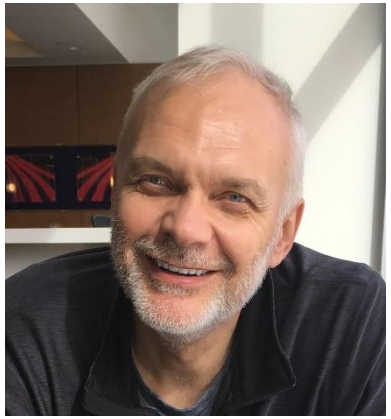
- Welcome to DySoC/NIMBioS webinars on cultural evolution!

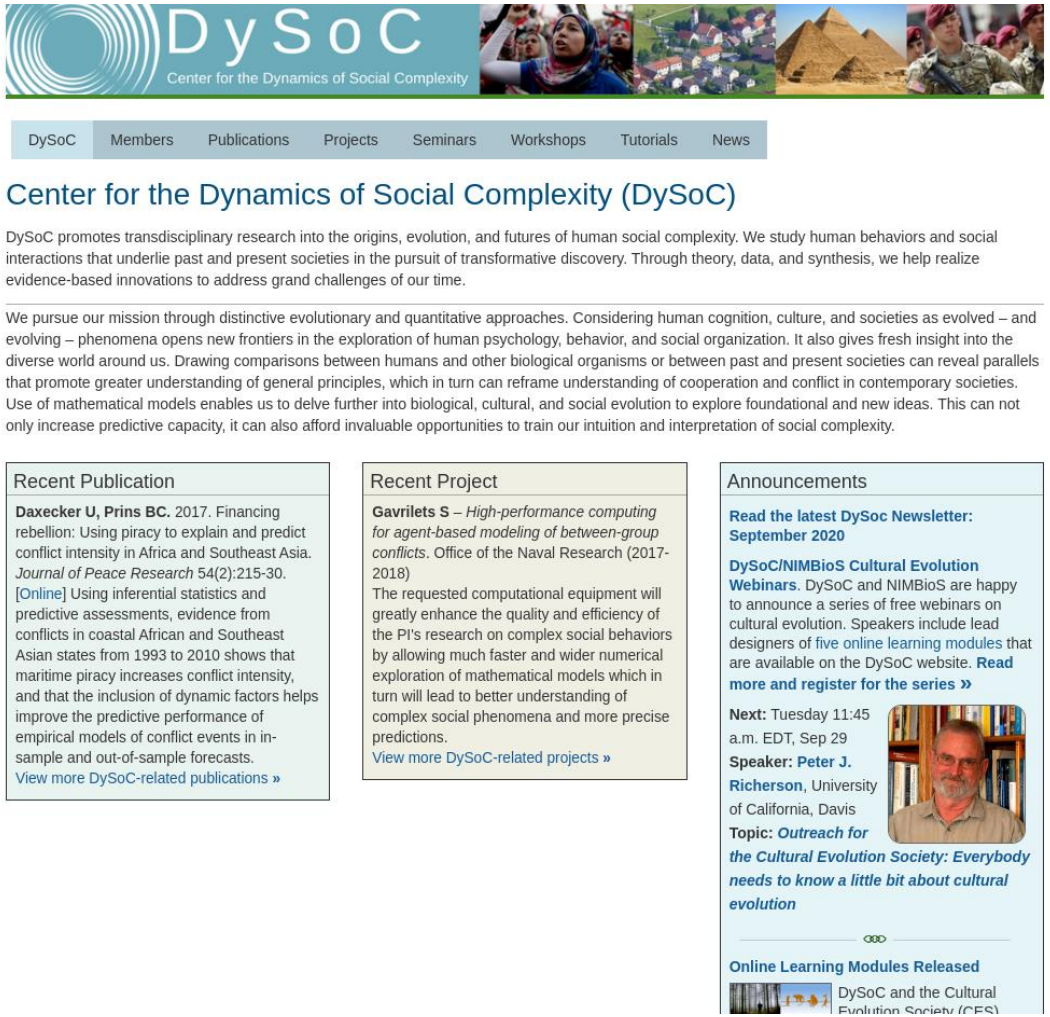


- Sergey Gavrilets
  - Professor of Ecology and Evolutionary Biology
  - Professor of Mathematics
  - Director of the Center for the Dynamics of Social Complexity (DySoC)
  - Associate Director for Scientific Activities at the National Institute for Mathematical and Biological Synthesis (NIMBioS)
  - University of Tennessee, Knoxville

