

The Lederbergs' Australian Year (1957) and the 1958 Nobel Prize in Physiology.

Abstract for ISHPSSB (www.ishpssb.org)
Biennial Meeting, 12-16 July, Brisbane, Australia
Program Co-Chairs: Marsha Richmond & Manfred Laublicher

Pnina G. Abir-Am, Christina C. Luo and A. Pinar Ozisik
(Brandeis University, WSRC, Scholar - Students Partnership, USA)

On the 50th anniversary of the first Nobel Prize for contributions to the genetics of micro-organisms, this paper explores whether the half share of the 1958 Nobel Prize in Physiology, given to Joshua Lederberg, (1925-2008) while his two other co-laureates (George W. Beadle and Edward L. Tatum) received a quarter each, was meant to signify recognition for the work of two - his own and that of his collaborative spouse Esther. (1922-2006) Discoveries that feature the Lederbergs as co-authors include “replica plating”, the “phage “lambda”, “transduction”, and “sex compatibility”, all landmarks in microbial genetics in the early 1950s. While the Lederbergs were sole authors of the former two discoveries, with each being first author once; they co-authored the latter two with others, most notably Norton Zinder of Rockefeller University and Luigi L. Cavalli-Sforza of University of Pavia, and later of Stanford, respectively.

In order to understand how the scientific community handled the allocation of credit for collaborative work in the genetics of micro-organisms (Edward L. Tatum collaborated with both his 1958 co-laureates on key discoveries in 1941 and 1946, respectively; however, Beadle had previously engaged in a significant collaboration with Boris Ephrussi of the University of Paris, while J. Lederberg collaborated with Esther Lederberg ever since he got his Ph.D. with Tatum at Yale in 1948 and the couple left for U. Wisconsin-Madison) we examine the public perception of the Lederbergs as a leading collaborative couple within the scientific community in the 1950s, while studying nominators, collaborators, and competitors for clues to the 1958 outcome. In particular, we explore the impact of the year preceding the Nobel Prize, a year the Lederbergs spent at the University of Melbourne in Australia as Fullbright Fellows. In order to explain the erosion of the public standing of the female spouse as an equal collaborator in science in the 1950s, we focus on the following factors:

- 1) The ideology of domesticity following WW2 viewed women as consumed by their families and households. In a culture of such pervasive gender inequality, most scientists tended to underestimate the actual contributions of female collaborators.
- 2) The ideologies of racism and anti-semitism in the 1950s precluded recognition to an all-minority team, such as giving a Nobel Award to the two Lederbergs for their many pioneering contributions to microbial genetics; or jointly with Norton Zinder, for the discovery of “transduction”, which was to become uniquely important.
- 3) Strategic mistakes made by both partners in this collaborative couple: while the male partner engaged in the practice of publishing widely circulating summaries and reviews as a sole author; the female partner tended to prioritize the management of their lab as if it were a household (this couple had no children) over guarding her primacy over her own discoveries, (most notably the singularly important phage “lambda”, or campaigning on behalf of her major place in the couple’s joint results.