

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- Adam, John A.: "The Sergeant York Gun: A Massive Misfire," *IEEE Spectrum*, February 1987, pp. 28-35.
- Adam, John A.: "Dispute over X-Ray Laser Made Public, Scientists' Criticisms Shunted," *The Institute*, IEEE, February 1988, p. 1.
- Adams, Donald D., and Walter P. Page (eds.): *Acid Deposition*, Plenum, New York, 1985.
- Ahearne, John F.: "Nuclear Power After Chernobyl," *Science*, vol. 236, 8 May 1987, pp. 673-679; discussion by E. G. Silver and J. F. Ahearne, vol. 238, 9 Oct. 1987, pp. 144-145.
- Alcorn, Paul A.: *Social Issues in Technology*, Prentice-Hall, Englewood Cliffs, New Jersey, 1986.
- Alderman, Frank E., and Robert A. Schultz: *Ethical Problems in Consulting Engineering* (unpublished manuscript). Quotations in text used with permission of the authors.
- Alger, Philip L., N. A. Christensen, and Sterling P. Olmsted: *Ethical Problems in Engineering*, Wiley, New York, 1965. Quotations used with permission of the publisher.
- Alpern, Kenneth D.: "Moral Responsibility for Engineers," *Business and Professional Ethics Journal*, vol. 2, no. 2, 1983, pp. 39-48.
- Anderson, Robert M., Robert Perrucci, Dan E. Schendel, and Leon E. Trachtman: *Divided Loyalties*, Purdue Univ. Press, West Lafayette, Indiana, 1980.
- Aristotle: *The Nicomachean Ethics*, in Richard McKeon (ed.), *The Basic Works of Aristotle*, Random House, New York, 1941.
- Arnould, Richard J., and Henry Grabowski: "Auto Safety Regulation: An Analysis of Market Failure," in *The Bell Journal of Economics*, vol. 12, no. 1, Spring 1981, pp. 27-48.

- Asbrand, Deborah: "Engineer Unions Meet with Resistance but Continue to Push for Representation," *Electronic Design News (EDN)*, vol. 80, April 18, 1985, pp. 411-414.
- Backhouse, Constance: *Sexual Harassment on the Job*, Prentice-Hall, Englewood Cliffs, New Jersey, 1981.
- Baier, Kurt, and Nicholas Rescher (eds.): *Values and the Future: The Impact of Technological Change on American Values*, Free Press, New York, 1969.
- Bailey, Martin J.: *Reducing Risks to Life: Measurement of the Benefits*, American Enterprise Institute for Public Policy Research, Washington, D.C., 1980.
- Bailyn, Lotte: *Living with Technology: Issues at Mid-Career*, MIT Press, Cambridge, Massachusetts, 1980. Quotation in text used with permission of the publisher.
- Bane, Charles A.: *The Electrical Equipment Conspiracy*, Federal Legal Publications, New York, 1973.
- Baram, Michael S.: "Regulation of Environmental Carcinogens: Why Cost-Benefit Analysis May Be Harmful to Your Health," *Technology Review*, vol. 78, July-August 1976, pp. 40-43.
- Baram, Michael S.: "Trade Secrets: What Price Loyalty?" *Harvard Business Review*, November-December, 1968; reprinted in Barry, (see below), pp. 207-216.
- Barnard, Chester I.: *The Functions of the Executive*, Harvard Univ. Press, Cambridge, Massachusetts, 1968.
- Barnett, Chris: "Blowing the Whistle on Nuclear Power: Three Leave GE," *New Engineer*, May 1976, pp. 34-42.
- Baron, Marcia: *The Moral Status of Loyalty*, Kendall/Hunt, Dubuque, Iowa, 1984.
- Barry, Vincent: *Moral Issues in Business*, 2d ed., Wadsworth, Belmont, California, 1986.
- Bartlett, Robert V.: *The Reserve Mining Controversy*, Indiana Univ. Press, Bloomington, 1980.
- Barus, Carl: "On Costs, Benefits and Malefits in Technology Assessment," *IEEE Technology and Society Magazine*, March 1982, pp. 3-9.
- Barzun, Jacques: "The Professions Under Siege," *Harpers*, vol. 257, no. 1541, October 1978, pp. 61-67.
- Baum, Robert J.: "Engineering Services," *Business and Professional Ethics Journal*, vol. 4, no. 3-4, 1985, pp. 117-135.
- Baum, Robert J.: *Ethics and Engineering Curricula*, The Hastings Center, New York, 1980.
- Baum, Robert J. (ed.): *Ethical Problems in Engineering*, 2d ed., vol. 2: Cases, Center for the Study of the Human Dimensions of Science and Technology, Rensselaer Polytechnic Institutes, Troy, New York, 1980.
- Baum, Robert J.: "The Limits of Professional Responsibility," in D. L. Babcock and C. A. Smith (eds.), *Values and the Public Works Professional*, 1980, available from the American Public Works Association, 1313 E. 60th St., Chicago, Illinois 60637; reprinted in Albert Flores (ed.), *Ethical Problems in Engineering* (see below).
- Bayles, Michael D.: *Professional Ethics*, Wadsworth, Belmont, California, 1981.
- Bazelon, David L.: "Risk and Responsibility," *Science*, vol. 205, July 20, 1979, pp. 277-280. Quotation used with permission of the author.
- Beauchamp, Tom L., and Norman E. Bowie (eds.): *Ethical Theory and Business*, 2d ed., Prentice-Hall, Englewood Cliffs, New Jersey, 1983.

- Beauchamp, Tom L.: "The Justification of Reverse Discrimination in Hiring," in *ibid.*, pp. 625-635.
- Beck, Melinda, et al.: "Could It Happen in America?" *Newsweek*, 17 Dec. 1984, pp. 38-44.
- Bell, Trudy E.: "Wind Shear Cited as Likely Factor in Shuttle Disaster," *The Institute (IEEE)*, vol. 11, May 1987, p. 1. Bell, Trudy E., and Karl Esch: "The Fatal Flaw in Flight 51-L," *IEEE Spectrum*, February 1987, pp. 36-51.
- Benn, Stanley I.: "Privacy, Freedom, and Respect for Persons," in J. Roland Pennock and John W. Chapman (eds.), *Nomos XIII*, Atherton, New York, 1971, pp. 1-26.
- Bignell, Victor, and Joyce Fortune: *Understanding Systems Failures*, Manchester Univ. Press, Dover, New Hampshire, 1984.
- Binswanger, Hans Christoph: *Geld und Magie*, Edition Weibrecht, Stuttgart, 1985.
- Blackstone, William T.: "Ethics and Ecology," in William T. Blackstone (ed.), *Philosophy and the Environmental Crisis*, Univ. of Georgia Press, Athens, 1974.
- Blackstone, William T.: "On Rights and Responsibilities Pertaining to Toxic Substances and Trade Secrecy," *The Southern Journal of Philosophy*, vol. 16, 1978, pp. 589-603.
- Blades, Lawrence E.: "Employment at Will vs. Individual Freedom: On Limiting the Abusive Exercise of Employer Power," *Columbia Law Review*, vol. 67, 1967, pp. 1404-1435.
- Blumberg, Phillip I.: "Corporate Responsibility and the Employee's Duty of Loyalty and Obedience: A Preliminary Inquiry," *Oklahoma Law Review*, vol. 24, August 1971, pp. 279-318. Condensed version printed in Beauchamp and Bowie, *op. cit.*, pp. 132-138.
- Boffey, Philip M.: "Teton Dam Verdict: Foul-up by the Engineers," *Science*, vol. 195, 21 Jan. 1977, pp. 270-272.
- Boisjoly, Roger M.: Speech on shuttle disaster delivered to MIT students, 7 Jan. 1987. Printed in *Books and Religion*, Duke University, vol. 15, March-April, 1987, p. 3.
- Bok, Sissela: "Whistleblowing and Professional Responsibilities," in Daniel Callahan and Sissela Bok (eds.), *Ethics Teaching in Higher Education*, Plenum, New York, 1980, pp. 277-295.
- Bordewich, Fergus M.: "The Lessons of Bhopal," *Atlantic Monthly*, March 1987, pp. 30-33.
- Borgmann, Albert: *Technology and the Character of Contemporary Life: A Philosophical Inquiry*, Univ. of Chicago Press, Chicago, 1984.
- Borrelli, Peter, Mahlon Easterling, Burton H. Klein, Lester Lees, Guy Pauker, and Robert Poppe: *People, Power and Pollution: Environmental and Public Interest Aspects of Electric Power Plant Siting*, Environmental Quality Lab, California Institute of Technology, Pasadena, 1971.
- Boulle, Pierre: *The Bridge Over the River Kwai*, trans. Xan Fielding, Vanguard, New York, 1954.
- Bowie, Norman: *Business Ethics*, Prentice-Hall, Englewood Cliffs, New Jersey, 1982.
- Brandt, Richard B.: *A Theory of the Good and the Right*, Clarendon, Oxford, England, 1979.
- Brodeur, Paul: *Outrageous Misconduct: The Asbestos Industry on Trial*, Pantheon, New York, 1985.
- Brummer, James: "Love Canal and the Ethics of Environmental Health," *Business and Professional Ethics Journal*, vol. 2, no. 4, 1983, pp. 1-22.