THE UNIVERSITY OF TENNESSEE KNOXVILLE

NIMBioS
National Institute for Mathematical and Biological Synthesis

DySoC
Center for the Dynamics of Social Complexity

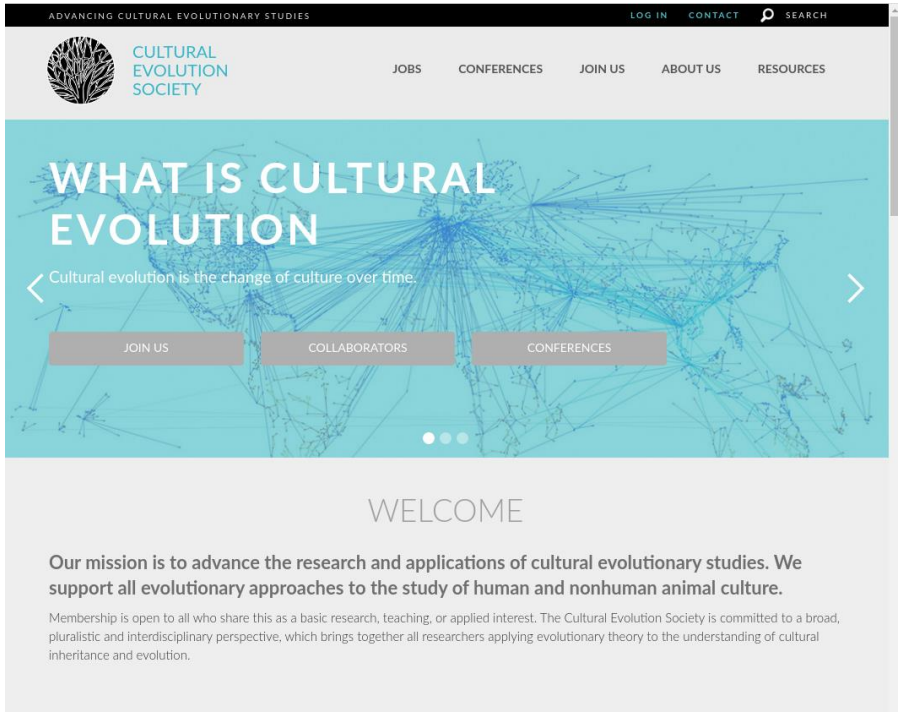


2008-present; >8,500 visitors; nimbios.org

2018-present; dysoc.org

Webinar series

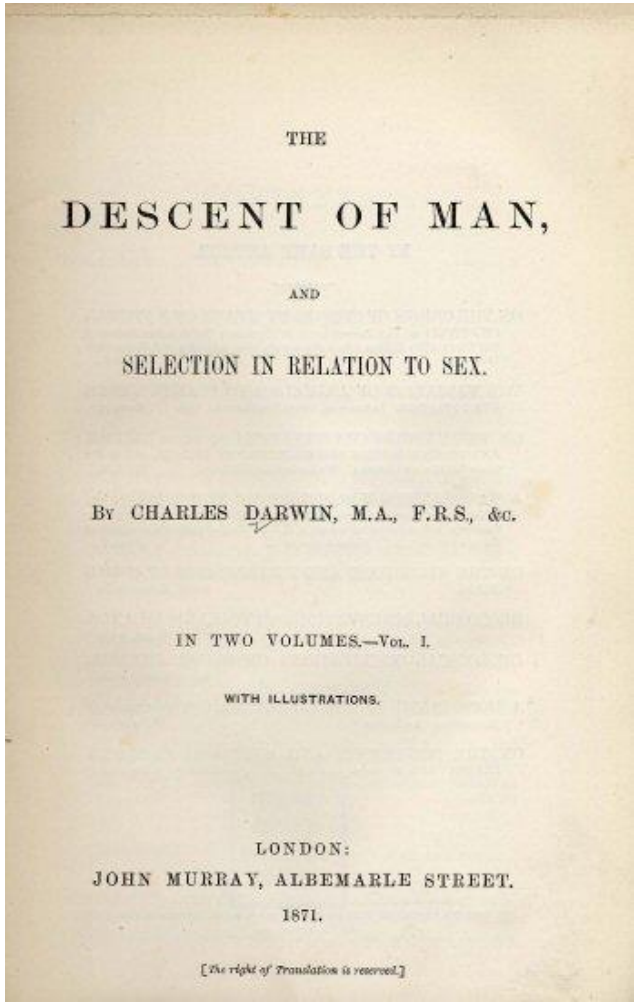
- Online teaching modules on the dynamic models of cultural evolution
- Output of a grant funded by the **John Templeton Foundation** to promote the **Cultural Evolution Society**



Schedule

- Sept. 29: Peter J. Richerson (UC Davis)
- **Oct. 6: Paul Smaldino (UC Merced)**
