Anthony N. Stranges
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Texas A&M University
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Education

PhD History of Science, University of Wisconsin-Madison
MS Chemistry, Niagara University, New York
BS Chemistry, Niagara University, New York

Experience

Associate Professor, Interdisciplinary Arts and Sciences Environmental Faculty, Texas A&M University, 2023-present
Associate Professor of History, Texas A&M University, 1983-presentt
Assistant Professor of History, Texas A&M University, 1977-1982
Member, German Document Retrieval Project, Texas A&M University, 1977-1982
Archivist for the scientific papers of Farrington Daniels (1889-1972), Professor Emeritus of Chemistry at the University of Wisconsin, Madison, 1974-1977

Fields

History of Science, History of Technology, History of Chemistry, History of Energy, History of the Environment

Awards and Honors

- Texas A&M University Association of Former Students University-Level Distinguished Teaching Award, 1988
- Recognized by the Texas A&M University Veteran Resource & Support Center at the Graduation Cord Reception for faculty support of Aggie student veterans, 2016
- Texas A&M University Honors Program, LBAR Grant, $2,000, 2004
- Texas A&M University Faculty Development Leave, Spring semester 1999
- Texas A&M University Faculty Development Leave Spring semester 1987

Research and Publications

Books

- *Petroleum from Coal: A Century of Synthesis*. Brill Publishers, Leiden, Netherlands, 420 pages, 2024.
- *Electrons and Valence: Development of the Theory, 1900-1925*. Texas A&M University Press, College Station, 292 pages, 1982.

Book Chapters

- "Albert Einstein." In *Great Lives in European History 1600-1945*. Ed. William J. Fanning Jr., 342-72. Curriculum Project Foundation: All Saints Episcopal School of Fort Worth, 2021.
- "A History of the Fischer-Tropsch Synthesis in Germany 1926-45." In *Fischer-Tropsch Catalysts and Catalysis*. Eds. Burtron Davis and Mario Occello, 1-28. Elsevier Publishers: The Netherlands, 2007. Citations 104.

- "Germany's Synthetic Fuel Industry." In *The German Chemical Industry in the Twentieth Century*. Ed. John E. Lesch, 147-216. Dordrecht, The Netherlands: Kluwer Academic Publishers, 2000. Citations 51.
- "Synthetic Petroleum from High-Pressure Coal Hydrogenation." In *Chemistry and Modern Society: Historical Essays in Honor of Aaron J. Ihde*. Eds. John Parascandola and James Wharton, 21-42. Washington, DC: American Chemical Society, 1983. The American Chemical Society published this *Festschrift* volume honoring Aaron Ihde, Professor Emeritus of Chemistry and the History of Science at the University of Wisconsin, Madison. Citations 2.

Peer-Reviewed Journal Articles

- "Farrington Daniels: Pioneer in the Use of Solar Energy as Appropriate Technology." *ICON*, 29, *2* (2024): 9-43.
- "Germany's Fischer-Tropsch Synthesis 1926-1945: The World's First Commercial Scale Coal-to-Liquid Fuel Industry." *Gas Technologies Outlook* (2006): 1-28.
- "Germany's Synthetic Fuel Industry." *Energeia* 12, *5* (2001): 1, 2, 6.
- "The US Bureau of Mines Synthetic Liquid Fuels Programme, 1920-1950s: German Connections and American Advances." *Annals of Science* 54 (1997): 29-68. Citations 25.
- "Synthetic Fuel Production in Prewar and World War II Japan: A Case Study in Technological Failure." *Annals of Science* 50 (1993): 229-65. Views 179, Citations 23.
- "Farrington Daniels and the Wisconsin Process for Nitrogen Fixation." *Social Studies of Science* 22 (1992): 317-37. Citations 5.
- "X-Rays: Laying the Foundation of Modern Radiology." *Medicina Nei Secoli Arte e Scienza* 3 (1991): 207-22 (with Deidi Strickland).
- "Canada's Mines Branch and Its Synthetic Fuel Program for Energy Independence." *Technology and Culture* 32 (1991): 521-54. Citations 3.
- "William Francis Giauque (1895-1982): An Adventure in Low-Temperature Research." *Journal of Chemical Education* 67 (1990): 187-93. Views 166.
- "Unravelling Origins: The Archean." *Earth Science* 42 (December 1989): 20-22 (with Richard Jones).
- "Canada's Mines Branch and Its Synthetic Fuels Programme for Energy Independence." *Canadian Chemical News* (*L'Actualité Chimique Canadienne*) 41 (May 1989): 22-24.
- "Friedrich Bergius and the Transformation of Coal Liquefaction from Empiricism to a Science-Based Technology." *Journal of Chemical Education* 65 (1988): 749-51. Citations 17.
- "The Conversion of Coal to Petroleum: Its German Roots." *Fuel Processing Technology* 16 (1987): 205-25. Citations 15.
- "From Birmingham to Billingham: Synthetic Fuels in Great Britain, 1910-1945." *Technology and Culture* 26 (1985): 726-57. Citations 31.
- "Friedrich Bergius and the Rise of the German Synthetic Fuel Industry." *Isis* 75 (1984): 643-67. Citations 60.

- "Reflections on the Electron Theory of the Chemical Bond: 1900-1925." *Journal of Chemical Education* 61 (1984): 185-90. Published as the "G.N. Lewis Symposium Papers." Citations 18.
- "Synthetic Petroleum from Coal Hydrogenation: Its History and Present State of Development in the United States." *Journal of Chemical Education* 60 (1983): 617-25. Citations 2.
- "Reflections on the Electron Theory of the Chemical Bond: 1900-1925." *The Physics Teacher* 19 (1981): 583-89. Citations 6.

Published Proceedings

- "Is the Debate Over? James Hansen's Contributions to the Changing Atmosphere-Changing Climate Debate." In *Technology in Times of Transition*, *Brasov, Romania*. *Proceedings of the International Committee for the History of Technology,* 423-28, 2014.
- "Farrington Daniels, Solar Prophet and Pioneer in the Use of Solar Energy as Appropriate Technology." In *Proceedings of the International Solar Energy Society*. Eds. D.Y. Goswami, S. Viiayaraghavan, R. Campbell-Howe, Paper No. 2019, 1-5, 2005.
- "Germany's Synthetic Fuel Industry 1927-1945." In *Third Topical Conference on Natural Gas Utilization*. *Proceedings of the American Institute of Chemical Engineers.* Eds. C.H. Chiu, R.D. Srivastava, and R. Mallinson, 635-46. New York, Spring 2003.
- "Synthetic Fuel Production in Prewar and World War II Japan." In *Third Topical Conference on Natural Gas Utilization*. *Proceedings of the American Institute of Chemical Engineers*. Eds. C.H. Chiu, R.D. Srivastava, and R. Mallinson, 657-67. New York, Spring 2003.
- "Air Pollution Problems in History." In *Science and Cultural Diversity*. *Proceedings of the XXIst International Congress of the History of Science*. Ed. Juan-Jose Saldana. Universidad Nacional Autónoma de México : Sociedad Mexicana de Historia de la Ciencia y la Tecnología, A.C., México, D.F., 2003. All papers on CD, 2001.
- "Germany's Synthetic Fuel Industry 1930-1945." *Working Paper 5.64, Center for German and European Studies*, Berkeley: University of California (March 1997): 1-94.
- "William Francis Giauque: An Adventure in Low-Temperature Thermodynamics." In *Proceedings of the Eighteenth Symposium of the International Committee for the History of Technology*. Ed. Alexander Herlea, 1-12. San Francisco: San Francisco Press, 1993.
- "Canada's Mines Branch: Synthetic Fuels and the Search for Energy Independence." In *Proceedings of the Sixteenth Symposium of the International Committee for the History of Technology*, 495-505. Madrid, Spain: Ministerio de Obras publicas y Urbanismo, 1988.
- "Friedrich Bergius: Scientist and Industrial Pioneer of High-Pressure Coal Liquefaction." In *Technology and Technical Sciences in History*. *Proceedings of the Twelfth Symposium of the International Committee for the History of Technology*. Eds. Rolf Sonnemann and Klaus Krug, 263-66. East Berlin: VEB Deutscher Verlag der Wissenschaften, 1987.
- "Petroleum from Coal: German Roots and Recent American Developments." In *Energy in History*. *Proceedings of the Eleventh Symposium of the International Committee for the History of Technology*. Eds. Hans Joachim-Braun and Wolfgang König, 125-31. Düsseldorf: Verein Deutscher Ingenieure, 1984.

