

PETER ACHINSTEIN
Johns Hopkins University

University education: Harvard, A.B. 1956 (Magna Cum Laude, Phi Beta Kappa), A.M. 1958, Ph.D., 1961
Oxford University, on a Knox Traveling Fellowship from Harvard, 1959-60

Teaching Positions:

Johns Hopkins University, Assistant Professor, 1962-4; Associate Professor, 1964-68; Professor 1968-. Krieger-Eisenhower Professor, 2022- .
Chair of Philosophy Department, 1968-79
Yeshiva University, N.Y., Jay and Jeanie Schottenstein University Professor, 2009-2011.
M.I.T., visiting professor 1965-6
Stanford University, visiting professor, 1967
Graduate Center, CUNY, visiting professor, 1973
Hebrew University of Jerusalem, Lady Davis Visiting Professor, 1976

Honors and grants:

Philosophy of Science Matters: Essays in Honor of Peter Achinstein, 20 essays on my work by various scholars in the philosophy of science, with my replies; Oxford University Press, 2011, Gregory Morgan, ed.

Lakatos Award, 1993 (for Particles and Waves) Highest honor in the field of philosophy of science.

Philosopher's Annual (editors' choice of the 10 best papers in philosophy published that year). 3 papers selected since 1977: "Function Statements," 1977; "Concepts of Evidence," 1978; "Jean Perrin and Molecular Reality," 1994.

Guggenheim Fellowship, 1966-7

Elected Fellow of American Association for the Advancement of Science, 1990; chair of History and Philosophy of Science Section L, 1995

Editorial Board, Philosophy of Science, during the 1970s and 1980's

Science Rules selected by Scientific American for its Book Club.

National Science Foundation, numerous research grants.

National Endowment for the Humanities, research grant 1985-88; Summer Seminar Director, 1978, 1992; research grant, 2012 to complete Evidence and Method.

Books:

Speculation: Within and About Science (Oxford University Press, 2018)

Evidence and Method: Scientific Strategies of Isaac Newton and James Clerk Maxwell (Oxford University Press, 2013) (Symposium on this book in Metascience, 2014.)

Evidence, Explanation, and Realism: Essays in the Philosophy of Science (Oxford University Press, 2010)

The Book of Evidence (Oxford University Press, 2001)

Particles and Waves (Oxford University Press, 1991), Lakatos Award

The Nature of Explanation (Oxford University Press, 1983; Spanish ed. 1989)

Law and Explanation (Oxford University Press, 1971)

Concepts of Science (Johns Hopkins Press, 1968)

Books edited or co-edited:

The Legacy of Logical Positivism (Johns Hopkins Press, 1969). Edited with Stephen Barker

The Concept of Evidence, Oxford Readings in Philosophy (Oxford University Press, 1983}.

Observation, Experiment, and Hypothesis in Modern Physical Science (M.I.T Press, 1985). Edited with Owen Hanaway

Kelvin's Baltimore Lectures and Modern Theoretical Physics (M.I.T. Press, 1987).
Edited with Robert Kargon
Scientific Methods: Conceptual and Historical Problems (Krieger, 1994). Edited
with Laura J. Snyder.
Science Rules: A Historical Introduction to Scientific Methods (Johns Hopkins Press,
2004)
Scientific Evidence: Philosophical Theories and Applications (Johns Hopkins Press,
2008).

94 Articles and Reviews (19 have been reprinted, some more than once, in various
collections by other editors). Listed chronologically.

From Success to Truth," *Analysis* 21 (1960): 6-9. (With reply by Gilbert Ryle)

On the New Riddle of Induction," *Philosophical Review* 69 (1960): 511- 522, with S.F.
Barker. (With reply by Nelson Goodman). Reprinted in P.H. Nidditch (ed.), *The
Philosophy of Science* (Oxford, 1968); also in Bobbs-Merrill reprint series and in B.
Brody (ed.), *Readings in the Philosophy of Science* (N.J., 1970); & in Catherine Z.
Elgin, *The Philosophy of Nelson Goodman*, vol2 (N.Y., 1997).

"The Circularity of a Self-Supporting Inductive Argument, *Analysis* 22
(1962): 138-141. (Reply by Max Black) Reprinted in Nidditch (ed.), *The
Philosophy of Science* (Oxford, 1968), and in Swinburne (ed.), *The Justification of
Induction* (Oxford, 1973).