- **Oct. 13: Andy Whiten (University of St Andrews, UK)**
- **Oct. 20: Joe Stubbersfield (Heriot-Watt University, UK) and Erik Gjesfjeld (Cambridge)**
- **Oct. 27: Adrian Bell (Utah)**
- **Nov. 3: Bernie Koch (UCLA)**
- Nov.10: Peter Turchin (Complexity Science Hub Vienna)
  - *Cliodynamics: The Journal of Quantitative History and Cultural Evolution*
- Nov.17: Ruth Mace (UCL)
  - *Evolutionary Human Sciences*
- Nov.24: Patricia Izar (University of Sao Paulo, Brazil)

24 February 1871



THE

DESCENT OF MAN,

AND

SELECTION IN RELATION TO SEX.

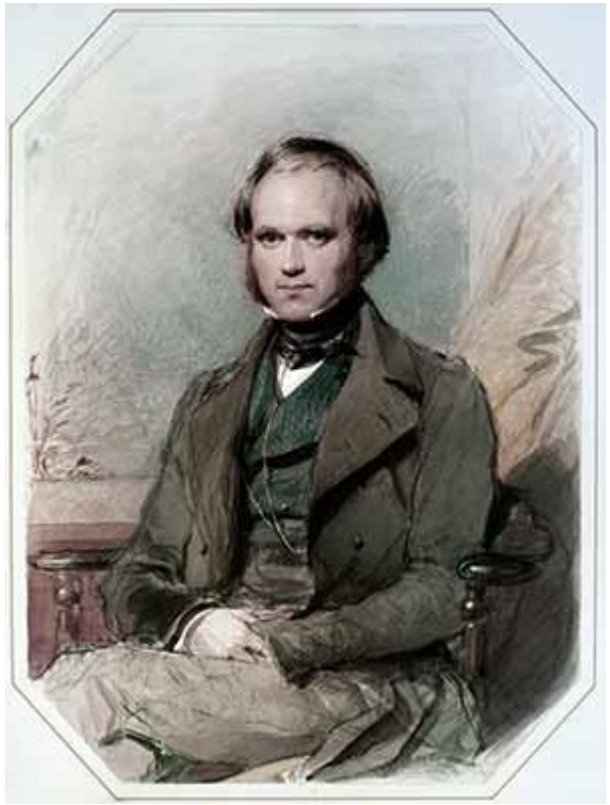
By CHARLES DARWIN, M.A., F.R.S., &c.