- "History of High-Pressure Coal Hydrogenation." In *Proceedings of the Society for the History of Technology* 3, 111-28, 1982.

Dictionary and Encyclopedia Publications

- "Chemistry," in *The Oxford Encyclopedia of the History of American Science, Medicine, and Technology,* Vol. I. Ed. Hugh R. Slotten. New York and Oxford: Oxford University Press, 2014: 187-94.
- "Karl Ziegler," in *Encyclopedia Britannica.* Chicago, Electronic Version, 2007.
- "Coal," in *Chemistry: Foundations and Applications*, Vol. I. Ed. in Chief Joseph J. Lagowski. New York: Macmillan Publishers, 2004: 232-36.
- "Standard International Units," in *Chemistry: Foundations and Applications*, Vol. II. Ed. in Chief Joseph J. Lagowski. New York: Macmillan Publishers, 2004: 245-48.
- "Oil from Coal Process," in *Encyclopedia of Twentieth-Century Technology*, Vol. II. Ed. Colin Hempstead and William Worthington. New York: Routledge, 2004: 547-49.
- "Chemistry," in *The History of Science in the United States: An Encyclopedia*. Ed. Marc Rothenberg. New York: Garland Publishing, Inc., 2001: 114-19 (with Marlene Bradford*).
- "Auguste and Jean-Felix Piccard," in *Dictionary of World Biography, 20th Century*, Vol. 9. Pasadena, California: Salem Press and Fitzroy Dearborn Publishers, 1999: 3002-5 (with Marlene Bradford*).
- "William F. Giauque," in *Biographical Encyclopedia of Scientist*s. Ed. Richard Olson. New York: Marshall Cavendish Corp., 1998: 503-6 (with Steve Kirkpatrick*).
- "G.N. Lewis," in *Biographical Encyclopedia of Scientists*. Ed. Richard Olson. New York: Marshall Cavendish Corp., 1998: 829-31 (with Steve Kirkpatrick*).
- "Leo H. Baekeland," in *American National Biography*, Vol. 1. Ed. John A. Garraty. New York: Oxford University Press, 1999: 861-64 (with Richard Jones*).
- "Frederick Gardner Cottrell," in *American National Biography*, Vol 5. Ed. John A. Garraty. New York: Oxford University Press, 1999: 569-70 (with Richard Jones*).
- "Farrington Daniels," in *American National Biography*, Vol. 6. Ed. John A. Garraty. New York: Oxford University Press, 1999: 92-93.
- "Roger Adams," in *Encyclopedia of Chemistry*, Vol. 1. Ed. Joseph Lagowski. New York: Macmillan Publishing, 1997: 24-25 (with Marlene Bradford*).
- "Adolph Baeyer," in *Encyclopedia of Chemistry*, Vol. 1. Ed. Joseph Lagowski. New York: Macmillan Publishing, 1997: 210 (with Marlene Bradford*).
- "Friedrich Beilstein," in *Encyclopedia of Chemistry*, Vol. 1. Ed. Joseph Lagowski. New York: Macmillan Publishing, 1997: 218 (with Marlene Bradford*).
- "Niels Bohr," in *Encyclopedia of Chemistry*, Vol. 1. Ed. Joseph Lagowski. New York: Macmillan Publishing, 1997: 250 (with Marlene Bradford*).
- "Robert Bunsen," in *Encyclopedia of Chemistry*, Vol. 1. Ed. Joseph Lagowski. New York: Macmillan Publishing, 1997: 275-76 (with Marlene Bradford*).
- "Albert Einstein," in *Encyclopedia of Chemistry*, Vol. 2. Ed. Joseph Lagowski. New York: Macmillan Publishing, 1997: 501-2 (with Marlene Bradford*).

- "Alexander Fleck," in *Encyclopedia of Chemistry*, Vol. 2. Ed. Joseph Lagowski. New York: Macmillan Publishing, 1997: 628 (with Marlene Bradford*).
- "Henry Gilman," in *Encyclopedia of Chemistry*, Vol. 2. Ed. Joseph Lagowski. New York: Macmillan Publishing, 1997: 689-90 (with Marlene Bradford*).
- "Ernest O. Lawrence," in *Encyclopedia of Chemistry*, Vol. 4. Ed. Joseph Lagowski. New York: Macmillan Publishing, 1997: 844 (with Marlene Bradford*).
- "Henri Le Chatelier," in *Encyclopedia of Chemistry*, Vol. 4. Ed. Joseph Lagowski. New York: Macmillan Publishing, 1997: 846-47 (with Marlene Bradford*).
- "Lothar Meyer," in *Encyclopedia of Chemistry*, Vol. 4. Ed. Joseph Lagowski. New York: Macmillan Publishing, 1997: 940-41 (with Marlene Bradford*).
- "Henry G.J. Moseley," in *Encyclopedia of Chemistry*, Vol. 4. Ed. Joseph Lagowski. New York: Macmillan Publishing, 1997: 984-85 (with Marlene Bradford*).
- "The Proton," in *Encyclopedia of Chemistry*, Vol. 4. Ed. Joseph Lagowski. New York: Macmillan Publishing, 1997: 1262-63 (with Marlene Bradford*).
- "Coal Liquefaction," in *Magill's Survey of Science: Applied Science*. Ed. Frank N. Magill. Pasadena, California: Salem Press, 1993: 441-48 (with Steve Kirkpatrick*).
- "Hess Concludes the Debate on Continental Drift," in *Magill's Great Events from History II: Science and Technology*. Ed. Frank N. Magill. Pasadena, California: Salem Press, 1991: 1650-54 (with Richard Jones*).
- "William Giauque," in *Dictionary of Scientific Biography*, Vol. 17. Ed. Charles C. Gillispie. New York: Charles Scribner's Sons, 1990: 337-44.
- "George Scatchard," in *Dictionary of Scientific Biography*, Vol. 18. Ed. Charles C. Gillispie. New York: Charles Scribner's Sons, 1990: 776-79.
- "The Archean Eon," in *Magill's Survey of Science, Earth Science Series*, Vol. 1. Ed. Frank N. Magill. Pasadena, California: Salem Press, 1990: 92-97 (with Richard Jones*).
- "The Geological Time Scale," in *Magill's Survey of Science, Earth Science Series*, Vol. 2. Ed. Frank N. Magill. Pasadena, California: Salem Press, 1990: 874-81 (with Richard Jones*).

*Marlene Bradford, Richard Jones, and Stephen Kirkpatrick, graduate students.

Book Reviews

- Michael Camp*, Unnatural Resources: Energy and Environmental Politics in Appalachia after the 1973 Oil Embargo*, in *Technology and Culture*, 63 (2022): 274-76.
- Joseph Pratt, Martin Melosi, Kathleen Brosnan, *Energy Capitals*, in *ICON* 22 (2016): 185-87.
- Stephan H. Lindner, *Inside I.G Farben: Hoechst During the Third Reich*, in *Technology and Culture* 50 (2009): 712-13.
- Dietrich Stolzenberg, *Fritz Haber; Chemist, Nobel Laureate, German Jew*, in *Technology and Culture* 46 (2005): 448-49.
- Ahmed Zewail, *Voyage Through Time: Walks of Life to the Nobel Prize*, in *Isis* 95 (2004): 164-65.
- Frederic Holmes and Trevor H. Levere, *Instruments and Experimentation in the History of Chemistry*, in *Isis* 95 (2004): 506-7.

