AMIR R. ALEXANDER, Ph.D.

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Education

Stanford University, Stanford, California

1996	Ph.D. in History of Science
1990	M.A. in History of Science

The Hebrew University, Jerusalem, Israel

1988 B.S. in Mathematics

Books

Liberty's Grid: A Founding Father, a Mathematical Dreamland, and the Shape of America (Forthcoming with Chicago: University of Chicago Press, 2024).

Proof! How the World Became Geometrical (New York: Farrar, Straus, and Giroux / Scientific American, 2019). Translation published in Japan.

Infinitesimal: How a Dangerous Mathematical Theory Shaped the Modern World (New York: Farrar, Straus, and Giroux / Scientific American, 2014). Reissued in paperback, 2015. Translations published in Italy, China, Japan, Brazil, Romania, and Taiwan.

Duel at Dawn: Heroes, Martyrs, and the Rise of Modern Mathematics, (Cambridge MA: Harvard University Press, 2010). Reissued in paperback, 2011.

Geometrical Landscapes: The Voyages of Discovery and the Transformation of Mathematical Practice (Stanford: Stanford University Press, 2002).

Articles

"The Orderly Universe: How the Calculus Became an Algorithm," in Morgan G. Ames and Massimo Mazzotti eds., *Algorithmic Modernity: Mechanizing Thought and Action*, *1500-2000*, (New York: Oxford University Press, 2023).

"The New Rose Garden is Fit for an Unchecked Presidency," Slate, August 24, 2020.

"The Geometry of Impeachment in the Nation's Capital," *The Washington Post*, December 18, 2019.

"The Estrangement of the American Landscape," *Social Research: An International Quarterly*, vol. 85, no. 2, Summer 2018.

Articles (continued)

"Blundeville, Thomas," in Marco Sgarbi ed., *Encyclopedia of Renaissance Philosophy*, (New York: Springer, 2018).

"On Indivisibles and Infinitesimals: A Response to David Sherry, "The Jesuits and the Method of Indivisibles," *Foundations of Science*, vol. 23, no.2, May 2018.

"A Response to Douglas Jesseph," *The Mathematical Intelligencer*, vol. 39, no. 2, June 2017.

"Images de mathématiques, 1770-1914," in Kapil Raj and Otto Sibum eds., *Histoire des sciences et de savoirs, vol. 2: Modernité et globalization* (Paris: La Seuil, 2015).

"The Glory of Math is to Matter," Scientific American blog, August 11, 2014.

"Think the climate change fight is tough? What about the 17th century fight over math?," *Los Angeles Times* op-ed, May 3, 2014

"From Voyagers to Martyrs: Towards a Storied History of Mathematics," in Apostolos Doxiadis and Barry Mazur eds., *Circles Disturbed: The Interplay of Mathematics and Narrative* (Princeton: Princeton University Press, 2012).

"The Skeleton in the Closet: Should Historians of Science Care about the History of Mathematics?" introduction to a focus section on the history of science and the history of mathematics, *Isis*, vol. 102, no. 3, September 2011.

"Introduction" to focus section on mathematical stories, *Isis*, vol. 97, no. 4, December 2006.

"Tragic Mathematics: Romantic Imagery and the Refounding of Mathematics," *Isis*, vol. 97, no. 4, December 2006.

"Through the Mathematical Looking Glass," in Siegfried Zielinsky and David Link eds., *Variantology 2: On Deep Time Relations of Arts, Sciences, and Technologies* (Cologne: Walther König, 2006).

"Hariot and Dee on Geographical Exploration and Mathematics: Did Scientific Imagery Make for New Scientific Practice?" in Brett D. Steele and Tamera Dorland eds., *The Heirs of Archimedes: Science and the Art of War Through the Age of Enlightenment*, (Cambridge: MIT Press, 2005).

"Stories and Numbers: How a Romantic Tale of Geographical Exploration Transformed Mathematics," *Historically Speaking: The Bulletin of the Historical Society*, January 2004.

"Mathematics," in Jonathan Dewald ed., From Gutenberg to the Bastille: The Emergence of the Modern World, (New York: Scribner, 2003).