- Buehler, John P.: "Allocation of Risks and Resolution of Disputes Under the Contract and Beyond the Contract," in *Exploratory Study on Responsibility, Liability, and Accountability for Risks in Construction*, National Research Council, National Academy of Sciences, Washington, D.C., 1978, pp. 91-100.
- Burdick, Eugene, and Harvey Wheeler: *Fail-Safe*, Dell, New York, 1962.
- Burke, John G.: "Bursting Boilers and the Federal Power," in M. Kranzberg and W. H. Davenport (eds.), *Technology and Culture*, Schocken, New York, pp. 93-118.
- Burton, John F.: "Public Sector Strikes," in Richard T. De George and Joseph A. Pichler (eds.), *Ethics, Free Enterprise and Public Policy*, Oxford, New York, 1978, pp. 127-154.
- Callaghan, Dennis W., and Arthur Elkins (eds.): *A Managerial Odyssey: Problems in Business and Its Environment*, 2d ed., Addison-Wesley, Reading, Massachusetts, 1978.
- Camenisch, Paul F.: *Grounding Professional Ethics in a Pluralistic Society*, Haven, New York, 1983.
- Camps, Frank: "Warning an Auto Company about an Unsafe Design," in Alan F. Westin, *Whistle-Blowing!* (see below), pp. 119-129.
- Carter, Charles M.: "Trade Secrets and the Technical Man," *IEEE Spectrum*, vol. 6, no. 2, February 1969, pp. 51-55.
- Cavell, Stanley: *The Claim of Reason*, Oxford Univ. Press, New York, 1979, p. 269.
- Chalk, Rosemary, Mark S. Frankel, and Sallie B. Chafer (eds.): *AAA5 Professional Ethics Project: Professional Ethics Activities in the Scientific and Engineering Societies*, American Association for the Advancement of Science, Washington, D.C., 1980.
- Cherrington, David J.: *The Work Ethic*, AMACOM, New York, 1980.
- Cogan, Morris L.: "The Problem of Defining a Profession," *Annals of the American Academy of Political Science*, vol. 297, 1955, pp. 105-111.
- Cohen, Carl: "Why Racial Preference is Illegal and Immoral," in Burton M. Leiser (ed.), *Values in Conflict*, Macmillan, New York, 1981, pp. 373-395.
- Cohen, Richard M., and Jules Witcover: *A Heartbeat Away: The Investigation and Resignation of Vice President Spiro T. Agnew*, Viking, New York, 1974.
- Collins, Randall: *The Credential Society*, Academic, New York, 1979.
- Comments from Professional Engineers: National Registration, *The American Engineer*, July 1964, pp. 25-30.
- Comparato, Frank E.: *Age of Great Guns*, Stackpole, Harrisburg, Pennsylvania, 1965.
- Conference on Engineering Ethics*, American Society of Civil Engineers, New York, 1975.
- Congressional Record*: "Nuclear Regulatory Commission's Safety and Licensing Procedures," U.S. Senate Committee on Government Operations, 13 Dec. 1976. Printed in Baum, *Ethical Problems in Engineering*, op. cit., pp. 92-102.
- Cooper, B. S., and D. P. Rice: "The Economic Cost of Illness Revisited," *Social Security Bulletin*, vol. 39, February 1976, pp. 21-36.
- Council for Science and Society: *The Acceptability of Risks*, Barry Rose, Ringwood, Hants, England, 1977.
- Cousins, Norman: *The Pathology of Power*, W. W. Norton, New York, 1987.
- Cullen, F. T., W. J. Maakestad, and G. Cavender: *Corporate Crime Under Attack: The Ford Pinto Case and Beyond*, Criminal Justice Studies, Anderson, Cincinnati, Ohio, 1987.
- Culver, Charles M. and Bernard Gerd: "Valid Consent," in Charles M. Culver and Bernard Gerd (eds.), *Conceptual and Ethical Problems in Medicine and Psychiatry*, Oxford University Press, New York, 1982.

Curd, Martin, and Larry May: *Professional Responsibility for Harmful Actions*, Kendall/Hunt, Dubuque, Iowa, 1984.

Davie, Michael: *The Titanic*, The Bodley Head, London, 1986.

Davies, Sandra L.: "Does Sex Make a Difference in Engineering Careers?" *Professional Engineer*, vol. 51, March 1981, pp. 30-32.

Da Vinci, Leonardo: *The Notebooks of Leonardo Da Vinci*, vol. 1, Edward MacCurdy (ed.), George Braziller, New York, 1939.

Davis, Ruth M.: "Preventative Technology: A Cure for Specific Ills," *Science*, vol. 188, 18 Apr. 1975. Quotation in text used with permission of author.

De Camp, L. Sprague: *The Ancient Engineers*, Doubleday, Garden City, New York, 1963.

De George, Richard T.: "Ethical Responsibilities of Engineers in Large Organizations: The Pinto Case," *Business and Professional Ethics Journal*, vol. 1, no. 1, Fall 1981, pp. 1-14.

De George, Richard T.: *Business Ethics*, 2d ed., Macmillan, New York, 1986.

De Havilland, Sir G., and P. B. Walker, "The Comet Failure," adapted by R. R. Whyte for *Engineering Through Trouble*, The Institution of Mechanical Engineers, London, 1975. Quotations in text used with permission of the Council of the Institution of Mechanical Engineers.

DeVine, John C.: "A Progress Report: Cleaning Up TMI," *IEEE Spectrum*, vol. 18, no. 3, March 1981, pp. 44-49.

Dilley, Dean M.: "The Anxieties of Vulnerability: Liability Protection for Engineers in the Public Sector," *Professional Engineer*, vol. 49, no. 5, May 1979, pp. 12-14.

Donaldson, Thomas: *Case Studies in Business Ethics*, Prentice-Hall, Englewood Cliffs, New Jersey, 1984.

Donaldson, Thomas: *Corporations and Morality*, Prentice-Hall, Englewood Cliffs, New Jersey, 1982.

Donaldson, Thomas, and Patricia H. Werhane (eds.): *Ethical Issues in Business*, 2d ed., Prentice-Hall, Englewood Cliffs, New Jersey, 1983.

Drucker, Peter F.: *Management*, Harper and Row, New York, 1973.

Ducasse, C. J.: *A Philosophical Scrutiny of Religion*, Ronald, New York, 1953. Quotation in text used with permission of the publisher.

Dumas, Lloyd J.: *The Overburdened Economy*, Univ. of California Press, Berkeley, California, 1986.

Durbin, Paul T. (ed.): *A Guide to the Culture of Science, Technology, and Medicine*, Free Press, New York, 1980.

Dworkin, Ronald: *Taking Rights Seriously*, Harvard Univ. Press, Cambridge, Massachusetts, 1977.

Dynes, R. R.: *Organized Behavior in Disaster*, Heath, Lexington, Massachusetts, 1970.

ENR: see Engineering News Record

Eddy, Paul, Elaine Potter, and Bruce Page: *Destination Disaster: From the Tri-Motor to the DC-10, The Risk of Flying*, Quadrangle, New York, 1976.

"Edgerton Case," Reports of the IEEE-CSIT Working Group on Ethics & Employment and the IEEE Member Conduct Committee in the matter of Virginia Edgerton's dismissal as information scientist of New York City. Reproduced in *Technology and Soci-*

- ety, no. 22, June 1978, pp. 3-10. See also *The Institute*, news supplement to *IEEE Spectrum*, June 1979, p. 6, for articles on her IEEE Award for Outstanding Public Service.
- Edwards, Mike: "Chernobyl—One Year After," *National Geographic*, vol. 171, May 1987, pp. 632-653.
- Elliston, Frederick A.: "Anonymous Whistleblowing," *Business and Professional Ethics Journal*, vol. 1, no. 2, 1982, pp. 39-58.
- Elliston, Frederick A.: "Civil Disobedience and Whistleblowing," *Journal of Business Ethics*, vol. 1, no. 1, 1982, pp. 23-28.
- Elliston, Frederick, John Keenan, Paula Lockhart, and Jane van Schaick: *Whistleblowing Research: Methodological and Moral Issues*, Praeger, New York, 1985.
- Elliston, Frederick, John Keenan, Paula Lockhart, and Jane van Schaick: *Whistleblowing: Managing Dissent at the Workplace*, Praeger, New York, 1985.
- Englebrecht, H. C., and F. C. Harighen: *Merchants of Death: A Study of the International Armament Industry*, Dodd, Mead, New York, 1934.
- ENR (Engineering News Record): "Suit Claims Faulty Bridge Steel," March 12, 1981, p. 14; see also 3.26 1981, p. 20; 4.23 1981, pp. 15-16; 11.19 1981, p. 28.
- Esch, Karl: "How NASA Prepared to Cope with Disaster," *IEEE Spectrum*, March 1986, pp. 32-36.
- Everest, Larry: *Behind the Poison Cloud: Union Carbide's Bhopal Massacre*, Banner, Chicago, 1985.
- Ewing, David W.: *Freedom Inside the Organization*, McGraw-Hill, New York, 1977. Quotation in text used with permission of author and publisher.
- Ewing, David W.: "IBM's Guidelines to Employee Privacy," *Harvard Business Review*, vol. 54, 1976, pp. 82-90.
- Ewing, David W.: "What Business Thinks about Employee Rights," *Harvard Business Review*, vol. 55, 1977; reprinted in Westin and Salisbury (see below), pp. 21-42. Quotation in text used with permission of author.
- Ezorsky, Gertrude (ed.): *Moral Rights in the Workplace*, State Univ. of New York Press, New York, 1987.
- Fairweather, Virginia: "\$80,000 in Payoffs: An Engineer Tells His Story," *Civil Engineering*, vol. 48, no.1, January 1978, pp. 54-55.
- Faulkner, Peter: "Exposing Risks of Nuclear Disaster," in Westin, *Whistle-Blowing!* (see below), pp. 39-54.
- Ferré, Frederick: *Philosophy of Technology*, Prentice-Hall, Englewood Cliffs, New Jersey, 1988.
- Firmage, D. Allan: *Modern Engineering Practice*, Garland STPM, New York, 1980.
- Fisher, John W.: *Fatigue and Fracture in Steel Bridges*, John Wiley & Sons, New York, 1984.
- Fitzgerald, A. Ernest: *The High Priests of Waste*, W. W. Norton, New York, 1972.
- Fitzgerald, Donald: "The Life and Times of Lawrence Tate," in Baum, *Ethical Problems in Engineering*, vol. 2, pp. 197-198.
- Flores, Albert, and Deborah G. Johnson: "Collective Responsibility and Professional Roles," *Ethics*, vol. 93, April 1983, pp. 537-545.
- Flores, Albert (ed.): *Designing for Safety: Engineering Ethics in Organizational Contexts*, Workshop on Engineering Ethics: Designing for Safety, Rensselaer Polytechnic Institute, Troy, New York, 1982.