- Vaclav Smil, *Enriching the Earth: Fritz Haber, Carl Bosch, and the Transformation of World Food Production*, in *Isis* 93 (2002): 329-30.
- John Perlin, *Space to Earth: The Story of Solar Electricity*, in *Isis* 92 (2001): 217-18.
- Donald Beattie, Ed., *History and Overview of Solar Heat Technologies*, in *Isis* 90 (1999): 402-3.
- Robin Herman, *Fusion: The Search for Endless Energy*, in *Annals of Science* 50 (1993): 296-98.
- Robert S. Mulliken, *Life of a Scientist*, in *Isis* 81 (1990): 797.
- Michael Crow, Barry Bozeman, Walter Meyer, and Ralph Shangraw, Jr., *Synthetic Fuel Technology Development in the United States*, in *Technology and Culture* 31 (1990): 350-52.
- S.W. Hawking and W. Israel, *Three Hundred Years of Gravitation*, in *Annals of Science* 46 (1989): 110-12.
- William Ashworth, *The History of the British Coal Industry*, Vol. 5, in *Technology and Culture* 29 (1988): 975-77.
- Arnold Kramish, *The Griffin: The Greatest Untold Espionage Story of World War II*, in *Isis* 79 (1988): 173-74.
- Yuval Ne'man and Yoram Kirsch, *The Particle Hunters*, in *Annals of Science* 44 (1987): 534-36.
- Hugh J.G. Aitken, *Syntony and Spark: The Origins of Radio*, in *American Historical Review* 91 (1986): 1166-67.
- John Hendry, *The Creation of Quantum Mechanics and the Bohr-Pauli Dialogue*, in *Annals of Science* 43 (1986): 304-5.
- R.L. Whitmore, *Coal in Queensland: The First Fifty Years*, in *Technology and Culture* 25 (1984): 857-59.
- Kevin Hance, *Conflict and Coal*, in *Technology and Culture* 25 (1984): 857-59.
- Brian McCusker, *The Quest for Quarks*, in *Annals of Science* 41 (1984): 498-500.

Invited Presentations

- Invitation to serve as chair and speaker on Solar Photovoltaic Technologies, 7th World Congress of Smart Energy, 2-4 November 2017, Wuxi, China, declined.
- "Using the History of Science to Examine the Impact of Science and Technology on the Free Enterprise System and the Economic Development of the United States," Pasadena Independent School District, Pasadena, Texas, December 2012.
- "History of Synthetic Fuel," Center for Applied Energy Research, University of Kentucky, Lexington, KY, October 2000.
- "Germany's Synthetic Fuel Industry 1930-1945," German Chemical Industry in the Twentieth Century Symposium, sponsored by the Center for German and European Studies, University of California, Berkeley, CA, March 1997.
- "Synthetic Fuel Production in Prewar and World War II Japan," Research Center for Advanced Science and Technology, University of Tokyo, Japan, December 1990.
- "Synthetic Fuel Production in Prewar and World War II Japan," History of Science Colloquium, Doshisha University, Kyoto, Japan, December 1990.

- "William Francis Giauque: An Adventure in Low-Temperature Thermodynamics," 18th Symposium of the International Committee for the History of Technology, The Relations of Science with Technology, Paris, France, July 1990.
- "The IG Farben-Japanese World War II Synthetic Liquid Fuels Agreement," Annual Meeting of the Society for the History of Technology, Wilmington, Delaware, October 1988.
- "Canada's Mines Branch: Synthetic Fuels and the Search for Energy Independence," 16th Symposium of the International Committee for the History of Technology, Civil Engineering, Madrid, Spain, September 1988.
- "Friedrich Bergius and the Transformation of Coal Liquefaction from Empiricism to a Science-Based Technology," Southwestern and Rocky Mountain Division, American Association for the Advancement of Science, Austin, Texas, April 1987.
- "Friedrich Bergius: Scientist and Industrial Pioneer of High-Pressure Coal Liquefaction," 12th Symposium of the International Committee for the History of Technology, Technology and Technical Sciences in History, Dresden, East Germany, August 1986.
- "Petroleum from Coal: German Roots and Recent American Developments," 11th Symposium of the International Committee for the History of Technology, Energy in History, Lerbach, West Germany, September 1984.
- "Petroleum from Coal," Southwest Research Institute, San Antonio, Texas, June 1983.
- "Reflections on the Electron Theory of the Chemical Bond, 1900-1925," G.N. Lewis Symposium, Annual Meeting of the American Chemical Society, Las Vegas, Nevada, March 1982.
- "History of High-Pressure Coal Hydrogenation," Annual Meeting of the Society for the History of Technology, Milwaukee, Wisconsin, October 1981.

Conference Presentations

- "Changing Use and Awareness of Hydrogen as a Clean Energy Source," XXVIIth International Congress of the History of Science and Technology. Dunedin, New Zealand, June-July 2025.
- "The Petroleum Industry's Fracking Revolution and Its Environmental Consequences," International Committee for the History of Technology, 50th Symposium, Tallinn, Estonia, August 2023, virtual because of Covid-19.
- "The Technological Transformation of the 1850s and its Environmental Consequences," International Committee for the History of Technology, 49th Symposium, University of Ostrava, Czech Republic, September-October 2022, virtual because of Covid-19.
- "Acid Rain: Causes, Consequences, Remedies, and Regulation," XXVIth International Congress of the History of Science and Technology. Prague, The Czech Republic, July 2021, virtual because of Covid-19.
- "Pioneering Studies on Acid Rain," International Committee for the History of Technology, 47th Symposium, Eindhoven, The Netherlands, July 2020, virtual because of Covid-19.
- "The Present and Future of Solar Energy," International Committee for the History of Technology, 46th Symposium, Katowice, Poland, July 2019.
- "Wind Energy," International Committee for the History of Technology, 45th Symposium, St. Etienne, France, July 2018.
- "Earth's Environment, Climate Change and the Doubters," XXVth International Congress of the History of Science, Technology and Medicine, Rio de Janeiro, Brazil, July 2017.

- "Arvid Högbom and Svante Arrhenius: Early Recognition of a Future Environmental Crisis," International Committee for the History of Technology, 43rd Symposium, Porto, Portugal, July 2016.
- "Guy Callendar and Gilbert Plass, Pioneering Proponents of Global Warming," International Committee for the History of Technology, 42nd Symposium, Tel Aviv, Israel, August 2015.
- "Is the Debate Over? James Hansen's Contributions to the Changing Atmosphere-Changing Climate Theory," International Committee for the History of Technology, 41st Symposium, Brasov, Romania, July 2014.
- "Roger Revelle Answers the Question, How Deep is the Ocean," XXIVth International Congress of the History of Science, Manchester, England, July 2013.
- "Keeling Curve: Causes and Consequences of Global Warming," International Committee for the History of Technology, 39th Symposium, Barcelona, Spain, July 2012.
- "Global Warming, its Three-Stage History," International Committee for the History of Technology, 38th Symposium, Glasgow, Scotland, August 2011.
- "Key Scientists in the History of Climate Change," International Committee for the History of Technology, 38th Symposium, Glasgow, Scotland, August 2011.
- "The Breadth of a Scientific Process Called Hydrogenation," International Committee for the History of Technology, 37th Symposium, Tampere, Finland, August 2010.
- "Water Pollution and Its Treatment in Nineteenth-Century United States," XXIIIrd International Congress of the History of Science, Budapest, Hungary, July 2009.
- "Scientists in the History of Air Pollution," International Committee for the History of Technology, 35th Symposium, Victoria, British Columbia, Canada, August 2008.
- "Germany's Fischer-Tropsch Synthesis," International Committee for the History of Technology, 34th Symposium, Copenhagen, Denmark, August 2007.
- "Key Scientists in the History of Air Pollution," Part II, International Committee for the History of Technology, 33rd Symposium, Leicester, England, August 2006.
- "Key Scientists in the History of Air Pollution," XXIInd International Congress of the History of Science, Beijing, China, July 2005.
- "Farrington Daniels, Solar Prophet and Pioneer in the use of Solar Energy as Appropriate Technology," International Solar Energy Society, 2005 Solar World Congress, Orlando, Florida, August 2005.
- "Germany's Synthetic Fuel Industry 1927-45," Third Topical Conference on Natural Gas Utilization, American Institute of Chemical Engineers, New Orleans, LA, March-April 2003.
- "Synthetic Fuel Production in Prewar and World War II Japan," Third Topical Conference on Natural Gas Utilization, American Institute of Chemical Engineers, New Orleans, LA, March-April 2003.
- "Technical Oil Mission Microfilm Reels: Background and New Developments," (with Steve Leviness, Syntroleum Corporation, and Ed Koper, Sasol, South Africa), Third Topical Conference on Natural Gas Utilization, American Institute of Chemical Engineers, New Orleans, LA, March-April 2003.