"Exploration Mathematics: The Rhetoric of Discovery and the Rise of Infinitesimal Methods," *Configurations*, vol. 9, no. 1, Winter 2001.

"The Scientific Revolution," in Arne Hessenbruch ed., *A Reader's Guide to the History of Science*, (Chicago: Fitzroy Dearborn Publishers, 2000).

Articles (continued)

"Cavalieri, Bonaventura," entry in Wilbur Applebaum (ed.), *Encyclopedia of the Scientific Revolution from Copernicus to Newton* (New York: Garland Publishing, 2000).

"Lunar Maps and Coastal Outlines: Thomas Hariot's Mapping of the Moon," *Studies in the History and Philosophy of Science*, vol. 29, No. 3, September 1998.

"The Imperialist Space of Elizabethan Mathematics," *Studies in History and Philosophy of Science*, vol. 26, No. 4, December 1995.

"Israeli Television and the Problem of the Modern Subject," Zeitschrift fur Literaturwissenschaft und Linguistik, vol. 98, June 1995.

Book Reviews

Review of Massimo Mazzotti, *Reactionary Mathematics: A Genealogy of Purity* (Chicago: The University of Chicago Press, 2023), *Isis*, forthcoming.

Review of Alma Steingart, *Axiomatics: Mathematical Thought and High Modernism* (Chicago: University of Chicago Press, 2023), *Isis*, forthcoming.

Review of Michael J. Sauter, *The Spatial Reformation: Euclid between Man, Cosmos, and God* (Philadelphia: University of Pennsylvania Press, 2019), *The Journal of Modern History*, vol. 94, no.2, June 2022.

Review of Michael E. Hobart, *The Great Rift: Literacy, Numeracy, and the Religion-Science Divide* (Cambridge, MA: Harvard University Press, 2018), *American Historical Review*, vol. 124, no. 5, December 2019.

"The Inner Observatory," review of Graham Farmelo, *The Universe Speaks in Numbers* (New York: Basic Books, 2019), *The Wall Street Journal*, June 7, 2019.

Review of Mark Coeckelbergh. *New Romantic Cyborgs: Romanticism, Information Technology, and the End of the Machine* (Cambridge, MA: MIT Press, 2017), *Isis*, vol. 109 no. 1, March 2018.

"The Rise of the Kluges," review of Samuel Arbesman, *Overcomplicated: Technology at the Limits of Comprehension* (New York: Current, 2016), *The Wall Street Journal*, July 19, 2016.

"The Science of Serendipity," review of Joseph Mazur, *Fluke: The Math and Myth of Coincidence* (New York: Basic Books, 2016), *The Wall Street Journal*, April 16, 2016.

"Finding Zero: A Long Journey into Naught," review of Amir Aczel, *Finding Zero: A Mathematician's Odyssey to Uncover the Origins of Numbers* (New York: Palgrave Macmillan, 2014), *New York Times*, April 20, 2015.

"Groping in the Dark for Glimpses of Beauty," review of Cédric Villani, *Birth of a Theorem* (London: The Bodley Head, 2015) and Michael Harris, *Mathematics without Apologies* (Princeton: Princeton University Press, 2015), *Nature*, vol. 519, March 5, 2015.

Book Reviews (continued)

"Disorder Rules the Universe," review of Robert P. Crease and Alfred Scharff Goldhaber, *The Quantum Moment* (New York: W. W. Norton, 2014), *New York Times*, February 16, 2015.

"Not Giving an Inch," review of John Bemelmans Marciano, *Whatever Happened to the Metric System?* (New York: Bloomsbury, 2014), *New York Times Book Review*, August 22, 2014.

"If it's Possible it Happened," review of Max Tegmark, *Our Mathematical Universe: My Quest for the Ultimate Nature of Reality* (New York: Knopf, 1994), *New York Times*, April 21, 2014.

"Examining the Square Root of D'oh!," review of Simon Singh, *The Simpsons and their Mathematical Secrets* (New York: Bloomsbury USA, 2013), *New York Times*, January 27, 2014.