IN TWO VOLUMES.—Vol. I.

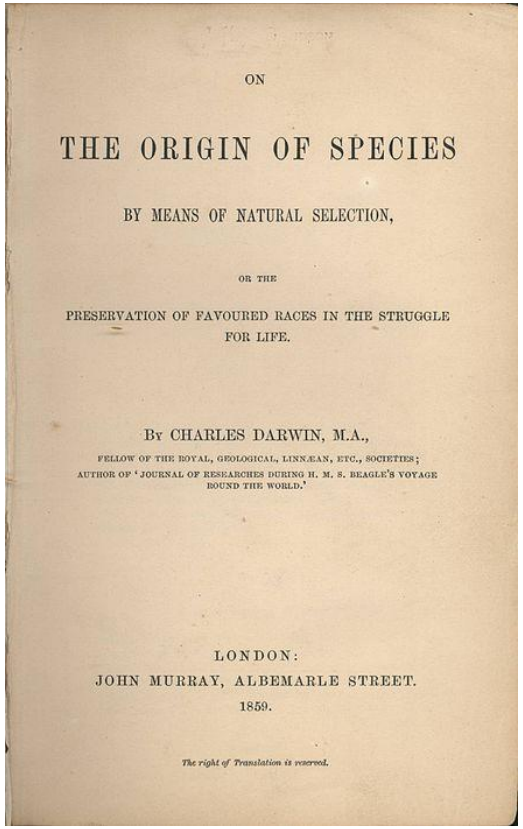
WITH ILLUSTRATIONS.

LONDON:
JOHN MURRAY, ALBEMARLE STREET.
1871.

[The right of Translation is reserved.]



Charles Darwin



ON

THE ORIGIN OF SPECIES

BY MEANS OF NATURAL SELECTION,

OR THE

PRESERVATION OF FAVOURED RACES IN THE STRUGGLE FOR LIFE.

By CHARLES DARWIN, M.A.,

FELLOW OF THE ROYAL, GEOLOGICAL, LINNEAN, ETC., SOCIETIES;
AUTHOR OF 'JOURNAL OF RESEARCHES DURING H. M. S. BEAGLE'S VOYAGE ROUND THE WORLD.'

LONDON:
JOHN MURRAY, ALBEMARLE STREET.
1859.

The right of Translation is reserved.

1859

Three important insights of the *Descent*

- Humans, like every other species, are a “modified descendant of some pre-existing form”.

- Culture and cultural evolution were particularly important in human evolution

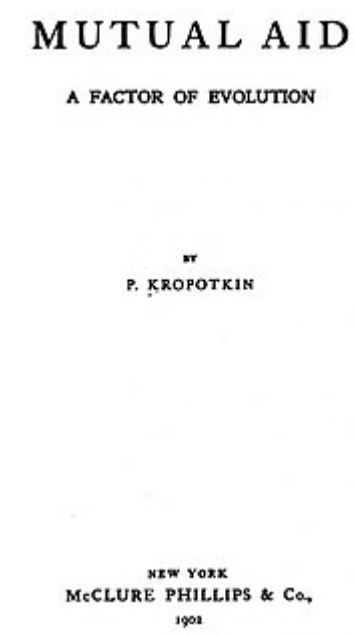
  - the evolution in civilized societies “depends to a subordinate degree on natural selection . . . . The more efficient causes of progress seem to consist of a good education during youth while the brain is impressible and of a high standard of excellence, inculcated by the best and ablest men, embodied in the laws, customs, and traditions of the nation, and enforced by public opinion.”