- "Responses to Air and Water Pollution in the United States from the 1900s to the 1950s," International Committee for the History of Technology, 30th Symposium, St. Petersburg and Moscow, Russia, August 2003.
- "History of Acid Rain," International Committee for the History of Technology, 29th Symposium, Granada, Spain, June 2002.
- "Air Pollution in History," XXIst International Congress of the History of Science, Mexico City, Mexico, July 2001.
- "Fischer-Tropsch Reactor Design II, 1940-45, Germany," Annual Meeting of the American Chemical Society, Chicago, Illinois, August 2001.
- "Frederick Cotrell (1877-1948): Pioneer Industrial Environmentalist," 27th Symposium of the International Committee for the History of Technology, Prague, Czech Republic, August 2000.
- "Fischer-Tropsch Reactor Design I: Germany 1923-1939," Annual Meeting of the American Chemical Society, Washington, DC, August 2000.
- "Fischer-Tropsch Fuels and Lubricants I: Germany 1923-1939," Annual Meeting of the American Chemical Society, Washington, DC, August 2000.
- "Farrington Daniels, Pioneer in the Use of Solar Energy as Appropriate Technology," 26th Symposium of the International Committee for the History of Technology, Belfort, France, August 1999.
- "The Fischer-Tropsch Synthetic Fuel Process: European Roots and American Developments," 25th Symposium of the International Committee for the History of Technology, Lisbon, Portugal, August 1998.
- "IG Farben's Coal Liquefaction Program 1920-1945," 23rd Symposium of the International Committee for the History of Technology, Budapest, Hungary, August 1996.
- "Synthetic Fuel Development at BASF in the 1920s," Annual Meeting of the Society for the History of Technology, Charlottesville, Virginia, October 1995.
- "Farrington Daniels: Pioneer in the Use of Solar Energy as Appropriate Technology," Annual Meeting of the History of Science Society, New Orleans, Louisiana, October 1994.
- "The US Bureau of Mines Synthetic Fuel Program: 1920s-1954," 22nd Symposium of the International Committee for the History of Technology, Bath, England, July 1994.
- "Synthetic Fuel Production in Prewar and World War II Japan: A Case Study in Technological Failure," XIXth International Congress of History of Science, Zaragoza, Spain, August 1993.
- "Canada's Mines Branch and its Synthetic Fuel Program for Energy Independence," Joint Meeting of the American, British, and Canadian History of Science Societies, Toronto, Ontario, Canada, July 1992.
- "Farrington Daniels and the Use of Solar Energy as Appropriate Technology," Annual Meeting of the Society for the History of Technology, Madison, Wisconsin, October 1991.
- "William Francis Giauque: An Adventure in Low-Temperature Research," Annual Meeting of the American Chemical Society, Washington, DC, August 1990.
- "Canada's Mines Branch and Its Synthetic Fuel Program for Energy Independence," Association for Canadian Studies in the United States, Tenth Biennial Meeting, San

Francisco, California, November 1989.

- "Farrington Daniels and the Wisconsin Process for Nitrogen Fixation," XVIIIth International Congress of History of Science, Symposium on Failed Technologies, Hamburg, West Germany, August 1989.
- "The Mines Branch and Canada's Program for Energy Self-Sufficiency," Joint Meeting of the American Chemical Society and the Chemical Congress of North America, Toronto, Ontario, Canada, June 1988.
- "Synthetic Fuels in Japan," Annual Meeting of the History of Science Society, Raleigh, North Carolina, October 1987.
- "The Bureau of Mines' German Synthetic Fuel Scientists," Annual Meeting of the Society for the History of Technology, Dearborn, Michigan, October 1985.
- "A Special Relation: The Development of Synthetic Fuels in Nazi Germany," XVIIth International Congress of History of Science, University of California, Berkeley, California, August 1985.
- "US Bureau of Mines: Early Research on Coal Hydrogenation," Annual Meeting of the History of Science Society, Norwalk, Connecticut, October 1983.
- "Synthetic Petroleum from Coal Hydrogenation: Its History and Present State in Texas," Texas State Historical Society Meeting, El Paso, Texas, March 1981.
- "The Production of Synthetic Fuels in Great Britain, 1910-1945," Joint Meeting of the American Historical Association and the History of Science Society, New York City, New York, December 1979.
- Friedrich Bergius and the Rise of the German Synthetic Fuel Industry," Annual Meeting of the History of Science Society Meeting, Madison, Wisconsin, October 1978.

Texas A&M University Presentations

- "Science and Religion," Jordan Institute, Texas A&M University, November 2002.
- "Turning Points in the History of Chemistry," Texas A&M Chemistry Department Graduate Students Association, November 2001.
- ."Complexity in Science," Texas A&M Undergraduate Honors Group, April 2000.
- "Evolution and Creation," Texas A&M Student Atheists Association, April 1999.
- "The Electron Theory of Valence," Chemical Education Interest Group, Department of Chemistry, Texas A&M University, October 1999.
- "History of Science," Graduate Seminar, Texas A&M Journalism Department, September 1996.
- "Leonardo da Vinci: Artist, Scientist, Engineer," Pi Tau Sigma, National Mechanical Engineering Honor Society, Texas A&M University, November 1995.
- "Humans in the Designed World," Convocation Address, Texas Project 2061: The Designed World. Science Literacy Project of the American Association for the Advancement of Science, Texas A&M University, November 1993.
- "Sharing the Continent: Canada and the United States," The Cultures of Canada, Mexico, and the United States: Contrast and Conflict, Symposium, Wiley Lecture Series, Texas A&M University, February 1991.
- "Historical Perspectives on Science, Technology, and Society," National Science,

Technology. and Science Leadership Conference, Region 5: Arkansas, Louisiana, New Mexico, Oklahoma, and Texas; Texas A&M University, College Station, October 1989.

- "Evolution and Creation Science," Texas A&M University Students with Alternative Philosophies, November 1988.
- "The History of Science and Its Contribution to the Sciences," Texas A&M University Students' Chemistry Club, November 1988.
- "What the History of Science Has to Offer Science Educators," Department of Curriculum and Instruction, Texas A&M University, November 1988.
- "What is History of Science?" Above and Beyond, Texas A&M University Science Students' Club, March 1983.
- "A History of Electrical Theories and Their Applications," Part 1 and Part 2, Department of Electrical Engineering, Texas A&M University, November 1982.
- "The History and Development of Scientific Ideas," Department of Oceanography, Texas A&M University, December 1981.
- "Technology and Human Values," Department of Agricultural Engineering, Texas A&M University, December 1979.

