

Dan Liu's History of Physics Prelims List, 25 May, 2012

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A. Overviews

1. General Historiography

- [1] Baker, Gregory L. *Seven Tales of the Pendulum*. New York: Oxford University Press, 2011.
- [1] Cahan, David. *From Natural Philosophy to the Sciences : Writing the History of Nineteenth-Century Science*. Chicago: University of Chicago Press, 2003.
- [1] Canales, Jimena. *A Tenth of a Second : A History*. Chicago: University of Chicago Press, 2009.
- [3] Dorato, Mauro. *The Software of the Universe : An Introduction to the History and Philosophy of Laws of Nature*. Vol. Ashgate new critical thinking in philosophy, Aldershot, Hants, England ; Burlington, VT: Ashgate Pub., 2005. [COMPARE W/BOKULICH ON LAWS OF NATURE](#)
- [2] Joerges, Bernward., and Terry. Shinn. *Instrumentation : Between Science, State, and Industry*. Vol. Sociology of the sciences ; v. 22, Dordrecht ; Boston: Kluwer Academic Publishers, 2001.
- [1] Kragh, Helge. *Higher Speculations: Grand Theories and Failed Revolutions in Physics and Cosmology*. Oxford ; New York: Oxford University Press, 2011.
- [1] Lampland, Martha, and Susan Leigh Star. *Standards and Their Stories : How Quantifying, Classifying, and Formalizing Practices Shape Everyday Life*. Ithaca: Cornell University Press, 2009. [JUXTAPOSE W/GOODAY](#)
- [1] Rupke, Nicolaas A. *Alexander Von Humboldt : A Metabiography*. Frankfurt am Main ; New York: Peter Lang, 2005.
- [3] Nye, Mary Jo, (ed.) *The Modern Physical and Mathematical Sciences*. Vol. 5, *The Cambridge History of Science*. Cambridge: Cambridge University Press, 2005.

2. Teaching texts

- 7 [2] Collins, H. M., and T. J. Pinch. *The Golem : What You Should Know About Science*. 2nd ed. ed. Cambridge [England] ; New York: Cambridge University Press, 1998.
- 1 [1] Harman, P. M. *Energy, Force, and Matter : The Conceptual Development of Nineteenth-Century Physics*. Vol. Cambridge history of science, Cambridge ; New York: Cambridge University Press, 1982.
- 4 [2] Heilbron, J. L. *The Dilemmas of an Upright Man : Max Planck as Spokesman for German Science*. Berkeley: University of California Press, 1986. [READ THE FIRST 20 PAGES BEFORE READING KUHN'S BOOK](#)
- 6 [1] Hughes, Jeff. *The Manhattan Project : Big Science and the Atom Bomb*. New York: Columbia University Press, 2002.

- 3 [1] Hunt, Bruce J. *Pursuing Power and Light : Technology and Physics From James Watt to Albert Einstein*. Baltimore: Johns Hopkins University Press, 2010.
- 5 [1] Kragh, Helge. *Quantum Generations : A History of Physics in the Twentieth Century*. Princeton, N.J.: Princeton University Press, 1999.
- 2 [1] Morus, Iwan Rhys. *When Physics Became King*. Chicago: University of Chicago Press, 2005.
AVAIL. ONLIN
- 8 [3] Wardhaugh, Benjamin. *How to Read Historical Mathematics*. Princeton, N.J.: Princeton University Press, 2010. **SHOW TO RICHARD**.

3. Visualization

- [2] Börner, Katy. *Atlas of Science : Visualizing What We Know*. Cambridge, Mass.: MIT Press, 2010.
SHOW THE BOOK TO RICHARD
- [1] Rocke, Alan J. *Image and Reality : Kekulé, Kopp, and the Scientific Imagination*. Chicago ; London: The University of Chicago Press, 2010.
- [1] Vignale, Giovanni. *The Beautiful Invisible : Creativity, Imagination, and Theoretical Physics*. Oxford: Oxford Univsity Press, 2011.