  - "The expression of the wishes and judgment of the members of the same community ... serves ... as a most important secondary guide of conduct, in aid of the social instincts, but sometimes in opposition to them”

- Cooperation
  - "A tribe including many members who, from possessing in a high degree the spirit of patriotism, fidelity, obedience, courage, and sympathy, were always ready to aid one another, and to sacrifice themselves for the common good, would be victorious over most other tribes…“

Pyotr Alexeyevich Kropotkin (1842-1921)

- Russian anarchist, socialist, economist, historian, geographer, and philosopher
- “Mutual Aid: a Factor in Evolution” (1902)
  - cooperation and mutual aid are one of the mechanisms of adaptation and increased survival common across all branches of life.


MUTUAL AID

A FACTOR OF EVOLUTION

BY

P. KROPOTKIN

NEW YORK

McCLURE PHILLIPS & Co.

1902

Biological evolution and cultural evolution: variation, selection, inheritance

- **Evolutionary biology**: a mature science for at least 100 years

  - R. A. Fisher “The Genetical Theory of Natural Selection” (1930)
  - T. Dobzhansky “Genetics and the Origin of Species” (1937)
  - E. Mayr “Systematics and the Origin of Species” (1942)

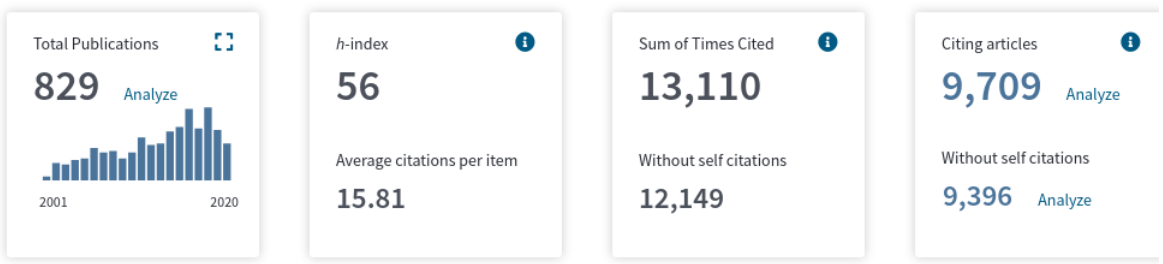
  - *Modern Synthesis* of 1930s-1940s

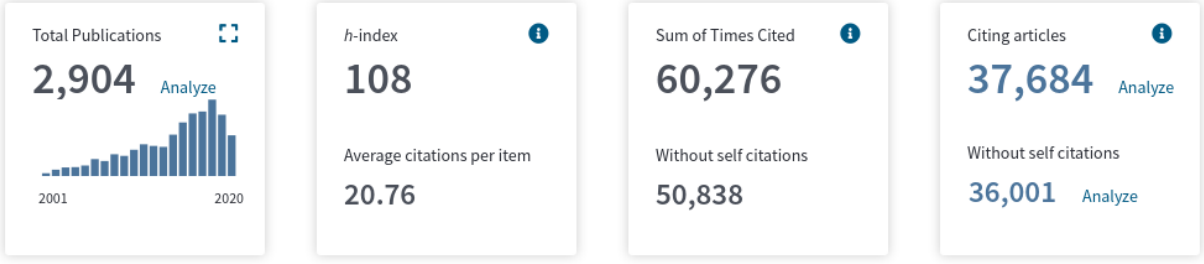
  - Society for the Study of Evolution (1946)
  - *Evolution: International Journal of Organic Evolution* (1946)