"Brilliance Triumphs over Rejection," review of Edward Frenkel, *Love and Math: The Heart of Hidden Reality* (New York: Basic Books, 2013), *New York Times*, November 19, 2013.

Review of Robert Fox ed., *Thomas Harriot and his World* (Surrey/Burlington, VT: Ashgate, 2012), *Isis*, vol. 104 no. 3, September 2013.

Review of Benjamin Wardhaugh ed., *The History of the History of Mathematics* (Oxford: Peter Lang, 2012), *Metascience*, vol. 22 no. 2, Spring 2013.

Review of Robert Goulding, *Defending Hypatia: Ramus, Savile, and the Renaissance Rediscovery of Mathematical History* (New York: Springer, 2010), *American Historical Review*, vol. 117, no. 2, April 2012.

Review of Stephen Chrisomalis, *Numerical Notation: A Comparative History* (Cambridge: Cambridge University Press, 2010) for the *Journal of Comparative Studies in Society and History*, vol. 54, no. 2, April 2012.

Review of Benjamin Wardhaugh, *How to Read Historical Mathematics* (Princeton: Princeton University Press, 2010), in the *British Journal for the History of Science*, vol. 44, no. 3, September 2011.

Review of Chandler Davis, Marjorie Wikler Senechal, and Jan Zwicky eds., *The Shape of Content: Creative Writing in Mathematics and Science*, (Wellesley, MA: A K Peters, 2008) in *The American Mathematical Monthly*, vol. 117, no. 1, January 2010.

Review of Kim Williams ed., *Two Cultures: Essays in Honour of David Speiser*, (Basel, Boston, Berlin: Birkhäuser Verlag, 2005) in *The Mathematical Intelligencer*, vol. 30, no. 4, Fall 2008.

Review of Noel Malcolm, Jacqueline Stedall, eds., John Pell (1611-1685) and His Correspondence with Sir Charles Cavendish. The Mental World of an Early Modern Mathematician (Oxford: Oxford University Press, 2004) in Nuncius: Journal of the History of Science, vol. 21, no. 2, 2006.

Book Reviews (continued)

Review of Rebecca Goldstein, *Incompleteness: The Proof and Paradox of Kurt Gödel*, (New York and London: W. W. Norton & Co., 2005) in *The Mathematical Intelligencer*, vol. 28, no. 4, Fall 2006.

Review of Antoni Malet, *From Indivisibles to Infinitesimals*, (Barcelona: UAB, 1996), *Isis*, vol. 89, no. 1, March 1998.

Doctoral Dissertation

Imperialist Rhetoric and Mathematical Practice in Early Modern England: A Literary Approach to Mathematics. Dissertation Advisor: Timothy Lenoir

Selected Talks and Presentations

"The Sceptical Mathematician: How John Wallis Saved Mathematics for the Royal Society," presented at the Claremont History and Philosophy of Mathematics Seminar, September 18, 2023.

"How Mathematics Shapes our World, and our Values," presented online at the National Academies of Sciences, Engineering, and Medicine "Distinctive Voices" series, October 21, 2020 (http://www.nasonline.org/programs/distinctive-voices/).

"Proof! How the World Became Geometrical"

- Presented at Town Hall Seattle, September 11, 2019.
- A conversation with Edward Frenkel, The Commonwealth Club, San Francisco, October 10, 2019.
- A conversation with Jordan Ellenberg, Wisconsin Book Festival, Madison, October 19, 2019.

"The Hero and the Foundling: Do Stories Shape Mathematics?" Presented at the Symposium on the History of Mathematics, The Royal University of Phnom Penh, March 19, 2019.

"Euclid's Kingdom," presented at Scientiae meeting, Minneapolis, May 2018.

"A Space for Free Men: The Cartesian Landscape of America," presented at the History of Science Society annual meeting, Atlanta, November 5, 2016.

"Restoration Mathematics: How John Wallis Saved Mathematics for the Royal Society," presented at "John Wallis at 400" workshop, The University of Toronto, November 2, 2016.