B. Classical Physics

1. Nineteenth Century

- [3] 7 Cahan, David. *An Institute for an Empire : The Physikalisch-Technische Reichsanstalt, 1871-1918*. 1st paperback ed. ed. Cambridge ; New York: Cambridge University Press, 2004.
- [1] 6 Gooday, Graeme. *The Morals of Measurement : Accuracy, Irony, and Trust in Late Victorian Electrical Practice*. Cambridge ; New York: Cambridge University Press, 2004.
- [1] 3 Hoskin, Michael A. *Discoverers of the Universe : William and Caroline Herschel*. Princeton, N.J.: Princeton University Press, 2011.
- [1] 8 Porter, Theodore M. *Karl Pearson : The Scientific Life in a Statistical Age*. Princeton: Princeton University Press, 2004.
- [1] 4 Sibum, Heinz Otto. "Reworking the Mechanical Value of Heat: Instruments of Precision and Gestures of Accuracy in Early Victorian England." *Studies in the History and Philosophy of Science* 26 (1995): 73-106.

- [1] 5 Smith, Crosbie. *The Science of Energy : A Cultural History of Energy Physics in Victorian Britain*. Chicago: University of Chicago Press, 1998.
- [1] 2 Warwick, Andrew. *Masters of Theory : Cambridge and the Rise of Mathematical Physics*. Chicago: The University of Chicago Press, 2003.
- [1] 1 Wise, M. Norton, and Smith, Crosbie. "Work and Waste: Politican Economy and Natural Philosophy in Nineteenth Century Britain (I)." *History of Science* 27 (1989): 263-301.
- [1] 1 Wise, M. Norton. "Work and Waste: Political Economy and Natural Philosophy in Nineteenth Century Britain (II)." *History of Science* 27 (1989): 392-449.
- [1] 1 Wise, M. Norton, and Smith, Crosbie. "Work and Waste: Political Economy and Natural Philosophy in Nineteenth Century Britain (III)." *History of Science* 28 (1990): 221-61.

2. Fin-de-Siècle physics

- [1] b Coen, Deborah R. *Vienna in the Age of Uncertainty : Science, Liberalism, and Private Life*. Chicago: University of Chicago Press, 2007.
- [3] a Galison, Peter. *Einstein's Clocks and Poincaré's Maps : Empires of Time*. 1st ed. ed. New York: W.W. Norton, 2003.
- [1] c Gray, Jeremy. *Plato's Ghost : The Modernist Transformation of Mathematics*. Princeton, N.J.: Princeton University Press, 2008.
- [1] Heilbron, J.L. "Fin-De-Siècle Physics." In *Science, Technology, and Society in the Time of Alfred Nobel*, edited by Carl Gustaf Bernhard, Elisabeth Crawford, and Per Sörbom, 51-73. Oxford: Nobel Foundation, 1982.
- [1] Porter, Theodore M. "The Death of the Object: Fin De Siècle Philosophy of Physics." In *Modernist Impulses in the Human Sciences, 1870–1930*, edited by Dorothy Ross, 128-51. Baltimore: Johns Hopkins University Press, 1994.
- [1] Staley, Richard. "The Fin De Siècle Thesis." *Berichte zur Wissenschaftsgeschichte* 31 (2008): 311-30.
- [1] Wegener, Daan. "De-Anthropomorphizing Energy and Energy Conservation: The Case of Max Planck and Ernst Mach." *Studies in the History and Philosophy of Science* 41 (2010): 146-59.

C. Modern Physics

1. Electrons

- [1] Arabatzis, Theodore. *Representing Electrons : A Biographical Approach to Theoretical Entities*. Chicago: University of Chicago Press, 2006. **CONSIDER w/BUCHWALD**
- [1] Buchwald, Jed Z., and Andrew Warwick. *Histories of the Electron : The Birth of Microphysics*. Vol. Dibner Institute studies in the history of science and technology, Cambridge, Mass.: MIT Press, 2001.
- [1] Galison, Peter. *How Experiments End*. Chicago: University of Chicago Press, 1987.
- [1] Galison, Peter. *Image and Logic : A Material Culture of Microphysics*. Chicago: University of Chicago Press, 1997.
- [1] Galison, Peter. "Einstein's Clocks: The Place of Time." *Critical Inquiry* 26 (2000): 355-89.