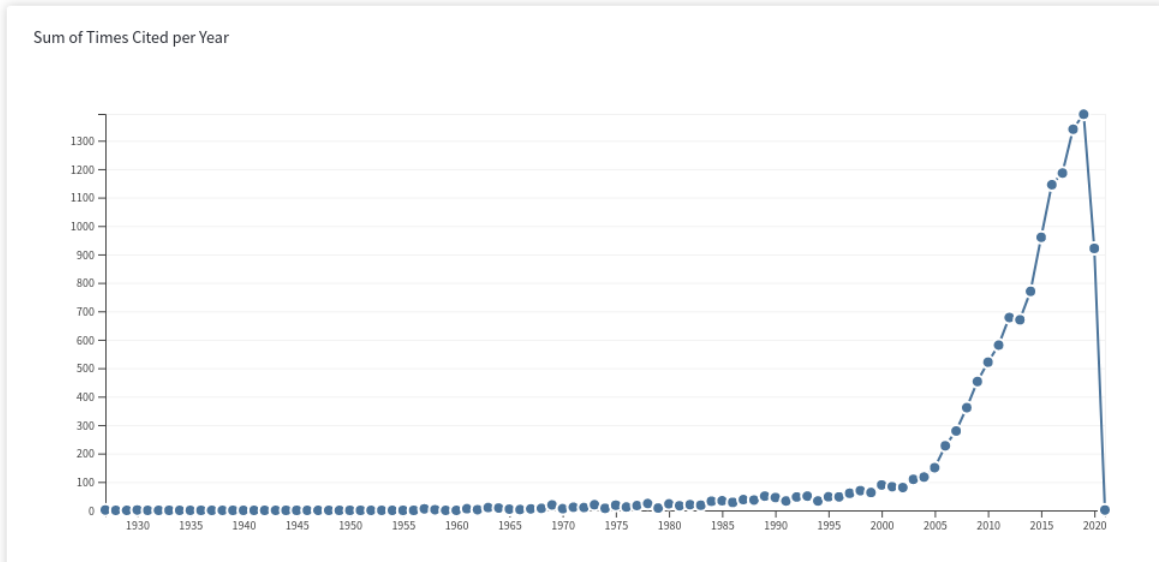
  - Departments of ecology & evolutionary biology in most major universities

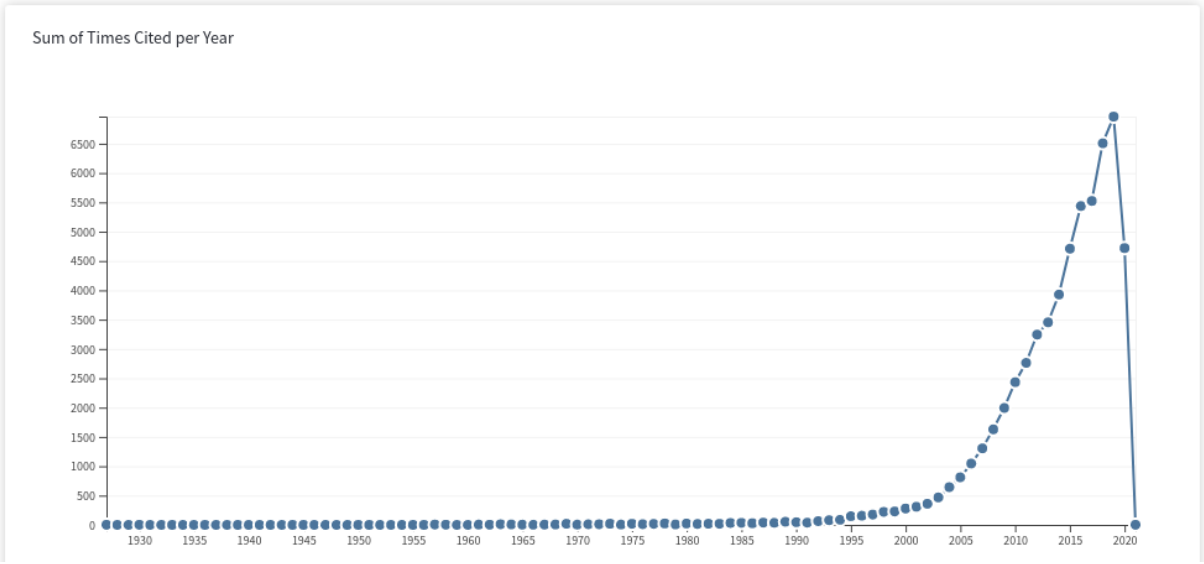
Biological evolution and cultural evolution: variation, selection, inheritance