"Truth, Hierarchy, and Order: The Mathematical Battle over Modernity," presented at the Stanford University History of Science Workshop, February 13, 2015.

"Geometries of Power," presented at the History of Science Society annual meeting, Chicago, November 9, 2014

Selected Talks and Presentations (continued)

"Leviathan and the Infinitesimal," presented at the MIT Science and Technology Studies Colloquium, October 20, 2014.

"Did Calculus Make Democracy Possible?," presented at the University of North Florida physics colloquium, September 19, 2014.

"Infinitesimal: How a Dangerous Mathematical Theory Shaped the Modern World," public lecture at the Decatur Book Festival, Decatur, Georgia, August 31, 2014.

"The War against Disorder: The Jesuit Victory over Indivisibles," presented at the History of Science Society annual meeting, Boston, November 23, 2013.

"Blind Man on the Mountain: The Paradox of Enlightenment Mathematics," public lecture at "Indisciplines of Enlightenment" workshop, U. C. Berkeley, July 19, 2012.

"The War against Disorder: Why the Jesuits Tried to Eradicate the Infinitely Small," presented in absentia at Scientiae Conference, Vancouver, April 27, 2012.

"The Builder and the Explorer: Narratives of Mathematical Proof," presented at Mathematics as Text/Mathematics as Literature workshop, Stanford, April 13, 2012.

"The Romance of Immaterial Mathematics," presented at the Cultural Studies Association conference, U. C. San Diego, March 30, 2012.

"Mathematical Matter: Three Approaches to Mathematics and Science," presented at the History of Science Society annual meeting, Montreal, November 5, 2010.

"Mathematical Poetics: How Mathematics Became an Art in the Early 19th Century," presented at the History of Science Society annual meeting, Pittsburgh, November 7, 2008

"Death in Paris: How Mathematics Became an Art," presented at the re:place 2007 conference on the histories of media, art, science, and technologies, Berlin, November 2007.

"From Voyagers to Martyrs: Towards a Storied History of Mathematics," presented at the Mathematics and Narrative workshop in Delphi, Greece, July 2007.

"From the Undiscovered Country to the Mathematical Universe: Mathematics and Geography in the Renaissance and the Enlightenment," presented at the annual meeting of the Renaissance Society of America, Miami, March 2007.

"From the Archmaster to the Tragic Hero: Mathematics as a Story-Telling Medium," presented at the Academy of Arts and the Media, Cologne, Germany, December 1, 2005.

"Tragic Mathematics: Romantic Imagery and the 'Re-Founding' of Mathematics in the Early 19th Century," presented at UCLA History of Science Colloquium, November 14, 2005.

"Changing Stories, Changing Practices in Modern Mathematics," presented at "Mathematics and Narrative" conference, Mykonos, Greece, July 14, 2005.

Selected Talks and Presentations (continued)

"Landscapes of Discovery: Tales of Geographical Exploration and the Transformation of Geometrical Space," presented at:

The Natural History Museum, Los Angeles, February 2004. SUNY Buffalo Department of History, September 2003. University of Mississippi Department of History, January, 2002. Johns Hopkins University Humanities Center, February 2001.

"Is there a Story in the Signs? Tales of Geographical Exploration and the New Mathematics of the Seventeenth Century," presented at Rutgers University Department of Mathematics, September 2003.

"Narrative Structure in Mathematical Systems" presented at the annual conference of the Society for Literature and Science, Pasadena, October 2002.

"Charting the Mathematical Landscape: Voyages of Exploration and the Rise of Infinitesimal Methods" presented at the University of Mississippi History Department, February 2000.

Professional Appointments

Adjunct Professor, Department of History, UCLA, 2021 to present.

Adjunct Associate Professor, Department of History, UCLA, 2011 to present.

Coordinator, Cluster on the History of Modern Thought, UCLA, 2019-2020.

Member of Advisory board of the journal Isis, 2008 - 2010.

Visiting Scholar, Department of History, UCLA, 2002, 2005 - 2011.