- Flores, Albert: "Engineering Ethics in Organizational Contexts: A Case Study—National Aeronautics and Space Administration," in *ibid.*, pp. 41–82.
- Flores, Albert: *Ethics and Risk Management in Engineering*, Westview Press, Boulder Colorado, 1988.
- Flores, Albert (ed.): *Ethical Problems in Engineering*, 2d ed., vol. 1: *Readings*, Center for the Study of the Human Dimensions of Science and Technology, Rensselaer Polytechnic Institute, Troy, New York, 1980.
- Flores, Albert: "Engineers' Professional Rights," in *ibid.*, pp. 171–176.
- Flores, Albert (ed.): *Professional Ideals*, Wadsworth, Belmont, California, 1988.
- Florman, Samuel C.: *Blaming Technology: The Irrational Search for Scapegoats*, St. Martin's, New York, 1981.
- Florman, Samuel C.: *The Existential Pleasures of Engineering*, St. Martin's, New York, 1976.
- Florman, Samuel C.: "Moral Blueprints," *Harpers*, vol. 257, no. 1541, October 1978, pp. 30–33.
- Florman, Samuel C.: *The Civilized Engineer*, St. Martin's, New York, 1987.
- Ford, Daniel F.: *Three Mile Island: Thirty Minutes to Meltdown*, Viking, New York, 1982. Portions of this book appeared in *The New Yorker*, 6 Apr. and 13 Apr. 1981.
- Frank, Nancy: "Murder in the Workplace," in Stuart L. Hills (ed.), *Corporate Violence*, Rowman and Littlefield, Totowa, New Jersey, 1987, pp. 103–107.
- Frankena, William K.: *Ethics*, 2d ed., Prentice-Hall, Englewood Cliffs, New Jersey, 1973.
- Frankena, William K.: "The Philosophy of Vocation," *Thought*, vol. 51, December 1976, pp. 393–408.
- Frantz, Douglas: "B of A Abandons Costly Computer for Trust Clients," *Los Angeles Times*, 26 January 1988, pt. IV, pp. 1,8; see also, 7 February 1988, pt. r, pp. 6, 26–27.
- Freedman, Benjamin: "A Meta-Ethics for Professional Morality," *Ethics*, vol. 89, 1978, pp. 1–19.
- Freedman, Benjamin: "What Really Makes Professional Morality Different: Response to Martin," *Ethics*, vol. 91, 1981, pp. 626–630.
- French, Peter A.: *Collective and Corporate Responsibility*, Columbia Univ. Press, New York, 1984.
- French, Peter: "What is Hamlet to McDonnell-Douglas or McDonnell-Douglas to Hamlet: DC-10," *Business and Professional Ethics Journal*, vol. 1, no. 2, 1982, pp. 1–13.
- Fried, Charles: *An Anatomy of Values*, Harvard Univ. Press, Cambridge, Massachusetts, 1970.
- Friedlander, Gordon: "Bigger Bugs in BART?" *IEEE Spectrum*, vol. 10, no. 3, March 1973, pp. 32–37.
- Friedlander, Gordon: "A Prescription for BART," *IEEE Spectrum*, vol. 10, no. 4, April 1973, pp. 40–44.
- Friedlander, Gordon: "Nuclear Power Plant Safety," *IEEE Spectrum*, vol. 13, no. 5, May 1976, pp. 70–75.
- Friedman, Milton: *Capitalism and Freedom*, Univ. of Chicago Press, Chicago, 1962.
- Friedman, Milton: "The Social Responsibility of Business Is to Increase Its Profits," *New York Times Magazine*, 13 Sept. 1970. Reprinted in Donaldson and Werhane, *op. cit.*, pp. 239–244.
- Fruchtbaum, Harold: "Engineers and the Commonwealth: Notes Toward a Reformation," in Flores, *Ethical Problems in Engineering*, vol. 1, pp. 257–259.
- Guller, John Grant: *The Gentlemen Conspirators*, Grove, New York, 1962.

- Galbraith, John Kenneth: *The New Industrial State*, revised 2d ed., New American Library, New York, 1971.
- Gansler, J.: *The Defense Industry*, MIT Press, Cambridge, Massachusetts, 1980.
- Garrett, Thomas M., et al.: *Cases in Business Ethics*, Appleton Century Crofts, New York, 1968.
- Geis, Gilbert: "The Heavy Electrical Equipment Antitrust Cases of 1961," in Gilbert Geis and Robert F. Meier (eds.), *White-Collar Crime: Offenses in Business, Politics, and the Professions*, revised ed., Free Press, New York, 1977, pp. 117-132.
- Gini, A. R.: "Diablo Canyon: Nuclear Energy and the Public Welfare," in Thomas Donaldson (ed.), *Case Studies in Business Ethics*, Prentice-Hall, Englewood Cliffs, New Jersey, 1983, pp. 51-59.
- Godson, John: *The Rise and Fall of the DC-10*, David McKay, New York, 1975.
- Golding, William: *The Spire*, Harcourt, Brace & World, New York, 1964.
- Goldman, Alan H.: *Justice and Reverse Discrimination*, Princeton Univ. Press, Princeton, New Jersey, 1979.
- Goldman, Alan H.: *The Moral Foundations of Professional Ethics*, Rowman and Littlefield, Totowa, New Jersey, 1980.
- Graham, F., Jr.: *Since Silent Spring*, Houghton Mifflin, Boston, 1970.
- Gray, Mike, and Ira Rosen: *The Warning: Accident at Three Mile Island*, W. W. Norton, New York, 1982.
- Greene, Crawford, Jr.: "The Case Against Fee Competition," *Consulting Engineer*, vol. 52, January 1979.
- Greene, Graham: *A Burnt-Out Case*, Penguin, New York, 1977.
- Grossman, Karl: "Red Tape and Radioactivity," *Common Cause*, July-August, 1986, pp. 24-27.
- Grundy, Richard, Hanno C. Weisbrod, and Samuel S. Epstein: "Toxic Substances," chap. 3 in *Consumer Health and Product Hazards—Chemicals, Electronic Products, Radiation*, vol. I of S. S. Epstein and R. D. Grundy (eds.), *The Legislation of Product Safety*, MIT Press, Cambridge, Massachusetts, 1974, pp. 102-169.
- Gubaryev, Vladimir: *Sarcophagus, a Tragedy*, trans. Michael Glenny, Vintage, New York, 1987.
- Gueron, Henri M.: "Nuclear Power: A Time for Common Sense," *IEEE Technology and Society Magazine*, vol. 3, March 1984, pp. 3-9, 15-18.
- Gunn, Alastair, and P. Aarne Vesilind (eds.): *Environmental Ethics for Engineers*, Lewis, Chelsea, Michigan, 1986.
- Halamka, John D.: *Espionage in the Silicon Valley*, Sybex, Berkeley, California, 1984.
- Hammer, W.: *Product Safety Management and Engineering*, Prentice-Hall, Englewood Cliffs, New Jersey, 1980. Diagrams adapted with permission of the publisher.
- Hammurabi: *The Code of Hammurabi*, trans. R. F. Harper, Univ. of Chicago Press, Chicago, 1904, pp. 80-83.
- Hardin, Garrett: *Exploring New Ethics for Survival*, Viking, New York, 1968.
- Harding, C. Francis, and Donald T. Canfield: *Legal and Ethical Phases of Engineering*, McGraw-Hill, New York, 1936.
- Harris, Robert C., Christoph Hohenemser, and Robert W. Kates: "The Burden of Technological Hazards," in G. T. Goodman and W. D. Rowe (eds.), *Energy Risk Management*, Academic, New York, 1979.



Hart, H. L. A.: *Punishment and Responsibility*, Clarendon, Oxford, England, 1973.

Haugen, Edward B.: *Probabilistic Approaches to Design*, Wiley, New York, 1968.

Hawkes, Nigel, Geoffrey Lean, David Leigh, Robin McKie, Peter Pringle, and Andrew Wilson: *Chernobyl—The End of the Nuclear Dream*, Vintage, New York, 1986.

Haydon, Graham: "On Being Responsible," *The Philosophical Quarterly*, vol. 28, 1978, pp. 46-57.

Hayward, David: "Lone Engineer Awaits Verdict on Florida Condominium Collapse," *New Civil Engineer International*, May 1981, pp. 36-40.

Hehir, J. Bryan: "The Relationship of Moral and Strategic Arguments in the Defense Debate," in Paul T. Durbin (ed.), *Research in Philosophy and Technology*, vol. 3, JAI Press, Greenwich, Connecticut, 1980, pp. 367-383.

Heilbroner, Robert L., et al.: *In the Name of Profit*, Doubleday, Garden City, New York, 1972.

Heller, Peter B.: *Technology Transfer and Human Values*, University Press of America, New York, 1985.

Herling, John: *The Great Price Conspiracy*, Robert B. Luce, Washington, D.C., 1962.