Research Projects and Activities

Texas A&M Center for Energy and Mineral Resources, German Document Retrieval Project (1977-82)

I was a member of Texas A&M's German Document Retrieval Project that collected and brought most of Germany's World War II synthetic fuel documents (Bergius and Fischer-Tropsch coal to oil conversion processes) to Texas A&M's Center for Energy and Mineral Resources. Richard Wainerdi (1931-2021), professor of engineering and Associate Vice-President for Academic Affairs, and Kurt Irgolic (1938-99), professor of chemistry, established the project in 1975. In the ensuing years I added to the collection a significant number of synthetic fuel documents that I obtained during visits to BASF's archives in Ludwigshafen, Theodor Goldschmidt archives in Essen, the Bundesarchiv in Koblenz, Imperial Chemical Industries (ICI, since 2008 AkzoNobel) archives in London, the National Diet Library in Tokyo, and the Central State Archives in Rome. The collected documents, about 300,000 pages, 305 Technical Oil Mission (TOM) microfilm reels of German documents, numerous Japanese, American, British, and Canadian documents that members of the Technical Oil Mission brought to the United States in the closing months of the war, and the documents that I obtained, are now in the Texas A&M University Archives. The archival collection (100 large archive boxes) is one of the largest historical collections of synthetic fuel production. I also interviewed and corresponded with several TOM members, Vladimir Haensel, John Gordon Allen, William Appler Horne, and Hans Schindler, who provided synthetic fuel documents that they possessed, and interviewed and corresponded with several German synthetic fuel scientists such as Ernst Donath and Hans Schappert, who came to the United States during US government's secret intelligence program, Project Paperclip, to work for the US Bureau of Mines. *Petroleum from Coal: a Century of Synthesis*, which I published in 2024 using TAMU archival and published synthetic fuel documents and interviews of synthetic fuel scientists as my source material, is the single and most comprehensive and authoritative global history of the synthetic fuel industry.

Fischer-Tropsch Website (2002-Present)

I served as a full-time research consultant to Syntroleum Corporation (now Emerging Fuels Technology) in Tulsa, Oklahoma, in spring and summer 2001 and as a part-time consultant 2001-

2010. The collaboration led to creating the Fischer-Tropsch Archive, a website (www.fischer-tropsch.org) that contains an extensive collection of documents on the development of the Fischer-Tropsch and Bergius synthetic fuels processes in Germany, Britain, Japan, the United States, and other countries from the 1920s to the 2000s. I catalogued the entire collection of documents (100 large archive boxes) in the Texas A&M University Archives and provided copies of the documents to Syntroleum. Syntroleum converted the documents to electronic form (digitized) and made them available at the Fischer-Tropsch website to researchers worldwide. I assumed management of the website in 2007. Currently this website receives 3,000 hits per day.
Syntroleum also digitized and made available in DVD format the 305 reels of microfilm on Germany's synthetic fuel industry that the TOM compiled in 1945-46. The cost of digitizing exceeded $150,000. Syntroleum donated a complete DVD set to the TAMU Archives.

Aviation History and Museum, 2000
Project on the history of aviation with Brian Heckman, a professor of meteorology at the Air Force Academy in Colorado Springs, Colorado. The project had several objectives, one of which was the establishment of a history of aviation museum in the original 1940 terminal at Hobby Airport in Houston. The project resulted in the museum's developing student internships and offering courses for the public on the history of aviation and related sciences such as meteorology and the history of aviation in agriculture.

Farrington Daniels: Physical Chemist and Pioneer of Solar Energy as an Alternative Energy
In progress is a book-length manuscript examining the career of Farrington Daniels, internationally acclaimed physical chemist, textbook writer, and solar energy pioneer.

Energy and the Environment
I intend to submit a proposal for a monograph on energy and the environment.

Electrons and Valence: Development of the Theory, 1900-1925.
The electron theory of valence is one of the most fundamental developments in the history of modern chemistry. Following the electron's 1897 discovery, scientists concluded that polar bonds (complete electron transfer from one atom to another) held atoms in a molecule. Other scientists noted the polar theory's inconsistencies when applied to many organic molecules. The bonding issue remained unresolved until 1916 when G.N. Lewis at Berkeley published the accepted mechanism for the nonpolar bond, the shared electron pair. My monograph, *Electrons and Valence* (1982), demonstrates the significance of Lewis's shared electron pair as the chemical bond. It has remained the most complete historical account of the electron theory of valence since its publication.
In 1993 Video-Electronics Instruction created an instruction program based on *Electrons and Valence*. The program, "Reflections on the Electron Theory of the Chemical Bond: 1900-1925," appeared in *Physics InfoMall, The Physics Teacher's CD-ROM Toolkit Project.*

Grants and Contracts

- Texas A&M University International Research Travel Assistance Grant. 2002: $2,000.
- National Science Foundation. "A History of High-Pressure Coal Hydrogenation in Germany." 1980-88: $55,988.
- Canadian Studies Program, Academic Relations Office, Canadian Embassy, Washington, DC. "Canada's Mines Branch and Its Synthetic Fuel Program for Energy Independence." 1988-89: $2,500.
- Center for Energy and Mineral Resources, Texas A&M University. "A History of High-

Pressure Coal Hydrogenation in Germany and Britain." 1980-88: $33,686.
- Office of University Research Services, Texas A&M University, 1986-87: $6,760.
- Texas A&M University, College of Liberal Arts Travel Support, 1996-2020: $21,050
- Texas A&M University History Department Travel Support, 2005-2025: $23,540

Teaching

HIST 106: History of the United States, 1877 to the Present
HIST 362: History of Science
HIST 363: History of Science in America
HIST 376: Great Scientists in History
HIST 381: Energy and the Environment: Conflict or Compatibility

1988: Texas A&M University Association of Former Students University-Level Distinguished Teaching Award

Books

- Stranges, Anthony N., *Science Changed the World*, Dubuque, Iowa: Kendall Hunt Publishing Company, 767 pages, second edition 2018. *Science Changed the World* includes original research based on primary sources and subject matter from secondary sources. It examines the origin, development, and impact of science from ancient times to the present. Its ten themes provide an integrated examination of the origin, growth, and impact of science in different times and in different cultures from ancient to modern, from East to West. The themes show the chronological transition of science from its record keeping period that began about 3000 BC in Egypt, Babylon, and China, to its theoretical period 600-400 BC in Greece (Aristotle, Ptolemy, Hippocrates), to its mathematical-quantitative period 1500s-1600s scientific revolution (Galileo, Newton) and continues to this day (Einstein, Fermi, Watson and Crick). Textbook for HIST 362: History of Science.

- Stranges, Anthony N., *Transforming America, Dubuque*, Iowa: Kendall Hunt Publishing Company, 832 pages, third edition 2018. *Transforming America*, surveys the origin, development, and impact of science in America from colonial times to the present. The themes discuss colonial science (Franklin, Jefferson) the emergence of American science and engineering before and after the Civil War (Silliman, Hare), the United States' rise as an industrial power (Edison, Bell), the growth of the modern American university with its emphasis on freedom and scholarship (Eliot, White), and the United States' ascendancy as the world's scientific leader in the mid-1900s (Lewis, Oppenheimer). *Transforming America* includes original research based on primary sources and subject matter from secondary sources. Its publication marks a major milestone in the steady growth of the history of science in America. Textbook for HIST 363: History of Science in America.
- Stranges, Anthony N., Technological *Transformation of Gilded Age America.* Dubuque, Iowa: Kendall Hunt Publishing Company, 176 pages, 2016. *Technological Transformation of Gilded Age America* discusses three themes: the new technological developments (steel, aluminum, petroleum, electrical) and their transforming impact on the United States; the organizers and the organizing techniques they employed, which made the United States the leading industrial nation in 1900; and the environmental consequences that resulted from the Gilded Age technological transformation. Textbook for HIST 106, US History.