"Variety and Analogy in Confirmation Theory," *Philosophy
of Science* 30 (1963), 17-35.

"Confirmation Theory, Order, and Periodicity," *Philosophy of Science* 30 (1963): 207-
221. (With reply by Rudolf Carnap to this and the previous article)

"Theoretical Terms and Partial Interpretation, *British Journal for the Philosophy of
Science* 14 (1963): 89-105.

Review of Stephen Toulmin, *Foresight and Understanding*, *Isis* 54 (1963): 408-410.

"On the Meaning of Scientific Terms," *Journal of Philosophy* 61 (1964): 497-509. (Reply by Paul Feyerabend). Reprinted in Bobbs-Merrill reprint series.

Review of Israel Scheffler, *The Anatomy of Inquiry*, *Harvard Educational Review* 34 (1964): 468-471.

Review of H. Feigl and G. Maxwell (eds.), *Minnesota Studies in Philosophy of Science* vol.3, *Philosophical Review* 73 (1964): 106-111.

Review of Peter Alexander, *Sensationalism and Scientific Explanations*, *Isis* 55 (1964): 448-449.

Models, Analogies, and Theories," *Philosophy of Science* 31 (1964): 328-350. Reprinted in Bobbs-Merrill reprint series.

"The Problem of Theoretical Terms," *American Philosophical Quarterly* 2 (1965): 192-203. Reprinted in Brody (ed.), *Readings in the Philosophy of Science*.

"Circularity and Induction," *Analysis* (1965). Reprinted in Swinburne.

"Theoretical Models," *British Journal for the Philosophy of Science* 16 (1965): 102-120.

"'Defeasible' Problems," *Journal of Philosophy* 62 (1965): 629-633.

"Rudolf Carnap," *Review of Metaphysics Part I*, 19 (1966): 517-549, Part II, 19 (1966): 758-779

. Articles on Hans Reichenbach and Richard Braithwaite, in *Encyclopedia of Philosophy*;

"Acute Proliferitis," in Cohen and Wartofsky (eds.), *Boston Studies in Philosophy of Science*, vol. 3: 416-424.

"Modeling, in E. Salkovitz et al. (eds.), *Dimensions of Biomedical Engineering* (San Francisco, 1968): 135-155.

Review of Karl Popper, *Conjectures and Refutations*, *British Journal for Philosophy of Science* 19 (1968): 159-168.

"On the Choice of Functional Hypotheses, in S. Coval and J. Macintosh (eds.), *The Business of Reason* (Oxford, 1969): 1-25.

"Explanation," *American Philosophical Quarterly*, Monograph Series No.3 (1969): 9-29.

Review of J.J.C. Smart, *Between Science and Philosophy*, *Journal of Philosophy* 66 (1969): 355-60.

Review of Wesley Salmon, *Foundations of Scientific Inference*, *Philosophical Review* (October 1969).

"Approaches to the Philosophy of Science, in Achinstein and Barker (eds.), *The Legacy of Logical Positivism*, 259-291.

"Inference to Scientific Laws, in R. Stuewer (ed.), *Minnesota Studies in the Philosophy of Science* vol. 5: 87-104.

"Models and Analogies: A Reply to Girill, *Philosophy of Science* 39 (1972).

Review of N.R. Hanson, *Perception and Discovery*, *Synthese* 25 (1972): 241-247.

"On Meaning-Dependence," selection from *Concepts of Science*, reprinted in Grandy, (ed.), *Theories and Observations in Science* (N.J., 1973).

"Macrotheories and Microtheories," in P. Suppes et al. (eds.), *Logic, Methodology, and Philosophy of Science V* (1973): 533-566.

"The Identity of Properties, *American Philosophical Quarterly* 11 (1974): 257-275.

"Theories," selection from *Concepts of Science*, reprinted in Michalos (ed.), *Philosophical Problems of Science and Technology* (Boston, 1974).

Review of Michael Ruse, *The Philosophy of Biology*, *Canadian Journal of Philosophy* 4 (1975): 745-754.