Higham, Robert: *The British Rigid Airship*, G. T. Foulis, London, 1961.

Hills, Stuart L. (ed.): *Corporate Violence*, Rowman and Littlefield, Totowa, New Jersey, 1987.

Hiltzig, Michael A.: "Case Gives Rare Glimpse of Silicon Valley Intrigue," *Los Angeles Times*, part I, p. 1, 22 March 1982.

Hoover, Herbert: "The Profession of Engineering," *The Memoirs of Herbert Hoover*, vol. 1, Macmillan, New York, 1961, pp. 131-134. Quotation in text used with permission of the Hoover Foundation.

Houston, Carl W.: "Experiences of a Responsible Engineer," *Conference on Engineering Ethics*, American Society of Civil Engineers, New York, 1975, pp. 25-30.

Howard, Robert T.: "A Bill of Professional Rights for Employed Engineers?" *The American Engineer*, vol. 36, no. 10, October 1966, pp. 47-50.

Hughson, Roy V., and Philip M. Kohn: "Ethics," *Chemical Engineering*, vol. 87, no. 19, 22 Sept. 1980, pp. 132-147. Quotations in text used with permission of McGraw-Hill Book Co.

Ibsen, Henrik: *The Master Builder and Other Plays*, trans. Una Ellis-Fermor, Penguin, New York, 1973.

Ihara, Craig K.: "Collegiality as a Professional Virtue," in Albert Flores (ed.), *Professional Ideals*, Wadsworth, Belmont, California, 1988, pp. 56-65.

Iijima Nobuko: *Pollution Japan*, Pergamon, New York, 1979.

Inhaber, H.: "Risk with Energy from Conventional and Nonconventional Sources," *Science*, vol., 23 Feb. 1979, pp. 718-723.

Inhaber, H.: *Energy Risk Assessment*, Gordon and Breach, New York, 1982.

James, Gene G.: "In Defense of Whistle Blowing," in W. Michael Hoffman and Jennifer Mills Moore (eds.), *Business Ethics*, McGraw-Hill, New York, 1984, pp. 249-260.

James, Gene G.: "Whistle Blowing: Its Nature and Justification," *Philosophy in Context*, vol. 10, 1980, pp. 99-117.

- Jansen, Robert B.: *Dams and Public Safety*, Water and Power Resources Service, U.S. Department of the Interior, Denver, 1980.
- Jenkins, A. H.: *Adam Smith Today*, Kennikat, Port Washington, New York, 1948.
- Johnson, Deborah G.: *Computer Ethics*, Prentice-Hall, Englewood Cliffs, New Jersey, 1985.
- Johnson, Deborah G., and John W. Snapper (eds.): *Ethical Issues in the Use of Computers*, Wadsworth, Belmont, California, 1985.
- Jonas, Hans: *The Imperative of Responsibility: In Search of an Ethics for the Technological Age*, Univ. of Chicago Press, Chicago, 1984.
- Jones, Russel C., et al. (eds.): *Ethics, Professionalism and Maintaining Competence*, American Society of Civil Engineers, New York, 1977.
- Jung, C. G.: *Psychologie und Alchemie*, Zurich, 1946.
- Kahn, Herman, William Brown, and Leon Martel: *The Next 200 Years*, Morrow, New York, 1976.
- Kahn, Shulamit: "Economic Estimates of the Value of Life," *IEEE Technology and Society Magazine*, June 1986, pp. 24-29; reprinted in Flores, op. cit. (1988).
- Kant, Immanuel: *Foundations of the Metaphysics of Morals, with Critical Essays*, Robert Paul Wolff (ed.), Bobbs-Merrill, Indianapolis, Indiana, 1969.
- Kaplan, Gadi, and Ronald K. Jurgen: "Nuclear Power Plant Safety—1," *IEEE Spectrum*, vol. 13, no. 5, May 1976, pp. 52-69.
- Kardos, Geza: *Heron Road Bridge*, Parts A-B-C-D, Engineering Case Library, ECL 133, Stanford Univ., Stanford, California, 1969.
- Kates, Robert W. (ed.): *Managing Technological Hazards: Research Needs and Opportunities*, Institute of Behavioral Science, Univ. of Colorado, Boulder, 1977.
- Kavalier, Lucy: *Freezing Point, Cold as a Matter of Life and Death*, John Day, New York, 1970.
- Kavka, Gregory S.: "Nuclear Deterrence: Some Moral Perplexities," in *The Security Gamble*, Douglas Maclean (ed.), 1984; reprinted in Sterba (see below):
- Keisling, Bill: *Three Mile Island: Turning Point*, Veritas, Seattle, Washington, 1980.
- Kelly, Arthur L.: "Italian Tax Mores," in Donaldson and Werhane, op. cit., pp. 37-39.
- Kemeny Commission Report: *Report of the President's Commission on the Accident at Three Mile Island*, Pergamon Press, New York, 1979.
- Kemper, John Dustin: *Engineers and their Profession*, 3d ed., Holt, Reinhart and Winston, New York, 1982.
- Kennan, George F.: "A New Way to Go," Albert Einstein Peace Prize Address, 1981; reprinted in *Fellowship*, vol. 47, September 1981, pp. 6-8.
- Kettler, G. J.: "Against the Industry Exemption," in James H. Schaub and Karl Pavlovic (eds.), *Engineering Professionalism and Ethics*, Wiley, New York, 1983, pp. 531-534.
- Kidder, Tracy: *The Soul of a New Machine*, Avon, New York, 1981.
- Kipnis, Kenneth: "Engineers Who Kill: Professional Ethics and the Paramountcy of Public Safety," *Business and Professional Ethics Journal*, vol. 1, no. 1, 1981, pp. 77-91.
- Klein, Heywood, and Hal Lancaster: "Major Flaws Persist in Big Buildings, Often Due to Pressure to Cut Costs," *Wall Street Journal*, 12 Feb. 1982.
- Kleingartner, Archie: "Professionalism and Engineering Unionism," *Industrial Relations*, vol. 8, May 1969, pp. 224-235.

- Kling, Rob: "Computer Abuse and Computer Crime as Organizational Activities," *Computer/Law Journal*, vol. II, Spring 1980, pp. 403-427.
- Kling, Rob: *Social Issues and Impacts of Computing*, Univ. of California Press, Irvine, 1979.
- Kohlberg, Lawrence: *The Philosophy of Moral Development*, vol. 1, Harper and Row, New York, 1971.
- Kohn, Philip M., and Roy V. Hughson: "Perplexing Problems in Engineering Ethics," *Chemical Engineering*, vol. 87, no. 9, 5 May 1980, pp. 100-107. Quotations in text used with permission of McGraw-Hill Book Co.
- Kotchian, A. Earl: "The Payoff: Lockheed's 70-day Mission to Tokyo," *Saturday Review*, 9 July 1977; reprinted in Donaldson and Werhane, op. cit., pp. 25-33.
- Lachs, John: "'I Only Work Here': Mediation and Irresponsibility," in Richard T. De George and Joseph A. Pichler (eds.), *Ethics, Free Enterprise, and Public Policy*, Oxford, New York, 1978, pp. 201-213.
- Ladd, John: "Loyalty," in Paul Edwards (ed.), *The Encyclopedia of Philosophy*, vol. 5, Macmillan, New York, 1967, pp. 97-98.
- Ladd, John: "The Quest for a Code of Professional Ethics," in Chalk, Frankel, and Chafer, op. cit., pp. 154-159.
- Ladenson, Robert F., J. Choromokos, E. d'Anjou, M. Pimsler, and H. Rosen: *A Selected Annotated Bibliography of Professional Ethics and Social Responsibility in Engineering*, Center for the Study of Ethics in the Professions, Illinois Institute of Technology, Chicago, 1980.
- Ladenson, Robert F.: "Freedom of Expression in the Corporate Workplace: A Philosophical Inquiry," in Wade L. Robison, Michael S. Pritchard, and Joseph Ellin (eds.), *Profits and Professions*, Humana Clifton, New Jersey, 1983, pp. 275-286.
- Ladenson, Robert F.: "The Social Responsibility of Engineers and Scientists: A Philosophical Approach," in D. L. Babcock and C. A. Smith (eds.), *Values and the Public Works Professional*, Univ. of Missouri-Rolla, 1980, available from the American Public Works Association, 1313 E. 60 St., Chicago, Illinois 60637.
- Larmer, Brook: "Evacuation Plans Stymie A-Plant Builders," *Christian Science Monitor*, 2 Oct. 1986, p. 3.
- Latta, Geoffrey W.: "Union Organization Among Engineers: A Current Assessment," *Industrial and Labor Relations Review*, vol. 35, no. 11, October 1981, pp. 29-42.
- Laurendeau, Normand M.: "Engineering Professionalism: The Case for Corporate Ombudsmen," *Business and Professional Ethics Journal*, vol. 2, no. 1, 1982, pp. 35-45.
- Lawless, Edward W.: *Technology and Social Shock*, Rutgers Univ. Press, New Brunswick, New Jersey, 1977.
- Layton, Edwin T.: "Engineering Ethics and the Public Interest: A Historical View," in Flores, *Ethical Problems in Engineering*, vol. 1, pp. 26-29.
- Layton, Edwin T.: "Engineering Needs a Loyal Opposition," *Business and Professional Ethics Journal*, vol. 2, no. 3, 1983, pp. 51-59.
- Layton, Edwin T.: *The Revolt of the Engineers*, Case Western Reserve Univ. Press, Cleveland, Ohio, 1971.
- Leiser, Burton M.: "Truth in the Marketplace: Advertisers, Salesmen, and Swindlers," in Burton M. Leiser (ed.), *Liberty, Justice, and Morals*, 2d ed., Macmillan, New York, 1979, pp. 262-297.

