



Summer 2015 Kentucky Academy of Science News

Addenda

July 2015

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1. Commonwealth of Kentucky's first National Historic Chemical Landmark Dedicated at Eddyville and at Murray State University
2. KAS Author Corner: Dr. Roman Yampolskiy's new book Artificial Superintelligence: a Futuristic Approach

Commonwealth of Kentucky's first National Historic Chemical Landmark Dedicated at Eddyville and at Murray State University

The American Chemical Society's National Historic Chemical Landmark Subcommittee and Public Affairs and Public Relations Committee approved a nomination to recognize William Kelly's Pneumatic Iron Process as a National Historic Chemical Landmark (NHCL). The nomination was submitted by Dr. Bommanna Loganathan, Chemistry Professor, Murray State University and 2014 Chair of the Kentucky Lake Local Section (KLS). The dedication ceremonies occurred in Eddyville Convention Center and at Murray State University Chemistry Department on May 11, 2015. This is the first NHCL subject to be approved for recognition in the state of Kentucky.

William Kelly (1811–1888) was born to Irish

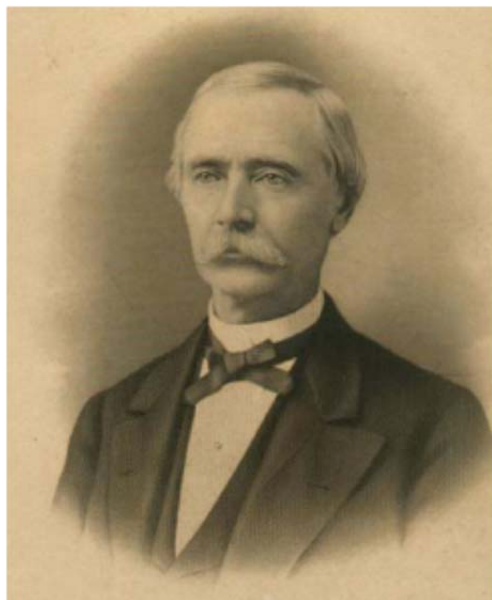
Immigrant parents, John and Elizabeth Kelly, near Pittsburgh, Pennsylvania. Kelly studied metallurgy at the Western University of Pennsylvania. He met Mildred Gracey, a daughter of the wealthy businessman J.N. Gracey, of Eddyville,



Dr. Robert O Davies, President Murray State University (front left), Dr. Bommanna Loganathan, Professor, Murray State University (front right), Dr. Harry Fannin, Chair, Chemistry Department, Murray State University (back left) and Dr. George Bodner, Professor, Purdue University and ACS Director District II (back right). National Historic Chemical Landmark Plaque in the middle. (Photo by Carl Woods)

Kentucky, in a girls school graduation exercise in Nashville. He fell in love with her, they married and decided to make Eddyville their home and started an iron business. Kelly purchased Eddyville Furnace constructed in Lyon County by Dr. T.T. Watson and the Stacker Brothers, and 14,000 acres of land containing iron ore and wooded forest. Iron making in those days was tedious, time consuming, labor intensive and consumed a tremendous amount of wood as fuel. Yet founders struggled to produce iron of high quality. Kelly was an iron genius, a thinker and experimenter. He had a dream that iron could be made better and cheaper.

In 1847, William Kelly began experimenting with a new method for refining pig iron. His



William Kelly
Credit: Thompson D. Smith

discovery, known as Kelly's pneumatic process, involved blowing cold air through molten iron in a cupola chamber. Oxygen in the air combined with carbon and other elements in the iron mixture, producing heat and removing impurities. Kelly received a U.S. patent for his invention in 1857. When combined with later chemical and mechanical improvements, the pneumatic process transformed the manufacture of iron and steel. Kelly's invention had a great impact on human civilization. Better bridges, expansion of railroads, military defense armaments, kitchen utensils, buildings and skyscrapers and agricultural, automobile and industrial machineries were all advances that were enabled by the discovery of this steel making method. Jobs were created for millions all over the world