- **Cultural evolution**: an explosive growth started only 20 years ago









Cultural evolution

- Applications to biology, anthropology, psychology, economics, political science, law, sociology, and history
- Most urgent problems our society faces

- Cultural Evolution Society (2016)

CULTURAL EVOLUTION SOCIETY

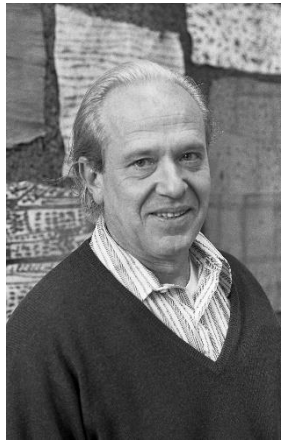
First attempt (unsuccessful): Nicolai Rashevsky (1899-1972)

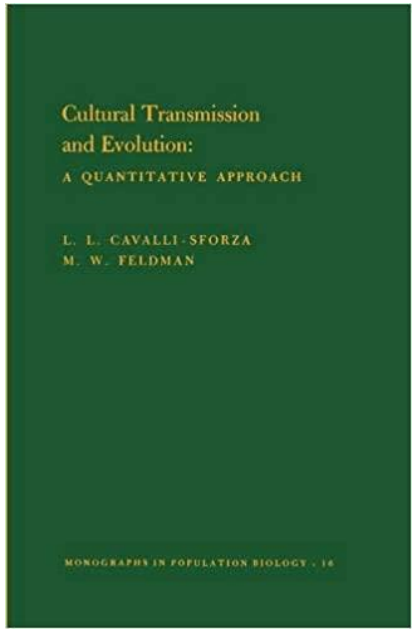
- Pioneer of mathematical/theoretical biology and mathematical biophysics
- Committee for Mathematical Biology at University of Chicago
- *Bulletin of Mathematical Biology (1931-*
- *Society for Mathematical Biology (1972)*

- Models of imitative behavior: 1940s-1950s
- Pioneer of mathematical modeling of social and cultural evolution
  - "Mathematical theory of human relations" (1947)
  - "Mathematical biology of social behavior" (1950)
  - "Looking at history through mathematics" (1968)

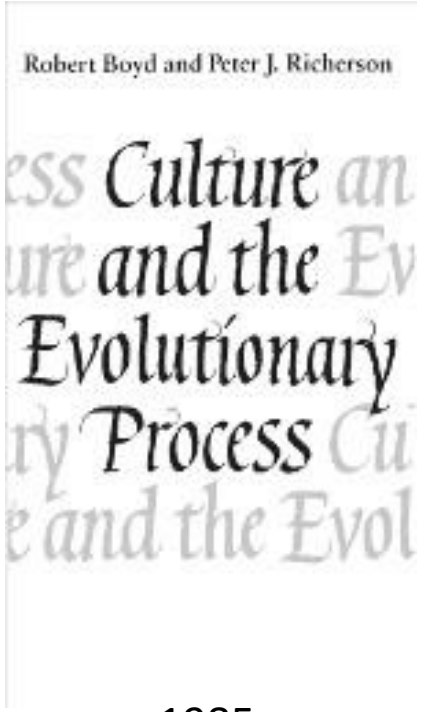
- "Problems of history may still turn out to be as inspirational to mathematicians, as problems of physics have been, and as problems of biology are bound to become." Nicolas Rashevsky (1954)

40 years later: the dawn of the science of cultural evolution





1981



1985

Peter J. Richerson

- B.S. in Entomology, UC Davis (1965)
- Ph.D. in Zoology (1969)
- Professor of Environmental Studies at UC Davis (1977-

- Hundreds of papers
  - "Cultural group selection plays an essential role in explaining human cooperation: A sketch of the evidence" BEHAVIORAL AND BRAIN SCIENCES (2016)
- Dozens of students
- First President of the *Cultural Evolution Society*