- Leopold, Aldo: *A Sand County Almanac*, Oxford, New York, 1966.
- Lide, D. R.: "Critical Data for Critical Needs," *Science*, vol. 212, 19 June 1969, pp. 1343-1349. Figure in text reproduced with permission of author and *Science*. The original appeared in C. Y. Ho, R. W. Powell, and P. E. Liley, *J. Phys. Chem. Ref. Data* 3 (Suppl. 1), 1974.
- Lockhart, T. W.: "Safety Engineering and the Value of Life," *Technology and Society* (IEEE), vol. 9, March 1981, pp. 3-5. Quotation in text used with permission of the author.
- Logsdon, John M.: "The Space Shuttle Program: A Policy Failure?" *Science*, vol. 232, 30 May 1986, pp. 1099-1105.
- Logsdon, Tom: *Computers and Social Controversy*, Computer Science Press, Potomac, 1980.
- Lombardo, Thomas G.: "TMI: An Insider's Viewpoint," *IEEE Spectrum*, vol. 17, no. 5, May 1980, pp. 52-55.
- Lord, Walter: *A Night to Remember*, illustrated edition, Holt, New York, 1976.
- Lowrance, William W.: *Of Acceptable Risk*, William Kaufmann, Los Altos, California 1976.
- Luegenbiehl, Heinz C.: "Codes of Ethics and the Moral Education of Engineers," *Business and Professional Ethics Journal*, vol. 2, no. 4, 1983, pp. 41-61.
- Maccoby, Michael: *The Gamesman*, Bantam, New York, 1978.
- MacDonald, John D.: *Condominium*, Fawcett, New York, 1977.
- Machol, Robert E.: "Principles of Operations Research, 10: The Titanic Coincidence," in *Interfaces* (TIMS/ORSA), vol. 5, no. 3, May 1975, pp. 53-54.
- MacIntyre, Alasdair: *After Virtue*, 2d ed., Univ. of Notre Dame Press, Notre Dame, Indiana, 1984.
- MacIntyre, Alasdair: "Regulation: A Substitute for Morality," *Hastings Center Report*, February 1980, pp. 31-41.
- MacKenzie, James J.: "Nuclear Power: A Skeptic's View," *IEEE Technology and Society Magazine*, vol. 3, March 1984, pp. 9-15, 18-21.
- MacKinnon, Catherine A.: *Sexual Harassment of Working Women*, Yale Univ. Press, New Haven, Connecticut, 1978.
- MacLean, Douglas (ed.): *Values at Risk*, Rowman & Allanheld, 1986.
- Manchester, William: *The Arms of Krupp, 1587-1968*, Bantam, New York, 1970. Quotations in text used with permission of the publisher.
- Maner, Walter: "The Management of Information in Political Campaigns," *Computers and Society*, vol. 11, 1980, pp. 2-9.
- Manley, T. Roger, and Charles W. McNichols: "Scientists, Engineers, and Unions Revisited," *Monthly Labor Review*, vol. 100, no. 11, November 1979, pp. 32-33.
- Mantell, Murray I.: *Ethics and Professionalism in Engineering*, Macmillan, New York, 1964.
- Margolis, Joseph: "Conflict of Interest and Conflicting Interests," in Beauchamp and Bowie (eds.), *Ethical Theory and Business*, 1st ed., Prentice-Hall, Englewood Cliffs, New Jersey, 1979, pp. 361-372.
- Marples, David R.: *Chernobyl and Nuclear Power in the USSR*, MacMillan Press, London, 1986.
- Marshall, Eliot: "Deadlock Over Explosive Dust," *Science*, vol. 222, 4 Nov. 1983, pp. 485-487; discussion p. 1183.

- Marshall, Eliot: "Feynman Issues His Own Shuttle Report, Attacking NASA Risk Estimates," *Science*, vol. 232, 27 June 1986, p. 1596.
- Marshall, Eliot: "Lightning Strikes Twice at NASA," *Science*, vol. 236, 22 May 1987, p. 903.
- Marshall, Eliot: "The Scourge of Computer Viruses," *Science* vol. 240, 8 April 1988, pp. 133-134.
- Martin, Daniel: *Three Mile Island: Prologue or Epilogue?*, Ballinger, Cambridge, Massachusetts, 1980.
- Martin, Mike W.: "Professional Autonomy and Employers' Authority," in Flores, *Ethical Problems in Engineering*, vol. 1, pp. 177-181.
- Martin, Mike W.: "Rights and the Meta-Ethics of Professional Morality" and "Professional and Ordinary Morality: A Reply to Freedman," *Ethics*, vol. 91, July 1981, pp. 619-625 and 631-633.
- Martin, Mike W.: "Rights of Conscience Inside the Technological Corporation," in Otto Neumaier (ed.), *Wissen und Gewissen, Conceptus-Studien 4*, VWGO Wien, 1986, pp. 179-193.
- Martin, Mike W.: *Self-Deception and Morality*, University Press of Kansas, Lawrence, Kansas, 1986.
- Martin, Mike W.: "Why Should Engineering Ethics Be Taught?" *Engineering Education*, vol. 71, no. 4, January 1981, pp. 275-278. Some material from this essay is adapted in Chap. 1 of this text and used with permission of the American Society of Engineering Education.
- Marx, Karl: *Economic and Philosophical Manuscripts*, trans. T. B. Bottomore, in Erich Fromm, *Marx's Concept of Man*, Frederick Ungar, New York, 1966.
- Marx, Wesley: *Acts of God, Acts of Man*, Coward, McCann & Geoghegan, New York, 1977. Quotation in text used with permission of the author.
- Mason, John F.: "The Technical Blow-By-Blow: An Account of the Three Mile Island Accident," *IEEE Spectrum*, vol. 16, no. 11, November 1979, pp. 33-42.
- Matley, Jay, Richard Greene, and Celeste McCauley: "Health, Safety and Environment," *Chemical Engineering*, 28 Sept. 1987, pp. 108-120.
- Matousak, Miroslav: *Outcome of a Survey of 800 Construction Failures*, Swiss Federal Institute of Technology, Zurich, 1977.
- Mayer, Charles: "Appeals Court Bars Sex Bias by U.S. Firms to Please Foreign Customers," *Los Angeles Times*, Part IV, p. 2, 20 Aug. 1981.
- Mayers, Teena K.: *Understanding Nuclear Weapons and Arms Control, a Guide to The Issues*, Pergamon-Brassey's, Washington, D.C., 1986.
- Mazuzan, George T.: "'Very Risky Business': A Power Reactor for New York City," *Technology and Culture*, vol. 27, April 1986, pp. 262-284.
- McConnell, Malcolm: *Challenger, a Major Malfunction*, Doubleday, Garden City, New York, 1987.
- McGregor, Douglas: *The Human Side of Enterprise*, McGraw-Hill, New York, 1960.
- McIntyre, Louis V., and Marion Bayard McIntyre: *Scientists and Engineers: The Professionals Who Are Not*, Arcola Communications, Lafayette, 1971.
- McKaig, Thomas K.: *Building Failures: Case Studies in Construction and Design*, McGraw-Hill, New York, 1962.
- McQuade, Walter: "Why All Those Buildings Are Collapsing," *Fortune*, 19 Nov. 1979, pp. 58-66.
- Meese, George, P.E.: "The Sealed Beam Case: Engineering in the Public and Private Interest," *Business and Professional Ethics Journal*, vol. 1, no. 3, 1982, pp. 1-20.

- Meisler, Stanley: "Glory in Uselessness. The Eiffel Tower: Joke's on Its Critics," *Los Angeles Times*, 28 Apr. 1987.
- Melden, A. I., *Ethical Theories: A Book of Readings*, 2d ed., Prentice-Hall, Englewood Cliffs, New Jersey, 1967.
- Melden, A. I.: *Rights and Persons*, Univ. of California Press, Berkeley, 1977.
- Melman, Seymour: "A Note on: Safety Improvements as a Zero Defect Problem," in Flores, *Designing for Safety: Engineering Ethics in Organizational Contexts*, pp. 173-176.
- Melman, Seymour: *Pentagon Capitalism*, McGraw-Hill, New York, 1970.
- Meyer, Henry Cord: "Politics, Personality, and Technology: Airships in the Manipulations of Dr. Hugo Eckener and Lord Thomson, 1919-1930," *Aerospace Historian*, September 1981, pp. 165-172.
- Milgram, Stanley: *Obedience to Authority*, Harper and Row, New York, 1974.
- Mill, John Stuart: *Utilitarianism, with Critical Essays*, Samuel Gorovitz (ed.), Bobbs-Merrill, Indianapolis, Indiana, 1971.
- Mironi, Mordechai: "The Confidentiality of Personnel Records," *Labor Law Journal*, vol. 25, May 1974, pp. 270-292.
- Mitcham, Carl, and Alois Huning: *Philosophy and Technology II*, D. Reidel, Norwell, Massachusetts, 1986.
- Moeller, Calvin E.: "Challenger Catastrophe," *Los Angeles Times*, Letters to the Editor, 11 March 1986.
- Mogavero, Louis N., and Robert S. Shane: *What Every Engineer Should Know about Technology Transfer and Innovation*, Marcel Dekker, New York, 1982.
- Moll, Richard A.: "Product Liability: A Look at the Law," *Engineering Education*, vol. 66, no. 4, January 1976, pp. 326-331.
- Monsma, Stephen V. (ed.): *Responsible Technology, A Christian Perspective*, William B. Eerdmans, Grand Rapids, Michigan, 1986.
- Morgan, Arthur E.: *Dams and Other Disasters*, Porter Sargent, Boston, 1971.
- Morris, Joe Alex, Jr.: "Computer Age Has Yet to Dawn in Bonn," *Los Angeles Times*, Part I, p. 23, 15 June 1971.
- Morrison, Carson, and Philip Hughes: *Professional Engineering Practice, Ethical Aspects*, 2d ed. McGraw-Hill Ryerson, Toronto, Canada, 1988.
- Morrison, Robert, and Richard M. Vosburgh: *Career Development for Engineers and Scientists: Organizational Programs and Individual Choices*, Van Nostrand Reinhold, New York, 1987.
- Moss, Thomas H., and David L. Sills, eds., *The Three Mile Island Nuclear Accident: Lessons and Implications*, Annals of the New York Academy of Sciences, vol. 365, New York, 1981.
- Mostert, Noel: *Supership*, Alfred A. Knopf, New York, 1974.
- Muir, John: *To Yosemite and Beyond*, R. Engberg and Donald Wesling (eds.), Univ. of Wisconsin Press, Madison, 1980.
- Mullan, Fitzhugh: "Their Lives on the Line," a review of *Who Goes First? The Story of Self Experimentation in Medicine* by L. K. Altman (Random House, 1987), in the *New York Times Book Review*, 28 June 1987, p. 9.
- Murdoch, William W. (ed.): *Environment*, Sinauer Associates, Sunderland, Massachusetts, 2d ed., 1975.
- Nader, Ralph: "Responsibility and the Professional Society," *Professional Engineer*, vol. 41, May 1971, pp. 14-17.

