

# Weird Tales: Early Visions of Machines That Can Reproduce and Evolve, and Their Relevance Today

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## Keynote Abstract

The culmination of the British Industrial Revolution in the 1840s brought with it a growing anxiety about the ever-increasing complexity and sophistication of machines. Even at that time, concerns were raised about the future implications of developing machines that can make other machines. These worries were compounded with the publication of "*On the Origin of Species*" in 1859; within a year of its publication, we see discussion of whether Darwin's ideas of evolution might also be applied to machines. The 1860s and 1870s saw multiple authors explicitly discuss the possibility of self-reproducing machines that could evolve to become more sophisticated and intelligent over time. In this talk, I will trace the early development of the idea of self-reproducing and evolving machines, from the 1800s up to the 1960s (from which point the subsequent history is better known). Along the way, I'll highlight contributions ranging from literary and pulp sci-fi authors to scientists and engineers, including work from eastern Europe and Russia as well as from western Europe and the US. I will end the talk by discussing the relevance of these early ideas to contemporary research in, and concerns about, the development of artificial life.

*Tim Taylor is a scientist, author, and coder, based in Edinburgh, Scotland. He pursues research and development in artificial life, agent-based modelling and artificial intelligence, and also has a deep interest in the history of these fields. He has held research positions in various leading universities in the UK and Australia, including Edinburgh, York, Goldsmiths and Monash. His book "Rise of the Self-Replicators: Early Visions of Machines, AI and Robots That Can Reproduce and Evolve", co-authored with Alan Dorin, was published in 2020. He currently works part-time (and remotely) as a Senior Research Fellow in the Department of Data Science and AI at Monash University, Australia, while also progressing his own research and writing interests as an independent researcher. He is an associate examiner for the University of London, and an elected board member of the International Society for Artificial Life.*