2. Einstein

- [2] Howard, Don, and John J. Stachel. *Einstein : The Formative Years, 1879-1909*. Vol. Einstein studies ; v. 8, Boston: Birkhäuser, 2000.
- [3] Jammer, Max. *Einstein and Religion : Physics and Theology*. Princeton, NJ: Princeton University Press, 1999.
- [1] Renn, J. "Einstein's Invention of Brownian Motion." *Annalen der Physik* how (2005): 23-37.
- [1] Stachel, John J. *Einstein From "B" to "Z*. Vol. Einstein studies ; v. 9, Boston: Birkhäuser, 2002.
- [2] Stachel, John J. *Einstein's Miraculous Year : Five Papers That Changed the Face of Physics*. Centenary ed. ed. Princeton, NJ: Princeton University Press, 2005. **ADD THE B-Z BOOK, BUT THIS MIGHT ALSO BE A WAY TO GET A TECHNICAL ACCOUNT OF EINSTEIN'S BROWNIAN MOTION WORK**
- [1] Staley, Richard. *Einstein's Generation : The Origins of the Relativity Revolution*. Chicago: University of Chicago Press, 2008.
- [2, **look at perspectives on literature**] Whitworth, Michael H. *Einstein's Wake : Relativity, Metaphor, and Modernist Literature*. Oxford ; New York: Oxford University Press, 2002.

3. Quantum

- [1] Beller, Mara. *Quantum Dialogue : The Making of a Revolution*. Vol. Science and its conceptual foundations, Chicago: University of Chicago Press, 1999.
- [3] Bokulich, Alisa. *Reexamining the Quantum-Classical Relation : Beyond Reductionism and Pluralism*. Cambridge, UK ; New York: Cambridge University Press, 2008.

- [1] Carson, Cathryn. *Heisenberg in the Atomic Age : Science and the Public Sphere*. Washington, D.C. Cambridge ; New York: German Historical Institute Cambridge University Press, 2010.
- [3] Cassidy, David C. *Beyond Uncertainty : Heisenberg, Quantum Physics, and the Bomb*. New York: Bellevue Literary Press, 2009. [GLANCE AT, COMPARE TOC TO UNCERTAINTY.](#)
- [1] Cassidy, David C. *Uncertainty : The Life and Science of Werner Heisenberg*. New York: W.H. Freeman, 1992.
- [1] Carson, Cathryn, Alexei Kojevnikov, and Helmuth Trischler, (eds.) *Weimar Culture and Quantum Mechanics: Selected Papers By Paul Forman and Contemporary Perspectives on the Forman Thesis*. London: Imperial College Press, 2011.
- [2] Kaiser, David. *Drawing Theories Apart : The Dispersion of Feynman Diagrams in Postwar Physics*. Chicago: University of Chicago Press, 2005.
- [1] Kuhn, Thomas S. *Black-Body Theory and the Quantum Discontinuity, 1894-1912*. Chicago: University of Chicago Press, 1987.
- [1] Seth, Suman. *Crafting the Quantum: Arnold Sommerfeld and the Practice of Theory, 1890-1926*. Cambridge: MIT Press, 2010.

D. Recent/Post-War Physical Theory

- [2] Gasperini, Maurizio., J. Maharana, and G. Veneziano. *String Theory and Fundamental Interactions : Gabriele Veneziano and Theoretical Physics : Historical and Contemporary Perspectives*. Vol. Lecture notes in physics, 737, Berlin ; New York: Springer, 2008.
- [2] Kevles, Daniel J. *The Physicists : The History of a Scientific Community in Modern America*. Cambridge, Mass.: Harvard University Press, 1995.
- [1] Mialet, H el ene. *Hawking Incorporated : Stephen Hawking and the Anthropology of the Knowing Subject*. Chicago: The University of Chicago Press, 2012.
- [2] Nowotny, Helga., and Ulrike. Felt. *After the Breakthrough : The Emergence of High-Temperature Superconductivity as a Research Field*. Cambridge ; New York: Cambridge University Press, 1997.
- [1] Pickering, Andrew. *Constructing Quarks : A Sociological History of Particle Physics*. Chicago: University of Chicago Press, 1984.
- [3] Schweber, S. S. *Qed and the Men Who Made it : Dyson, Feynman, Schwinger, and Tomonaga*. Vol. Princeton series in physics, Princeton, N.J.: Princeton University Press, 1994.
- [1] Thorpe, Charles. *Oppenheimer : The Tragic Intellect*. Chicago: University of Chicago Press, 2006.