- Nader, Ralph, Peter J. Petkas, and Kate Blackwell: *Whistle Blowing*, Grossman, New York, 1972.
- National Research Council: *Acid Deposition, Long-Term Effects*, National Academy of Sciences, Washington, D.C., 1986. Diagram in text used with permission of National Academy Press.
- National Research Council: *Exploratory Study on Responsibility, Liability, and Accountability for Risks in Construction*, National Academy of Sciences, Washington, D.C., 1978.
- Nelson, Carl, and Susan Peterson: "Are Cost-Benefit Analyses Immoral?" *ASEE/IEEE Frontiers in Education 1981 Conference Proceedings*, American Society for Engineering Education, Washington, D.C., and the Institute of Electrical and Electronics Engineers, New York, 1981.
- Newhouse, John: *The Sporty Game*, Alfred A. Knopf, New York, 1982. An earlier version appeared in *The New Yorker* magazines of June 14, 21, and 28, and July 5, 1982, as "The Aircraft Industry."
- Nielsen, Kai: "Alienation and Work," in Gertrude Exorsky (ed.), *Moral Rights in the Workplace*, State Univ. of New York Press, Albany, New York, 1987, pp. 28-34.
- Nixon, F., N. E. Frost, and K. J. March: "Choosing a Factor of Safety," adapted by R. R. Whyte (ed.) for *Engineering Progress Through Trouble* (see below), pp. 136-139. Quotations in text used with permission of the Council of the Institution of Mechanical Engineers.
- Noble, David: "Command Performance: A Perspective on Military Enterprise and Technological Change," Ch. 8 in *Military Enterprise and Technological Change*, ed. Merritt R. Smith, The MIT Press, Cambridge, Mass., 1985.
- Nozick, Robert: *Anarchy, State, and Utopia*, Basic Books, New York, 1974.
- NSPE *Opinions of the Board of Ethical Review*, National Society of Professional Engineers, Washington, D.C. Cases are published in the *Professional Engineer* and periodically republished in bound volumes. Quotations in the text are used with permission of NSPE.
- Oldenquist, Andrew G.: *Moral Philosophy, Text and Readings*, 2d ed., Houghton Mifflin, Boston, 1978.
- Oldenquist, Andrew G., and Edward E. Slowter: "Proposed: A Single Code of Ethics for All Engineers," *Professional Engineer*, vol. 49, May 1979, pp. 8-11.
- O'Neill, Brian, and A. B. Kelley: "Costs, Benefits, Effectiveness, and Safety: Setting the Record Straight," *Professional Safety*, August 1975, pp. 28-34.
- Otten, James: "Organizational Disobedience," in Flores, *Ethical Problems in Engineering*, vol. 1 pp. 182-186.
- Papanek, Victor: *Design for the Real World*, 2d ed., Van Nostrand Reinhold, New York, 1984.
- Parker, Donn B.: *Ethical Conflicts in Computer Science and Technology*, AFIPS Press, Arlington, Virginia, 1979. Case studies adapted in the text with permission of author and publisher.
- Parnas, David L.: "Ex-SDI Software Expert Clarifies His Views," letter to *The Institute*, IEEE, November 1986, p. 2.
- Perrow, Charles: *Normal Accidents: Living With High-Risk Technologies*, Basic Books, New York, 1984.

- Perrucci, Robert, and Joel E. Gerstl: *The Engineers and The Social System*, Wiley, New York, 1969.
- Perrucci, Robert, and Joel E. Gerstl: *Profession Without Community: Engineers in American Society*, Random House, New York, 1969.
- Perry, Tekla S.: "Five Ethical Dilemmas," *IEEE Spectrum*, vol. 18, no. 6, June 1981, pp. 53-60. Quotations in text used with permission of the author and the Institute of Electrical and Electronics Engineers.
- Peters, Charles, and Taylor Branch: *Blowing the Whistle*, Praeger, New York, 1972.
- Peters, Tom: *Thriving on Chaos*, Alfred A. Knopf, New York, 1987.
- Petersen, James C., and Dan Farrell: *Whistleblowing*, Kendall/Hunt, Dubuque, Iowa, 1986.
- Petroski, Henry: *To Engineer Is Human: The Role of Failure in Successful Design*, St. Martin's, New York, 1985.
- Pichler, Joseph A.: "Power, Influence and Authority," in Joseph W. McGuire (ed.), *Contemporary Management*, Prentice-Hall, Englewood Cliffs, New Jersey, 1974, pp. 400-434.
- Plato: *Euthyphro*, trans. Lane Cooper, in Edith Hamilton and Huntington Cairns (eds.), *The Collected Dialogues of Plato*, Princeton Univ. Press, Princeton, New Jersey, 1971, pp. 169-185.
- Popper, Norman N.: "Trade Secrets: How They Affect Your Job Mobility," *Chemical Engineering*, 7 Apr. 1980, pp. 101-104.
- Press, Robert M.: "Southern Florida Alarmed by Drought, Studies Handling of Water Resources," *Los Angeles Times*, Part I-C, pp. 1 and 11, December 11, 1981.
- Rabow, Gerald: "The Value of Human Lifetime—And Its Applications to Environmental and Energy Policy," *Technology and Society* (IEEE), vol. 9, March 1981, pp. 5-7.
- Rachels, James: *The Elements of Moral Philosophy*, Random House, New York, 1986.
- Ramo, Simon: *The Future Role of Engineering*, TRW Inc., Corporate Public Relations, Cleveland, 1976.
- Rand, Ayn: *The Virtue of Selfishness*, New American Library, New York, 1964.
- Randall, Adrian J.: "The Philosophy of Luddism: The Case of the West of England Woolen Workers, ca. 1790-1809," *Technology and Culture*, vol. 27, January 1986, pp. 1-17.
- Ransom, W. H.: *Building Failures: Diagnosis and Avoidance*, E. & F. N. Spon, London, 1981.
- Rasmussen, Norman C.: *Reactor Safety Study*, U.S. Atomic Energy Commission, WASH 1400, Draft of August 1974 (known as the "Rasmussen Report").
- Rausenbakh, Boris V.: "Computer War," pp. 45-52 in *Breakthrough; Emerging New Thinking*, Anatoly Gromyko and Martin Hellman (eds.) for Beyond War, Walker, New York, 1988.
- Raven-Hansen, Peter: "Dos and Don'ts for Whistleblowers: Planning for Trouble," *Technology Review*, vol. 82, May 1980, pp. 34-44.
- Rawls, John: *A Theory of Justice*, Harvard Univ. Press, Cambridge, Massachusetts, 1971.
- Reed, George L.: "Moonlighting and Professional Responsibility," *Journal of Professional Activities, Proceedings of the American Society of Civil Engineers*, vol. 96, September 1970, pp. 19-23.
- Regan, Tom: *The Case for Animal Rights*, Univ. of California Press, Berkeley, 1983.