Graduate Advising

- PhD Graduate Committee Chair

  Roger Horky, *Clipping the Eagle's Wings: The Limiting of the Korean Air War, 1915-1953*, Doctoral Dissertation, 2013

  Marlene Bradford, 1998. The University of Oklahoma Press published her dissertation in *Scanning the Skies: a History of Tornado Forecasting, 2001,* 256 pp.
- PhD, EdD Graduate Committee Membership/Co-Chair: 9 students in History, Curriculum & Instruction, Nautical Archaeology
- MA Graduate Committee Chair/Co-Chair: 3 students in Science & Technology Journalism, and History
- MA, MS Graduate Committee Membership: 14 students in Engineering, Journalism, Sociology, Chemistry
- Master of Education Graduate Committee Membership/Co-Chair: 225 students in the College of Education seeking degrees in Curriculum and Instruction and teaching certification, 2001-2024.

Undergraduate Advising

Katelyn Preston, *Chemistry of the Steel Industry*, Honors Contract, History 106, Spring 2024
Sasha Bell, *COINTELPRO and the FBI's War on the Black Movement*, Honors Contract, History 106, Spring 2023
Katie James, *Albert Michelson and the Speed of Light*, Honors Contract, History 363, Fall 2018
Jordan Thomas, *World War II Propaganda*, Honors Contract, History 106, Fall 2015
Joshua Brehm, *Molecular Biology*, Honors Contract, History 106, Spring 2014
Connor Jacobson, Honors Contract, History 106, Fall 2013
Anand Ganapathy, Honors Contract, History 363, Spring 2011
Katherine Bora, Honors Contract, History 363, Spring 2011
Courtney Boothe, cotton gin project, History 363, Spring 2009
Rene Mai, Physics Department, *Women Competing in a Man's Field, Science,* Honors Contract, History 106, Fall 2008

Service

Department

Climate Committee, 2024-present
Library Committee, 2015- 23
Faculty Adviser, *Phi Alpha Theta*, 1998-2011. While I served as adviser, *Phi Alpha Theta*, beginning in 2002 published seven volumes of its on-line journal *Gaines Junction* at PAT's website *http://pat.tamu.edu.* The Glasscock Center provided funds for the start-up.
Personnel Committee, 1987-present
Undergraduate Committee, 1980-81, 1983-86, 1988-90, 1994-95
Marshall, Graduation Exercises, Summer 1987
Tenure and Promotion Committee, 1986-87
European Committee, 1982-83, 1987-88
History of Technology Search Committee, 1981, 1986-87
Planning and Priorities Committee, 1985-86
Department Head Search Committee, 1984-85
Research Contact Representative, 1982-86
Chair, Social Committee, 1983-84

Visiting Professors Search Committee, 1983-84
Graduate Committee, 1982-83
American History Survey Readings Committee, 1978-80, 1981-82
Departmental Self-Study Committee, 1981-82
History of American Sea Power Search Committee, 1981
Commencement Representative, 1980
Representative, TAMU Career Day, 1979
Coordinator, Brazos County United Way, 1979

College

Adviser, College of Engineering Curriculum Review Committee, 1999-2000
Academic Resources Committee, 1989
Liberal Arts Council Representative, 1984-86
Moderator, Session on Oil Policy, *Phi Alpha Theta* Annual Meeting, April 1983
Texas A&M Energy & Mineral Resources Advisory Council, 1981-83
College of Liberal Arts Advisory Committee for Continuing Education, 1980-82

University

Faculty Distinguished Achievement Award in Teaching Committee, 1989
Judge, Texas Junior Science and Humanities Symposium sponsored by the College of Science, Texas A&M University, annually from 2006-17
Judge, Texas A&M Regional Science Bowl sponsored by the College of Science, Texas A&M University, annually from 2006-present
Judge, Texas A&M Regional Junior Science Bowl sponsored by the College of Science, Texas A&M University, annually from 2006-present
Texas Science Olympiad, supervisor for the History of Science sponsored by the College of Science, Texas A&M University, annually from 2006-12
Moderator, Fellows Symposium, Texas A&M Honors Program, April 2004
Chair, Review Panel International Research Travel Assistance Grants, 2003
Member, Review Panel International Research Travel Assistance Grants, 2002
Co-organizer, History of Chemistry Lecture Series. Texas A&M University Graduate Students Association organized a History of Chemistry Lecture Series that started in 2001 and continued through 2003. I and five speakers from American universities presented lectures on the History of Chemistry.
Advisor, Hindu Students Association 1997-2006.
"The History of Science in the Science Curriculum," Science, Technology, and Youth, Science-Technology Symposium for Central Texas Students and Science Teachers, Texas A&M, March 1987- 2003
"History of Science in the Science Curriculum," Bryan Independent School District's Teacher In-Service Session, Bryan, Texas, January 1993
"Science, Technology, and Society," Science, Technology, and Youth, Science-Technology Symposium for Central Texas Students and Science Teachers, Texas A&M, March 1991-94
Advisory Council, Center for Science and Mathematics Education, 1992-94
Faculty Senate Appointee as College of Liberal Arts Representative on the Scholarship Committee, 1990-93
Interviewer, Texas A&M Student Delegates to SCONA 1990, US Foreign Aid: Purpose, Players, and Politics, November 1989
Interviewer, Texas A&M Student Delegates to SCONA 1989, Japan: The Power of a Growing Economy, November 1988
Co-Chairman, Kenneth Manning Lecture, "The Role of Blacks in American Science and Technology," March 1986. Manning is a History of Science professor at MIT.
TAMU Science, Technology and Society Group, 1984-2004

University Undergraduate Fellows Program, Judge Senior Honor Theses, 1984
Member, Texas A&M University Mentors' Program, 1980-present

Profession

Book Manuscript Reviews

- Steven Hahn, *Forging America*, Oxford University Press, 2023, discussion of written book evaluation conducted in a Zoom meeting 24 March 2024.
- David M. Henkin and Rebecca M. McLennan, *Becoming America*, 2nd edition, McGraw-Hill discussion of book evaluation conducted in a Zoom meeting 4 August 2021.
- Maria Montoya, Steve Hackel, Lon Kurashige, *Worlds of Difference: A Social and Global History of the United States*, Wadsworth Cengage Learning, 2015.
- Audra Wolfe, *Freedom's Laboratory: The Cold War Struggle for the Soul of Science,* University of Chicago Press, 2015.
- William E. Burns, *The Scientific Revolution: A Global Perspective*, Oxford University Press, 2012.
- Arno de Klerk, *Beyond Fischer-Tropsch: 50 Years of Research at Sasol*, Elsevier Publishers, 2006.
- Albert I. Berger, *J. Robert Oppenheimer: Science and War in the Twentieth Century*, Longman Publishers, 2005.
- *Leonardo da Vinci Bibliography*, Garland Press, 1999.
- John Wilson, *Forging the American Character*, First Edition, Volumes I and II, Simon & Schuster, 1995.
- *American Chemical Society Books,* manuscript review of articles on Friedrich Bergius, Carl Bosch, William Giauque, and Walter Libby for *Biographical Dictionary of Nobel Laureates in Chemistry*, Ed. Laylin James, 1991.
- Richard M. Golden, *Social History of Western Civilization,* revised edition, St. Martin's Press*,* 1990.
- John R.M. Wilson, *Shaping the American Character*, revised edition, Prentice-Hall, 1988.
- Rebecca Gruver, *An American History*, second edition, Alfred Knopf Publishers*,* 1986.
- Richard T. Aulie, *Evolution, Religion, and Society*, Texas A&M University Press, 1984.
- D. Stanley and Tracy Tarbell, *Roger Adams: Scientist and Statesman* (biography of Roger Adams, twentieth-century American chemist), American Chemical Society, 1980.
- Robert Hawthorne, *Friedrich Wöhler* (biography of nineteenth-century German chemist), American Chemical Society, 1980.