Lecturer, Department of History, UCLA, 1999, 2000, 2009 - 2011

Course Co-Director of "Mathematics and Narrative" summer course, Central European University, Budapest, Hungary, July 2009.

Member of Advisory Board for Thales & Friends, a non-profit organization for the cultural study of mathematics, 2004 to present.

Co-Organizer, International Conference on Narrative and Mathematics, Mykonos, Greece, 2005.

Member of Organizing Committee of Society for Literature and Science Annual Meeting, Pasadena, 2002.

Mellon Postdoctoral Fellow, Humanities Consortium, UCLA, 1997-1999.

Member of Advisory Board for reference series *Science and Society through Time* (Gale Research, 2000).

Professional Appointments (continued)

Member of Organizing Committee of Humanities Consortium Conference, "The Two Cultures Reconsidered," UCLA, 1998.

Lecturer, Philosophy Department and Program in Cultures, Ideas, and Values, Stanford University, 1995-1997.

Honors and Fellowships

2021	<i>Proof! How the World became Geometrical</i> selected as one of eight "Recommended Books" for 2021 by <i>Vox</i> .
2014	 Infinitesimal: How a Dangerous Mathematical Theory Shaped the Modern World selected as: "One of the Best Books of 2014" by Slate. "One of the Seven Best Books about Science" by The Wall Street Journal. "One of the Best Books 2014" (sci-tech category) by Library Journal. "Mathematics Best Seller" by Library Journal.
	"Book of the Week" (June 19, 2014) by Times Higher Education.
2010	Duel at Dawn: Heroes, Martyrs, and the Rise of Modern Mathematics selected "Book of the Week" by Times Higher Education.
2003	Geometrical Landscapes: The Voyages of Discovery and the Transformation of Mathematical Practice selected as "Outstanding Academic Title" by Choice Magazine.
1997-1999	Mellon postdoctoral fellowship at the UCLA Humanities Consortium.
1994-1995	Weter dissertation grant.
1993-1994	Stanford Humanities Center fellowship.
1993-1994	Mabel Mcleod Lewis dissertation grant.
1989 - 1993	Stanford University graduate fellowship.

Teaching

"Introduction to the History of Science: The Scientific Revolution," lecture course, Department of History, UCLA.

"History of Medicine," lecture course, Department of History, UCLA.

"The History of Modern Thought," lecture course, Cluster Program, UCLA.

Teaching (continued)

"The Deepest Order of the Universe: Mathematics and Culture from the Pythagoreans to Computers," lecture course, Department of History, UCLA.

"Science and Religion from Copernicus to Darwinism," lecture course, Department of History, seminar, Honors Collegium, UCLA.

"World History 1760 to the Present," lecture course, UCLA Department of History.

"Introduction to the History of Science: Modern Science," lecture course, Department of History, UCLA.

"Science and Religion from Copernicus to Darwinism," seminar, Cluster Program, UCLA.

"World History 600 to 1700," lecture course, Department of History, UCLA.

"From El Dorado to the Final Frontier: The Changing Faces of Science and Exploration," seminar, Cluster Program, and Department of History, UCLA.

"World History to 600 CE," lecture course, Department of History, UCLA.

"Mathematics and Narrative," Summer University course at the Central European University, Budapest, Hungary, July 2009.

"Historical Methods," seminar for students planning to write senior theses, UCLA Department of History.

"History of the Life Sciences," lecture course, Department of History, UCLA.

"God and Nature: Science and Religion in Early Modern Europe," seminar, UCLA Department of History.

"Charting the Intellectual Globe: Science and Exploration in Early Modern Europe" seminar, Department of History, UCLA.

"Philosophy and Human Existence," yearlong course including lectures and discussion seminars, Department of Philosophy, Stanford University.

Refereeing

Served as article referee for the journals Isis, British Journal for the History of Science, Foundations of Science, Science in Context, Renaissance Quarterly, Notes and Records of the Royal Society.

Served as book manuscript referee for University of Chicago Press, Oxford University Press, Yale University Press, Rutgers University Press, Edinburgh University Press.

Languages

English, Hebrew, French, Latin.

<u>Other</u>

Citizen of the United States.