- Regan, Tom (ed.): *Earthbound: New Introductory Essays in Environmental Ethics*, Random House, New York, 1984.
- Reich, Charles: *The Greening of America*, Random House, New York, 1970.
- Reiman, Jeffrey H.: "Privacy, Intimacy, and Personhood," in Richard A. Wasserstrom (ed.), *Today's Moral Problems*, Macmillan, New York, 1979, pp. 377-391.
- Rescher, Nicholas: *Unpopular Essays on Technological Progress*, Univ. of Pittsburgh Press, Pittsburgh, Pennsylvania, 1980.
- Riegel, J. W.: *Collective Bargaining as Viewed by Unorganized Engineers and Scientists*, Univ. of Michigan Press, Ann Arbor, 1959.
- Rivlin, Alice M.: *Systematic Thinking for Social Action*, The Brookings Institution, Washington, D.C., 1971.
- Roberts, Leslie: "Radiation Accident Grips Goiania," *Science*, vol. 238, 20 November 1987, pp. 1028-1031.
- Roberts, Verne L.: "Defensive Design," *Mechanical Engineering*, September 1984, pp. 86-93.
- Robinson, Douglas H.: *Giants in the Sky*, Univ. of Washington Press, Seattle, 1973.
- Robison, Wade L., Michael S. Pritchard, and Joseph Ellin (eds.): *Profits and Professions: Essays in Business and Professional Ethics*, Humana, Clifton, New Jersey, 1983.
- Roche, James M.: "The Competitive System, To Work, To Preserve, and To Protect," *Vital Speeches of the Day*, a periodical, vol. 37, May 1, 1971, p. 445.
- Rogers Commission Report: *Report of the Presidential Commission on the Space Shuttle Challenger Accident*, U.S. Government Printing Office, Washington, D.C., 1986.
- Rogovin, Mitchell, and George T. Frampton, Jr.: *Three Mile Island, A Report to the Commissioners and the Public*, vol. 1, Nuclear Regulatory Commission Special Inquiry Group, NUREG/CR-1250, Washington, D.C., January 1980. Diagram in text used with permission of Mitchell Rogovin.
- Rosenbaum, Walter A.: *The Politics of Environmental Concern*, 2d ed., Praeger, New York, 1977.
- Ross, W. D.: *The Right and the Good*, Oxford Univ. Press, Oxford, England, 1946.
- Ross, Steven S.: "Technical Illiteracy," *New Engineer*, March 1978, p. 6. Quotation in text used with permission of author-editor.
- Ross, Steven S.: *Construction Disasters*, McGraw-Hill, New York, 1984.
- Rowe, William D.: *An Anatomy of Risk*, Wiley, New York, 1977.
- Rowe, William D.: "What Is an Acceptable Risk and How Can It Be Determined?" in G. T. Goodman and W. D. Rowe (eds.), *Energy Risk Management*, Academic, 1979, pp. 327-344.
- Ruckelshaus, William D.: "Risk, Science, and Democracy," *Issues in Science and Technology*, Spring 1985, pp. 19-38.
- Rule, James, Douglas McAdam, Linda Stearns, and David Uglow: *The Politics of Privacy*, New American Library, New York, 1980.
- Sagan, L. A.: "Human Cost of Nuclear Power," *Science*, vol. 177, 11 Aug. 1972, pp. 487-493.
- Sagoff, Mark: *Risk-Benefit Analysis in Decisions Concerning Public Safety and Health*, Kendall/Hunt, Dubuque, Iowa, 1985. (Module Series in Applied Ethics, Center for the Study of Ethics in the Professions, Illinois Institute of Technology, Chicago)
- Samuelson, Robert J.: "Industrial Espionage—Not to Worry," *Los Angeles Times*, Part II, p. 13, 15 July 1982.

- Sayre, Kenneth (ed.): *Values in the Electric Power Industry*, Univ. of Notre Dame Press, Notre Dame, Indiana, 1977.
- Schaub, James H., and Karl Pavlovic (eds.): *Engineering Professionalism and Ethics*, Wiley, New York, 1983.
- Scherer, Donald, and Thomas Attig (eds.): *Ethics and the Environment*, Prentice-Hall, Englewood Cliffs, New Jersey, 1983.
- Schinzinger, Roland: "The Engineer as an Agent of Change," (unpublished manuscript, 1973).
- Schinzinger, Roland, and Mike W. Martin: "Engineering as Social Experimentation," in *1980 ASEE Annual Conference Proceedings*, vol. 2, American Society for Engineering Education, Washington, D.C., 1980, pp. 394-398.
- Schinzinger, Roland: "The Experimental Nature of Engineering and Its Implications for Management," *Technology and Society* (IEEE), vol. 7, no. 27, September 1979, pp. 3-5.
- Schinzinger, Roland, and Mike W. Martin: "The Experimental Nature of Engineering and Its Implications for the Style of Engineering Practice," in *1980 Frontiers in Education Conference Proceedings (Houston)*, American Society for Engineering Education, Washington, D.C., and the Institute of Electrical and Electronics Engineers, New York, 1980, pp. 204-207.
- Schinzinger, Roland, and Mike W. Martin: "Informed Consent in Engineering and Medicine," *Business and Professional Ethics Journal*, vol. 3 (Fall 1983), pp. 67-77.
- Schinzinger, Roland: "Technological Hazards and the Engineer," *IEEE Technology and Society Magazine*, June 1986, pp. 12-16.
- Schmandt, Jurgen, and Hilliard Roderick (eds.): *Acid Rain and Friendly Neighbors: The Policy Dispute Between Canada and the United States*, Duke Univ. Press, Durham, North Carolina, 1985.
- Schumacher, E. F.: *Small Is Beautiful*, Harper and Row, New York, 1973.
- Schwartz, Eugene S.: *Overskill*, Quadrangle, Chicago, 1971.
- Schwarze, Sharon: "Intellectual Property and the Justification of Intellectual Property Rights" (unpublished manuscript).
- Seiden, R. Matthiew: *Product Safety Engineering for Managers*, Prentice-Hall, Englewood Cliffs, New Jersey 1984.
- Seidman, Joel: "Engineering Unionism," in Robert Perrucci and Joel E. Gerstl (eds.), *The Engineers and The Social System*, Wiley, New York, 1969, pp. 219-245.
- Seldes, George: *Iron, Blood, and Profits*, Harper and Brothers, New York, 1934.
- Senders, John W.: "Is There A Cure for Human Error?" *Psychology Today*, vol. 33, April 1980, pp. 52-62.
- Sethi, S. Prakash: *Up Against the Corporate Wall*, 3d ed., Prentice-Hall, Englewood Cliffs, New Jersey, 1977.
- Shapley, Deborah: "Unionization: Scientists, Engineers Mull over One Alternative," *Science*, vol. 176, 12 May 1972, pp. 618-621.
- Shapo, Marshall S.: *A Nation of Guinea Pigs*, Free Press, New York, 1979. Quotation in text used with permission of Macmillan Publishing Company.
- Shaw, Gaylord: "Bureau of Reclamation Harshly Criticized in New Report on Teton Dam Collapse," *Los Angeles Times*, 4 June 1977, Part I, p. 3.
- Shedd, John A.: *Salt from My Attic*, Mosher, Portland, Maine, 1928, p. 20.
- Shrader-Frechette, Kristin S.: *Science Policy, Ethics, and Economic Methodology: Some Problems of Technology Assessment and Environmental-Impact Analysis*, D. Reidel, Dordrecht, Netherlands, 1985.
- Shrader-Frechette, Kristin S.: *Risk Analysis and Scientific Method: Methodological and Eth-*

- ical Problems with Evaluating Societal Hazards, D. Reidel, Dordrecht, Netherlands, 1985.
- Shrader-Frechette, Kristin S.: "The Conceptual Risks of Risk Assessment," *IEEE Technology and Society Magazine*, June 1986, pp. 4-11, reprinted in Flores, op. cit. (1988).
- Shrader-Frechette, Kristin S.: *Nuclear Power and Public Policy: The Social and Ethical Problems of Fission Technology*, D. Reidel, Norwell, Massachusetts, 1982.
- Shrivastava, Paul: *Bhopal, Anatomy of a Crisis*, Ballinger, Cambridge, Massachusetts, 1987.
- Shue, Henry: "Exporting Hazards," *Ethics*, vol. 91, July 1981, pp. 579-606.
- Shute, Nevil (pseudonym for Nevil Shute Norway): *No Highway*, Charter, New York, 1976.
- Shute, Nevil: *Slide Rule*, William Morrow, New York, 1954.
- Silverman, Milton, P. Lee, and M. Lydecker: *The Drugging of the Third World*, Institute for Health Policy Studies, Univ. of California Press, San Francisco, 1981.
- Simon, Herbert A.: *Administrative Behavior*, 3d ed., Free Press, New York, 1976.
- Simon, Herbert A.: "The Consequences of Computers for Centralization and Decentralization," in Michael L. Dertouzos and Joel Moses (eds.), *The Computer Age: A Twenty-Year View*, The MIT Press, Cambridge, Massachusetts, pp. 212-228.
- Simrall, Harry C.: "The Civic Responsibility of the Professional Engineer," *The American Engineer*, May 1963, pp. 39-40.
- Singer, Peter: *Animal Liberation*, Avon, New York, 1975.
- Slade, Joseph W.: "The Man Behind the Killing Machine," *The American Heritage of Invention and Technology*, Fall 1986, pp. 18-25.
- Slovic, Paul: "Perception of Risk," *Science*, vol. 236, 17 Apr. 1987, pp. 280-285.
- Slovic, Paul, Baruch Fischhoff, and Sarah Lichtenstein: "Weighing the Risks: Which Risks Are Acceptable?" *Environment*, vol. 21, April 1979, pp. 14-20 and 36-39.
- Slovic, Paul, Baruch Fischhoff, and Sarah Lichtenstein: "Risky Assumptions," *Psychology Today*, vol. 14, no. 1, June 1980, pp. 44-48. Quotations in text used with permission of Ziff Davis Publishing Co.
- Slovic, Paul, Baruch Fischhoff, and Sarah Lichtenstein: "Weighing the Risks: Which Risks Are Acceptable?" *Environment*, vol. 21, May 1979, pp. 17-20 and 32-38.
- Smith, Adam: *The Wealth of Nations*, Univ. of Chicago Press, Chicago, 1976.
- Smith, Merritt Roe (ed): *Military Enterprise and Technological Change*, The MIT Press, Cambridge, Massachusetts, 1985.
- Smith, Peter: "Designer Interest," in *Exploratory Study on Responsibility, Liability, and Accountability for Risks in Construction*, National Research Council, National Academy of Sciences, Washington, D.C., 1978, pp. 31-35.
- Smith, R. Jeffrey: "Court Upholds Controversial Regulations," *Science*, vol. 213, 10 July 1981, pp. 185-188. Quotation in text used with permission of author.
- Smith, R. Jeffrey: "Electroshock Experiment at Albany Violates Ethics Guidelines," *Science*, vol. 198, 28 October 1977, pp. 383-386.
- Smith, R. Jeffrey: "Juarez: An Unprecedented Radiation Accident," *Science*, vol. 223, 16 March 1984, pp. 1152-1154.
- Snow, C. P.: *The Two Cultures, A Second Look*, Cambridge Univ. Press, Cambridge, England, 1959.
- Soderberg, C. Richard: "The American Engineer," in Kenneth S. Lynn (ed.), *The Professions in America*, Beacon, Boston, 1967, pp. 203-230.
- Sowers, George B., and George F. Sowers: *Introductory Soil Mechanics and Foundations*,