Journal Manuscript Reviews

- "From Coal to Petroleum: Japan's Chemical Industry and MITI's Raw Material Conversion Policy." *Journal of Policy History*, Cambridge University Press, 41 pages, April 2025.
- "Making the Impossible, Possible: Producing Plutonium During the Manhattan Project." *Technology and Culture*, 33 pages, July 2024.
- Harold D. Wallace, "Fuel Cells: A Challenging History." *Substantia: An International Journal of the History of Chemistry,* June 2019.
- "Nazi Scientists at Mark Twain's Missouri: The US Bureau of Mines' Synthetic Fuels

Demonstration Plant at Louisiana, Missouri, 1945-1953." *Missouri Historical Review,* 24 pages, 2015.

- "Boron Trifluoride Etherate as a Catalyst Precursor for Co-liquefaction of Coal and Plastics at Mild Conditions." *International Journal of Oil, Gas, and Coal Technology*, 33 pages, two reviews, 2013.
- "Astronomy by Correspondence: A Study of the Appropriation of Science by the Mexican Public (1927-1947)." *Science Communication*, November 2011.
- "Graphical and Computationally Intensive Techniques for Representing and Disseminating Information About the Genetics of Disease—Possibilities, Limitations and Additions." *Science Communication*, October 2010.
- "Running Ahead: Marie Curie Above the Fold." *Science Communication*, March 2010.
- "Technological Trajectories: Two Case Studies from the History of Wind Power." *Technology and Culture,* 1999.
- "Signs of Hybris. The Shaping of Wind Technology Styles in Germany, Denmark, and the USA, 1940-1990." *Technology and Culture*, 1996, two reviews.
- Georgios Tsaparlis, "Atomic and Molecular Structure in Chemical Education: A Critical Analysis from Various Perspective of Science Education." *Journal of Chemical Education,* 1995, two reviews.
- Shigeaki Kikuchi, "A History of the Structural Theory of Benzene: The Aromatic Sextet and Huckel's Rule." *Journal of Chemical Education,* 1995, two reviews.
- Michael Tinnesand, "Hispanic Contributions to Science." *Journal of Chemical Education,* 1994.
- David C. Johnson, "Isaac Newton and the Mind of God: Rationality and Irrationality in Science." *Journal of Chemical Education,* 1993.
- Thomas Misa, "The Laboratory and the Workplace." *Technology and Culture*, 1993.
- George B. Kauffman, "Edvard Immanuel Hjelt (1855-1921): Finnish Chemist, Administrator, Patriot, and Statesman." *Journal of Chemical Education,* 1991.
- Lisa M. Robinson, "Borrowing from Industry: Edgar Fahs Smith's Rotating Anode and Double-cup Mercury Cathode." *Journal of Chemical Education*, 1988.
- "Technology and the West German Economic Miracle." *Technology and Culture,* 1988.
- John Stock, "Fritz Haber and the Electroreduction of Nitrobenzene." *Journal of Chemical Education*, 1987.
- John Wotiz, "Louis Pasteur, August Kekulé and the Franco-Prussian War." *Journal of Chemical Education,* 1987.
- "Government Research and the Corporate State: The Rittman Refining Process." *Technology and Culture*, 1987.
- E.R. Stephen "Smog Studies of the 1950s." *EOS* (Transactions of the American Geophysical Union), 1986.
- *Defense Analysis* article review, 1985.
- H.S. Kimmell and R.P.T. Tomkins, "A Course on Synthetic Fuels." *Journal of Chemical Education,* 1984.

Grant Proposal Reviews

- The Elaboration of the Scientific Fundamentals of Coal Gasification by Methods of Electrical Stimulation," US Civilian Research and Development Foundation (CRDF), *US Department of State*, Science Center, 2007.
- *National Science Foundation* proposal review (author's name and proposal title are confidential), 2006, 2005, 2004.
- Jeffrey A. Johnson and Roy MacLeod, "The Great War and Modern Chemistry," *National Science Foundation*, 1997.
- Daniel Barrett, "The Science of Irving Langmuir," *National Science Foundation*, 1996.
- Kenneth Taylor, "Langmuir and the Atom: A Study in the Development and Subsequent Divergence of the Discipline of Physical Chemistry," *National Science Foundation*, 1995.
- Robert Friedman, "Historical Studies of the Nobel Chemistry and Physics Prizes," *National Science Foundation*, 1994.
- Edward W. Constant, "Science, Ideology, and Oil: Petroleum Engineering Science, the Oil Fraternity in Texas, and the Socio-Natural Reality," *National Endowment for the Humanities*, 1994.
- Kathryn Steen, "Wartime Catalyst and Postwar Reaction: The Making of the US Synthetic Organic Chemicals Industry, 1910-1933," *National Science Foundation*, two reviews, 1992, 1994.
- Jeffrey A. Johnson, "Chemists, Chemistry, and German Society," *National Science Foundation*, 1992.
- Corneluis W. Gispen, "National Socialism and the Politics of Inventing in Twentieth Century Germany," *National Science Foundation*, 1991.
- Noretta Koertge, "The Early History of Stereochemistry and the Origins of Mechanistic Chemistry, 1875-1920," *National Science Foundation*, two reviews, 1990-91.
- Raymond G. Stokes, "The Emergence of the West German Petrochemical Industry," *National Science Foundation*, 1990, two reviews.
- George B. Kauffman, "The Christian Wilhelm Blomstrand - Sophus Mads Jorgensen Correspondence," *National Science Foundation*, 1990, two reviews.
- Mary Jo Nye, "Scientific Explanations and the Emergence of Theoretical Chemistry: The Manchester and Paris Schools 1880-1950," *National Science Foundation*, 1989.
- Davis Baird, "Scientific Instruments as Elements of Scientific Knowledge," *National Science Foundation*, 1989.
- Frederick J. Brown, "The Development of a Comprehensive Historical Account of the Efforts to Create Waterway Connections Between the Rhine and Danube Rivers," *National Science Foundation*, 1988.
- Erwin Hiebert, "Low Temperature Studies and the Early History of Quantum Theory," *National Science Foundation,* 1987.
- Leon Gortner, "The History of Physical Organic Chemistry in the US 1925-1950," *National Science Foundation*, 1987.
- Everett Mendelsohn, "Research Between Science and Politics at the Kaiser Wilhelm Society in the Third Reich," *National Science Foundation*, 1987.

- Arnold Thackray, "Corn or Oil? The American Synthetic Rubber Program and the Evolution of the Modern Petrochemical Industry," *National Endowment for the Humanities*, 1987.
- Mary Joe Nye, "Scientific Explanation and Modern Chemistry in England and France," *National Endowment for the Humanities*, 1985.

Conference Chair/Organizer

- Chair and organizer, session on "Energy and the Environment: Conflict or Compatibility," XXVIIth International Congress of the History of Science and Technology, Dunedin, New Zealand, June-July 2025.
- Chair and organizer, session on "The Interrelations of Politics, Environment, Culture, and Technology," International Committee for the History of Technology, 50th Symposium, Tallinn, Estonia, August 2023, virtual conference because of Covid-19.
- Chair and organizer, session on "Technology-Based and Technology-Generated Decisions," 49th Symposium of the International Committee for the History of Technology, University of Ostrava, The Czech Republic, September-October 2022, virtual conference Covid-19.
- Chair and organizer, session on "Energy and the Environment: Conflict or Compatibility," XXVIth International Congress of the History of Science and Technology, Prague, The Czech Republic, July 2021, virtual conference Covid-19.
- Chair and organizer, session on "Energy and the Environment: Conflict or Compatibility," 47th Symposium of the International Committee for the History of Technology, Eindhoven, The Netherlands, July 2020, virtual conference Covid-19.
- Chair and organizer, two sessions on "Energy, Power, Politics, Technology and the Environment," 46th Symposium of the International Committee for the History of Technology, Katowice, Poland, July 2019.
- Chair and organizer, session on "Energy and the Environment," 45th Symposium of the International Committee for the History of Technology, St. Etienne, France, July 2018.
- Chair and organizer, two sessions on "Energy and the Environment," XXVth Congress of the History of Science, Technology and Medicine, Rio de Janeiro, Brazil, July 2017.
- Chair and organizer, 30th Annual Meeting of the Lone Star Historians of Science, Texas A&M University, April 2017.
- Chair and organizer, session on "Environmental Innovations and Crises," 43rd Symposium of the International Committee for the History of Technology, Porto, Portugal, July 2016.
- Chair and organizer, 27th Annual Meeting of the Lone Star Historians of Science, Texas A&M University, March 2014.
- Chair and organizer, 23rd Annual Meeting of the Lone Star Historians of Science, Texas A&M University, March 2010.
- Chair and organizer, 20th Annual Meeting of the Lone Star Historians of Science, Texas A&M University, April 2007.
- Chair, session on "Controversial Technologies," 34th Symposium of the International Committee for the History of Technology, Copenhagen, Denmark, August 2007.
- Chair and organizer, 17th Annual Meeting of the Lone Star Historians of Science, Texas

A&M University, April 2004.