- "Causation, Transparency, and Emphasis," *Canadian Journal of Philosophy* 5 (1975): 1-23.
- "The Object of Explanation" in Stephan Korner (ed.), *Explanation* (Oxford, 1975):1-23.
- "What is an Explanation?" *American Philosophical Quarterly* 14 (1977): 1-15.
- "Function Statements," *Philosophy of Science* 44 (1977): 341-367. Selected for *Philosopher's Annual*, 1977.
- "Concepts of Evidence," *Mind* 76 (1978): 22-45. Selected for *Philosopher's Annual*, 1978, and reprinted in my *The Concept of Evidence* (Oxford, 1983).
- "Teleology and Mentalism," *Journal of Philosophy* 75 (1978): 551-553.
- "The Causal Relation," *Midwest Studies in Philosophy*, vol. 4:369-386.
- "Discovery and Rule Books," in T. Nickles (ed.), *Scientific Discovery, Logic and Rationality* (Reidel, 1980): 117-132. Reprinted in *Revue Internationale de Philosophie* No. 131-132 (1980): 109-112.
- "The Scientist as Artist," *Iyyun* Vol 28, No. 4; 231-248.
- "On Evidence: A Reply to Bar-Hillel and Margalit," *Mind* Vol XC, No.357 (January 1981): 108-112.
- Review of Robert L. Causey, *Unity of Science*, *Nous* Vol. XV, No. 1 (March 1981): 67-75.
- "Can there be a Model of Explanation?" *Theory and Decision* 13 (1981): 201-227. Reprinted in B. Brody and R. Grandy, eds., *Readings in the Philosophy of Science*, 2nd ed. (Prentice Hall, 1989), and in D. Ruben, ed., *Explanation* (Oxford, 1993).
- Review of David Papineau, *Theory of Meaning*, *Philosophical Review*, Vol. XCI (1982): 493-496.
- "A Type of Non-Causal Explanation," *Midwest Studies in Philosophy* IX (1984).
- "The Method of Hypothesis: What Is it Supposed to Do and Can it Do It?" in *Observation, Experiment and Hypothesis in Modern Physical Science* (Bradford: MIT Press, 1985).

"The Pragmatic Character of Explanation," *PSA Proceedings* (1984): 275-292.
Reprinted in D. Ruben, ed., *Explanation* (Oxford, 1993).

"Theoretical Derivations," *Studies in History and Philosophy of Science* Vol. 17, No. 4 (1986): 375-414.

Review of Elizabeth Garber, Stephen G. Brush, and C.W.F. Everitt, *Maxwell on Molecules and Gases, Foundations of Physics* Vol. 17, No. 4 (1987): 425-433.

"Scientific Discovery and Maxwell's Kinetic Theory," *Philosophy of Science* 54 (1987): 409-434.

"Light Hypotheses," *Studies in History and Philosophy of Science* 18 (1987): 293-337.

"The Illocutionary Theory of Explanation," selection from *The Nature of Explanation*, reprinted in J.Pitt, ed., *Theories of Explanation* (New York, 1988).

"Hypotheses, Probability and Waves," *British Journal for Philosophy of Science* 41 (1990): 73-102.

"Newton's Corpuscular Query and Experimental Philosophy," *Philosophical Perspectives in Newtonian Science*, edited by P. Bricker and R.I.G. Hughes (M.I.T. Press, 1990). (Reply by R.I.G. Hughes)

"The Only Game in Town," *Philosophical Studies* 58 (1990): 179-201.

"Light Problems: Reply to Chen," *Studies in History and Philosophy of Science* 21 (1990): 677-684.

"Inference to the Best Explanation: Or, Who Won the Mill-Whewell Debate?" *Studies in History and Philosophy of Science* Vol.23, No. 2 (1992): 349-364.

"The Evidence Against Kronz," *Philosophical Studies* 67 (1992): 169-175.

"How to Defend a Theory Without Testing It: Niels Bohr and the Logic of Pursuit," *Midwest Studies in Philosophy* 18 (1993), 90-120.

"Waves and Scientific Method," *PSA Proceedings*, vol. 2, 193-204. Reprinted in Alexander Bird and James Ladyman, eds., Arguing against Science, 2013, 283-292.

"Explanation and 'Old Evidence,'" *Philosophica* 51 (1993), 125-137.

"Stronger Evidence," *Philosophy of Science* 61 {1994}, 329-350.

"Jean Perrin and Molecular Reality," *Perspectives on Science*, 2(1994), 396-427. Selected for *Philosopher's Annual*, 1994, (1996).

"Explanation vs. Prediction: Which-Carries More Weight?" *PSA* 1994, {1995} vol. 2, 156-164; reprinted in Martin Curd & J.A. Cover, eds., *Philosophy of Science* (Norton, 1998).

"Are Empirical Evidence Claims A Priori?" *British Journal for Philosophy of Science*, 46 (1995), 447-473.