E. Chemistry and Physical Chemistry

- [1] Brock, W. H. *Justus Von Liebig : The Chemical Gatekeeper*. Cambridge ; New York: Cambridge University Press, 1997. **COMPARE TO JACKSON 2008 ARTICLE**
- [2] Brock, William H. *The Norton History of Chemistry*. New York: W.W. Norton, 1993.
- [1] Gavroglou, Kostas, and Ana Simões. *Neither Physics Nor Chemistry : A History of Quantum Chemistry*. Cambridge, Mass.: MIT Press, 2012.
- [1] Gratzler, W. B. *Giant Molecules : From Nylon to Nanotubes*. Oxford ; New York: Oxford University Press, 2009.
- [1] Jackson, Catharine. "Visible Work: The Role of Students in the Creation of Liebig's Giessen Research School." *Notes and Records of the Royal Society* 62 (2008): 31-49.
- [1] Kim, Mi Gyung. *Affinity, That Elusive Dream : A Genealogy of the Chemical Revolution*. Cambridge, Mass.: MIT Press, 2003. **SHOULD BE INTERESTING HISTORIOGRAPHICALLY**
- [1] Nye, Mary Jo. *Before Big Science : The Pursuit of Modern Chemistry and Physics, 1800-1940*. Vol. Twayne's history of science and society series ; no. 1, New York London: Twayne Publishers Prentice Hall International, 1996. **ADD THE BOOK ON JEAN PERRIN.**
- [1] Nye, Mary Jo. *Molecular Reality; a Perspective on the Scientific Work of Jean Perrin*. London New York: Macdonald American Elsevier, 1972.
- [1] Servos, John W. *Physical Chemistry From Ostwald to Pauling : The Making of a Science in America*. Princeton, N.J.: Princeton University Press, 1990.
- [1] Shinn, Terry. "Research-Technology Instrumentation: The Place of Chemistry." *Unpublished paper delivered to conference, London, August 2000, From the Test-tube to the Autoanalyzer: The Development of Chemical Instrumentation in the Twentieth Century* (2000):

F. Climate Science

- [1] Edwards, Paul N. *A Vast Machine : Computer Models, Climate Data, and the Politics of Global Warming*. Cambridge, Mass.: MIT Press, 2010.
- [1] Oreskes, Naomi., and Erik M. Conway. *Merchants of Doubt : How a Handful of Scientists Obscured the Truth on Issues From Tobacco Smoke to Global Warming*. 1st U.S. ed. ed. New York: Bloomsbury Press, 2010.
- [1] Weart, Spencer R. *The Discovery of Global Warming*. Rev. and expanded ed. ed. Cambridge, Mass.: Harvard University Press, 2008.

G. Physical Biology

- [1] Jayawardhana, Ray. *Strange New Worlds: The Search for Alien Planets and Life Beyond Our Solar System*. Princeton: Princeton University Press, 2011.
- [1] Lorch, J. "The Charisma of Crystals in Biology." In *The Interaction Between Science and Philosophy*, edited by Y. Elkana, 445-61. Atlantic Highlands: Humanities Press, 1974.
- [1] Rasmussen, Nicolas. *Picture Control : The Electron Microscope and the Transformation of Biology in America, 1940-1960*. Vol. Writing science, Stanford, Calif.: Stanford University Press, 1997.
- [1] Zimmer, Karl Günter, Max. Delbrück, Phillip R. Sloan, D. Brandon. Fogel, and N. V. Timofeev-Resovskiæi. *Creating a Physical Biology : The Three-Man Paper and Early Molecular Biology*. Chicago ; London: The University of Chicago Press, 2011.