- Chair, session on "Technology and the Landscape," 30th Symposium of the International Committee for the History of Technology, St. Petersburg and Moscow, Russia, August 2003.
- Chair session on "Technology and the Landscape," 29th Symposium of the International Committee for the History of Technology, Granada, Spain, June 2002.
- Chair and organizer, 14th Annual Meeting of the Lone Star Historians of Science, Texas A&M University, March 2001.
- Chair, session on "Energy and Environment," 27th Symposium of the International Committee for the History of Technology, Prague, Czech Republic, August 2000.
- Chair and organizer, 10th Annual Meeting of Lone Star Historians of Science, Texas A&M University, March 1997.
- Chair and organizer, 6th Annual Meeting of Lone Star Historians of Science, Texas A&M University, March 1993.
- Chair and organizer, session on "Twentieth-Century Fossil Fuel Research in Government and Industrial Laboratories," Joint Meeting of the American, British, and Canadian History of Science Societies, Toronto, Ontario, Canada, July 1992.
- Co-chair and organizer, 3rd Annual Meeting of Lone Star Historians of Science, Texas A&M University, April 1990.
- Contributor to Scientists' Institute for Public Information (media resource service), 355 Lexington Avenue, New York, New York, 1987-present.

Community Service

- Assisted high school students with their National History Day projects, providing source information and telephone interviews. Melany Bustos and Avery Seale, Navasota, Texas, invention of the radio, April 2023.
- Lecture, "Galileo, Science, and the Church," St Mary's Church, College Station, TX, Feb. 2002.
- "The Marie Curie Exhibition," website editor for Women in Science, a biographical collection of forty women scientists. The exhibition was on tour throughout the United States, March-April 2000.
- "The German Atomic Bomb Project," two-part television interview with Art Rascon, KTRK-TV Channel 13, Houston, 27-28 October 1999.
- Lecture, "Galileo, Science and the Church," Texas A&M University Catholic Faculty, St. Mary's Church, College Station, Texas, November 1981

Interviews Given

- Stephen J. Cerulli, Calandra Italian-American Institute, Queens College, City University of New York, New York City, 19 July 2021: survey of Italian American educators.
- Tasya Nasoetion, TAMU Chemical Engineering Student, participating in Texas A&M National Science Foundation Innovation Corps (i-Corps) program sponsoring engineering students in customer discovery research, May 2018.
- Gap Barbin article, "After 140 years, A&M continues to educate students to meet the needs of a technologically advancing world," *Texas A&M Battalion*, 17, 17 November 2016, pp.1-2.

- Josh Hopkins article, “The Other Night Bonfire Didn’t Burn,” T*exas A&M Battalion*, 16, November 2015, pp. 1-3.
- Steve Walker, Head of R&D for the Solidea Group Power Can Project, Polish Gekon Funding, interview on IG Farben’s World War II research on synthetic fuels. His organization is interested in establishing a research center in Poland that will hold copies of Germany’s World War II synthetic fuel documents that we have in the TAMU Library Archives. December 2014.
- Andy Extance, science writer in Exeter, England for an article he published on synthetic fuels in *Chemistry World*, May 2011.
- Tony Palermo, manager, Linde LLC, New Providence, NJ, Synthetic Fuel Production, 22 September 2009.
- Wolfgang Lauenstein, BASF, Ludwigshafen, Germany, Fischer-Tropsch Archive, June 2010.
- Randy Taylor, HydroCoal Technologies, Athens, Georgia, Coal Hydrogenation, June 2010.
- Kim Tanneberger, specialist, *Lloyd’s Register,* London, England, Fischer-Tropsch Archive, 14 August 2009.
- Maggie Zackowitz, writer, *National Geographic Magazine*, Washington, DC, Farrington Daniels and Solar Energy, 8 May 2009.
- Merrill Sherman, Associated Press, Fischer-Tropsch Process, 10 March 2008.
- Brian Vitagliano, CNN, Fischer-Tropsch Process, 21 May 2008, aired on Memorial Day 2008.
- Yochi Draezen, *Wall Street Journal*, Fischer-Tropsch Process, 20 May 2008.
- Robert Kaper, Naval Air Systems Command Public Affairs Office, Maryland, Fischer-Tropsch Process, 9 July 2008.
- Donna Howell, *Investor’s Business Daily,* article on leaders and success, 17 October 2008.
- Russell Gold, business writer, *Wall Street Journal*, Fischer-Tropsch Synthetic Fuel Process, November 2004.
- Edward Luttwak, senior fellow, The Center for Strategic and international Studies, Washington, DC, Member National Security Study Group, Department of Defense, Fischer-Tropsch Synthetic Fuel Process, August 2005.
- Joseph Morris, business editor, *Charleston Gazette*, West Virginia, Fischer-Tropsch Synthetic Fuel Process, September 2005.
- Miguel Sancho, producer, 60 Minutes, CBS, Fischer-Tropsch Synthetic Fuel Process, December 2005.
- Felicia Beberica, ABC News, New York City, Fischer-Tropsch Synthetic Fuel Process, October 2004.
- Susan Kitchens, *Forbes Global Magazine*, Fischer-Tropsch Synthetic Fuel Process, December 2003.
- Amy Daugherty, “Centuries of Memories,” *The Eagle*, Bryan-College Station, Texas, 9 January 2000.
- Masao Iwasaki, “Synthetic Fuel,” Research Association for Petroleum Alternatives Development (RAPAD), Showa Shell Sekiyu K.K., Tokyo, January 1991.
- Laura White, “University Teaching Award,” *Illuminations* (College of Liberal Arts Newsletter), Volume 4, Fall 1988.

- Dean Takahashi, “Science, Technology, Society,” *The Dallas Times-Herald*, September 1988.
- Steve Vinson, “Translators Seek Funding for Work on Nazi Papers,” *The Eagle*, Bryan-College Station, Texas, 17 November 1986, 1-2.
- Dudley Lynch, “The Cassandra Project,” *Vision Magazine*, PBS, Dallas, January 1980, 17-20.
- Andrew Pollack, “Germany’s Synthetic Fuel Industry,” *The Dallas Times-Herald*, October 1979.
- Scott Pelley, “Germany’s Synthetic Fuel Industry,” KXAS-TV, Fort Worth, October 1979.

Professional Affiliations-Membership

American Historical Association (former member)

Canadian Science and Technology Historical Association (former member)

Forum for the History of Science in America (former member)

History of Chemistry Society (former member)

History of Science Society

Lone Star Historians of Science

Society for the History of Technology (former member)

International Committee for the History of Technology (ICOHTEC)

Standing Committee on History of Solar Energy, International Solar Energy Society, 2004-10

Listings

American Men and Women of Science

Canadian Science and Technology Historical Association Annual Directory

Dictionary of International Biography

History of Science Guide

International Directory of Distinguished Leadership

Society for the History of Technology Membership Directory

Who's Who in American Education

Who’s Who in Science and Engineering

Who's Who in Technology

Who’s Who in the World