"Swimming in Evidence: A Reply to Maher," Philosophy of Science, (1996), 175-182.

"Explanation: Types of," *Encyclopedia of Philosophy*, Supplement (1996), 168-170.

"On Evidence: A Reply to McGrew," *Analysis* 57 (1997), 81-83.

"The Empirical Character of Evidence," in Dalla Chiarra et al., eds. Structures and Norms in Science (10th International Congress of Logic, Methodology, and Philosophy of Science, 1997), 23-34.

Two articles in Routledge Encyclopedia of Philosophy: "Crucial Experiments," and "The Demarcation Problem."

"The Symmetry Thesis," in James Fetzer, ed., Science, Explanation, and Rationality, 2000, 167-185.

"Who Really Discovered the Electron?" in Jed Buchwald and Andrew Warwick, eds. *Histories of the Electron: the Birth of Microphysics*, 2001, 403-24.

"Proliferation: Is it a Good Thing?" in John Preston and Gonzalo Munevar, eds. The Worst Enemy of Science?: Essays in Memory of Paul Feyerabend.

"Why Philosophical Theories of Evidence are (and Ought to be) Ignored by Scientists," PSA, 2000, 180-192.

"Subjective Views of Kuhn," Perspectives on Science 9 (2002), 423-32. Reprinted in my Science Rules.

"The Grue Paradox," selection from my The Book of Evidence, reprinted in Yuri Balashov and Alex Rosenberg, Philosophy of Science: Contemporary Readings (2002), 307-320.

"Is there a Valid Experimental Argument for Scientific Realism," Journal of Philosophy 99 (2002), 470-95. Reprinted in my Science Rules.

"A Challenge to Positive Relevance Theorists: Reply to Roush," Philosophy of Science (2004), 521-24. Reprinted in my Scientific Evidence.

"Four Mistaken Theses about Evidence and How to Correct Them," in my Scientific Evidence: Philosophical Theories and Applications (2005), 35-50.

"Atom's Empirical Eve: Methodological Disputes and How to Evaluate Them," Perspectives on Science 15 (2007), 359-390.

"Evidence," in Psillos and Curd, eds., Routledge Companion to Philosophy of Science, 2008, 2nd ed., 2013, 381-392.

"Mill's Sins or Mayo's Errors," in Mayo and Spanos, eds., Errors and Inference, 2009, 179-188. (Reply by Mayo)

"What to do if you want to defend a theory you cannot prove: A method of physical speculation," Journal of Philosophy, Jan. 2010, 35-56.

"The War on Induction," PSA 2010. Longer version in my Evidence, Explanation, and Realism, 61-84.

"Scientific Knowledge," in Bernecker and Pritchard, eds., Routledge Companion to Epistemology, 2011, 346-357.

"Achinstein's Replies," my replies to 20 essays on my work in G. Morgan, ed., Philosophy of Science Matters: The Philosophy of Peter Achinstein, 2011, 258-297.

(Lead) review of Gary Tibbets, How Great Scientists Reasoned, in Physics Today, Nov. 2013.

“Is the World Completely Intelligible?” in Lissack and Graber, eds. Modes of Explanation (Palgrave/Macmillan, 2014), 241-48.

“Objective Evidence and Rules of Strategy: Achinstein on Method,” Metascience, Nov. 2014, 413-442. Book symposium on my Evidence and Method: Scientific Strategies of Isaac Newton and James Clerk Maxwell: Papers by William Harper, Kent Staley, and Henk de Regt - with my reply to each.

“Scientific Speculation,” in Radin Dardashti, Dawid, and Thebault, eds., Why Trust a Theory? (Cambridge University Press, 2019), 29-66.

“Scientific Realism: What’s all the Fuss?” in W. Gonzalez, ed., New Approaches to Scientific Realism, De Gruyter, 2020, 27-47.

“Scientific Speculation and Evidential Progress,” in Yafeng Shan, ed., Scientific Progress, Routledge, 2022.

“Positive Relevance,” to appear in Routledge Handbook on Evidence, 2023.

“Hanson on Scientific Discovery: Whewellian, Peircean, and Wittgensteinian Influences, to appear in a volume on Wittgenstein and Other Philosophers, edited by Ali Khani and Gary Kemp, to be published by Routledge.

“Disregarding Evidence: Reasonable Options for Newton and Rutherford?” to appear in Studies in History and Philosophy of Science, 2023.