- 3d ed., Macmillan, New York, 1970.
- Squires, Arthur M.: *The Tender Ship: Governmental Management of Technological Change*, Birkhäuser, Boston, 1986.
- Starna, William A.: "A Disaster's Toll," letter to the editor, *American Heritage of Invention and Technology*, Summer 1986, commenting on "A Disaster in the Making" in the Spring 1986 issue.
- Starr, Chauncey, Richard Rundman, and C. Whipple: "Philosophical Basis for Risk Analysis," *Annual Review of Energy*, vol. 1, 1976, pp. 629-662. Graph in text used with permission of the *Annual Review of Energy*.
- Starr, Chauncey: "Social Benefit Versus Technological Risk," *Science*, vol. 165, 19 Sept. 1969, pp. 1232-1238. Graph in text used with permission of the author.
- Steinbrook, Robert: "Heart Valve Failures Prompt Concerns," *Los Angeles Times*, 1 Dec. 1985.
- Stephens, Mark: *Three Mile Island*, Random House, New York, 1980.
- Stevenson, Charles L.: "Persuasive Definitions," *Mind*, vol. 47, 1938, pp. 331-350.
- Sterba, James P.: *The Ethics of War and Nuclear Deterrence*, Wadsworth, Belmont, California, 1985.
- Stockholm International Peace Research Institute: *World Armaments and Disarmament*, SIPRI Yearbook 1980, Taylor & Francis, London, 1980; Crane, Russak, New York, 1980.
- Stone, Christopher D.: *Where the Law Ends: The Social Control of Corporate Behavior*, Harper and Row, New York, 1975.
- Storch, Lawrence: "Attracting Young Engineers to the Professional Society," *Professional Engineer*, vol. 41, May 1971, pp. 36-39.
- Strobel, Lee P.: *Reckless Homicide? Ford's Pinto Trial*, And Books, South Bend, Indiana, 1980.
- Sugarman, Robert: "Nuclear Power and the Public Risk," *IEEE Spectrum*, vol. 16, no. 11, November 1979, pp. 59-79.
- Swenson, Gerald S.: "The Case for Fee Competition," *Consulting Engineer*, vol. 50, June 1978, pp. 90-96.
- Taylor, Paul W.: *Principles of Ethics, An Introduction*, Dickenson, Encino, California, 1975.
- Taylor, Paul W.: *Respect for Nature*, Princeton Univ. Press, Princeton, New Jersey, 1986.
- Teich, Albert H. (ed.): *Technology and the Future*, 4th ed., St. Martin's, New York, 1986.
- Thorpe, James F., and William H. Middendorf: *What Every Engineer Should Know About Product Liability*, Marcel Dekker, New York, 1979.
- Thrall, Charles A., and Jerold M. Starr (eds.): *Technology, Power, and Social Change*, Lexington, Lexington, Massachusetts, 1972.
- Trento, Joseph J., and Susan B. Trento: *Prescription for Disaster: From the Glory of Apollo to the Betrayal of the Shuttle*, Crown, New York, 1987.
- Tversky, Amos, and Daniel Kahneman: "The Framing of Decisions and the Psychology of Choice," *Science*, vol. 211, 30 Jan. 1981, pp. 453-458.
- Ui, Jun (ed.): *Polluted Japan*, Jishu-Koza Citizens's Movement, Tokyo, 1972.
- Unger, Stephen H.: "The AAES Model Ethics Code," *IEEE Technology and Society Magazine*, June 1986, pp. 31-32.

- Unger, Stephen H.: *Controlling Technology: Ethics and the Responsible Engineer*, Holt, Rinehart and Winston, New York, 1982.
- Unger, Stephen H.: "How to be Ethical and Survive," *IEEE Spectrum*, vol. 16, no. 11, December 1979, pp. 56-57.
- U.S. Catholic Bishops: "On the Use of Nuclear Weapons and Nuclear Deterrence," from *The Challenge of Peace, God's Promise and Our Response*, United States Catholic Conference, Washington, D.C., 1982, reprinted in Sterba op. cit., (1985).
- Vandivier, K.: "Engineers, Ethics and Economics," in *Conference on Engineering Ethics*, American Society of Civil Engineers, New York, 1975, pp. 20-24.
- Vaughn, Richard C.: *Legal Aspects of Engineering*, 3d ed., Kendall/Hunt, Dubuque, Iowa, 1977. Quotations in text used with permission of the publisher.
- Veblen, Thorstein: *The Engineers and the Price System*, Viking, New York, 1965.
- Velasquez, Manuel G.: *Business Ethics: Concepts and Cases*, 2d ed., Prentice-Hall, Englewood Cliffs, New Jersey, 1988.
- Vetter, Betty M.: "Engineering: Science Outlook for Women," *Professional Engineer*, vol. 50, June 1980, pp. 29-31.
- Vonnegut, Kurt, Jr.: *Player Piano*, Dell, New York, 1952.
- Wade, Wynn C.: *The Titanic: End of a Dream*, Penguin, New York, 1980.
- Walters, Kenneth: "Professionalism and Engineer/Management Relations," *Professional Engineer*, vol. 43, January 1973, pp. 41-42.
- Walters, Kenneth: "Your Employees' Right to Blow the Whistle," *Harvard Business Review*, vol. 53, July 1975, pp. 26-34.
- Walton, Richard E.: *The Impact of the Professional Engineering Union*, Harvard Univ. Press, Cambridge, Massachusetts, 1961.
- Weber, Max: *The Protestant Ethic and The Spirit of Capitalism*, Charles Scribner's Sons, New York, 1958.
- Weber, Max: *The Theory of Social and Economic Organization*, Talcott Parsons (ed.), Free Press, New York, 1947.
- Weil, Vivian: *Action and Responsibility in the Engineering Profession*, C.S.E.P. Occasional Papers No. 2, Center for the Study of Ethics in the Professions, Illinois Institute of Technology, Chicago, 1979.
- Weil, Vivian (ed.): *Beyond Whistleblowing: Defining Engineers' Responsibilities*, Center for the Study of Ethics in the Professions, Illinois Institute of Technology, Chicago, 1983.
- Weil, Vivian: "The Browns Ferry Case," in Schaub and Pavlovic, op. cit. (1983), pp. 402-411.
- Weinberg, Alvin M.: "The Many Dimensions of Scientific Responsibility," *Bulletin of the Atomic Scientist*, November 1976, pp. 21-25.
- Weinstein, Deena: *Bureaucratic Opposition*, Pergamon, New York, 1979.
- Wells, Paula, Hardy Jones, and Michael Davis: *Conflicts of Interest in Engineering*, Kendall/Hunt, Dubuque, Iowa, 1986.
- Westin, Alan F., and Stephan Salisbury (eds.): *Individual Rights in the Corporation*, Random House, New York, 1980.
- Westin, Alan F.: *Privacy and Freedom*, Atheneum, New York, 1967.
- Westin, Alan F. (ed.): *Whistle-Blowing! Loyalty and Dissent in the Corporation*, McGraw-Hill, New York, 1981.

- Whitbeck, Caroline: "Moral Responsibility and the Working Engineer," *Books and Religion*, Duke University, vol. 15, nos. 3 and 4, March-April 1987, p. 3.
- Whitelaw, Robert L.: "The Professional Status of the American Engineer: A Bill of Rights," *Professional Engineer*, vol. 45, August 1975, pp. 37-41.
- Whiteside, Thomas: *Computer Capers*, Crowell, New York, 1978.
- Whyte, R. R. (ed.): *Engineering Progress Through Trouble*, The Institution of Mechanical Engineers, London, 1975. Quotations in text used with permission of the Council of the Institution of Mechanical Engineers.
- Whyte, William H.: *The Organization Man*, Simon and Schuster, New York, 1956.
- Wiener, Norbert: "A Scientist Rebels," *Atlantic Monthly*, vol. 179, January 1947, p. 46.
- Weiner, Norbert: *God and Golem, Inc.*, The MIT Press, Cambridge, Massachusetts, 1964.
- Wiesner, Jerome B., and Herbert F. York: "The Test Ban," *Scientific American*, vol. 211, 1964, pp. 27-35.
- Wildavsky, Aaron: "No Risk Is the Highest Risk of All," in Albert Flores (ed.), *Ethical Problems in Engineering*, pp. 221-226.
- Williams, Bernard, and J. J. C. Smart: *Utilitarianism: For and Against*, Cambridge Univ. Press, New York, 1973.
- Winner, Langdon: *Autonomous Technology*, The MIT Press, Cambridge, Massachusetts 1977.
- Wohl, Burton: *The China Syndrome*, Bantam, New York, 1979.
- Wright, J. Patrick: *On a Clear Day You Can See General Motors*, Avon, New York, 1979.
- "Yarrow Bridge," Editorial, *The Engineer*, vol. 210, 23 Oct. 1970, p. 415.
- Zorpette, Glenn: "The Shoreham Saga," *IEEE Spectrum*, November 1987, pp. 24-37.

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