The American Chemical Society (ACS) established the National Historic Chemical Landmarks program in 1992 to enhance public appreciation for the contributions of the chemical

sciences to modern life in the United States and to encourage a sense of pride in their practitioners. The program recognizes seminal achievements in the chemical sciences, records their histories, and provides information and resources about Landmark achievements. Prospective subjects are nominated by ACS local sections, divisions, or committees; reviewed by the ACS National Historic Chemical Landmarks Subcommittee; and approved by the ACS Board Committee on Public Affairs and Public Relations. More than 70 subjects have been recognized through the program, including Bakelite, the world's first synthetic plastic; the discovery and development of penicillin; and the work of historical figures such as Joseph Priestley, Rachel Carson, and Thomas Edison. The ACS's Board of Directors approved the nomination to recognize William Kelly's development in iron-making as a National Historic Chemical Landmark on Dec. 4, 2014. Dr. Loganathan, who prepared the nomination, acknowledges that Dr. William Oliver, Dr. Don Hicks, Dr. Harry Fannin and Mrs. Sally Whittington contributed greatly to the development of a successful nomination application.

KAS Author Corner: Dr. Roman Yampolskiy's new book Artificial Superintelligence: a Futuristic Approach

Dr. Roman Yampolskiy's new book Artificial Superintelligence: a Futuristic Approach is now available for pre-order on Amazon: <http://www.amazon.com/Artificial-Superintelligence-Futuristic-Roman-Yampolskiy/dp/1482234432>

This book is designed to become a foundational text for the new science of AI Safety Engineering. While specific predictions regarding the consequences of an intelligence singularity are varied from potential economic hardship to the complete extinction of humankind, many of the involved researchers agree that the issue is of utmost importance and needs to be seriously addressed. The book directly addresses this issue and consolidates research aimed at making sure that emerging superintelligence is beneficial to humanity.

Review

"A robust combination of the hot topic that seems to have come straight from science fiction with its vigorous academic analysis pursued by the author produced an awesome textbook that should attract everyone's attention: from high school to graduate school students to professionals."

—Leon Reznik, Professor of Computer Science, Rochester Institute of Technology

About the Author

Dr. Roman Yampolskiy conducts research in Artificial Intelligence Safety and Technological Singularity. An alumnus of Singularity University (GSP2012) and a visiting fellow / research advisor of the Singularity Institute (MIRI), Dr. Yampolskiy has contributed papers to the first book on Singularity (Singularity Hypotheses, Springer 2012), first journal issue devoted to Singularity (Journal of Consciousness Studies, 2012) and the first conference devoted to safe Super-Intelligent systems (AGI Safety, 2012).

Roman V. Yampolskiy holds a PhD degree from the Department of Computer Science and Engineering at the University at Buffalo. There, he was a recipient of a four year NSF (National Science Foundation) IGERT (Integrative Graduate Education and Research Traineeship) fellowship. Before beginning his doctoral studies, Dr. Yampolskiy received a BS/MS (High Honors) combined degree in Computer Science from Rochester Institute of Technology, NY, USA.

After completing his PhD dissertation, Dr. Yampolskiy held a position of an Affiliate Academic at the Center for Advanced Spatial Analysis, University of London, College of London. In 2008 Dr. Yampolskiy

accepted an assistant professor position at the Speed School of Engineering, University of Louisville, KY. He had previously conducted research at the Laboratory for Applied Computing (currently known as Center for Advancing the Study of Infrastructure) at the Rochester Institute of Technology and at the Center for Unified Biometrics and Sensors at the University at Buffalo.

Dr. Yampolskiy is an author of over 100 publications including multiple journal articles and books. His research has been cited by numerous scientists and profiled in popular magazines both American and foreign (New Scientist, Poker Magazine, Science World Magazine), dozens of websites (BBC, MSNBC, Yahoo! News) and on radio (German National Radio, Alex Jones Show). Reports about his work have attracted international attention and have been translated into many languages including Czech, Danish, Dutch, French, German, Hungarian, Italian, Polish, Romanian, and Spanish.