



# MATILDA

## EFFECT



**Pionierinnen der Forschung**      **Female Pioneers of Research**

**Pt. 24**

**Esther Lederberg**



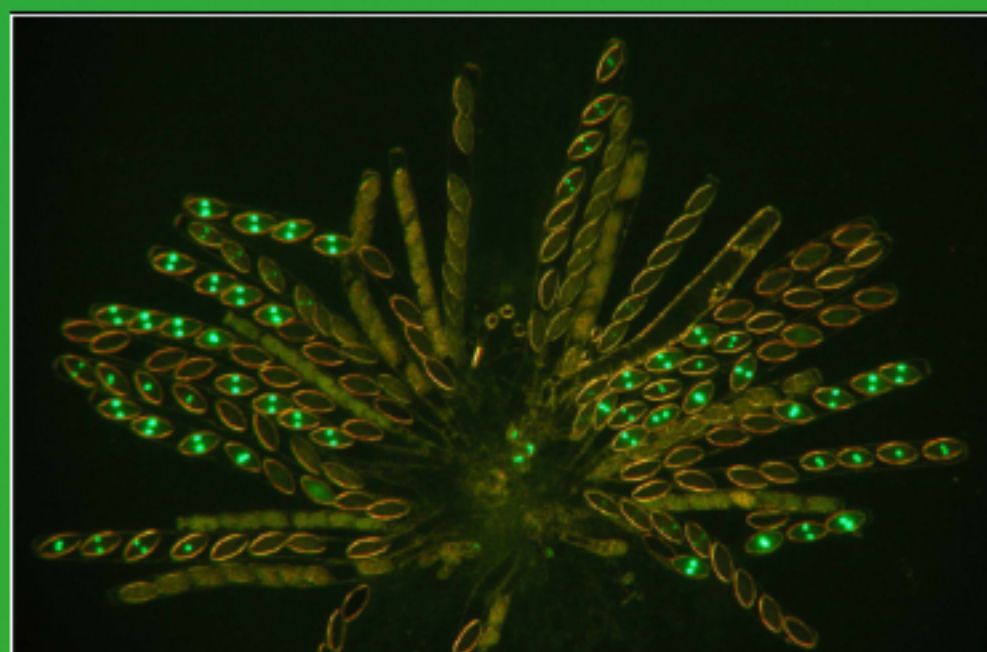


Esther Lederberg (1922-2006)

Microbiologist & Geneticist

At just 20 years old, she graduated *cum laude* (meaning 'with praise') with a Bachelor's degree in Genetics, despite her teachers recommending that, 'as a woman,' she should study literature. She then obtained her Master's degree at Stanford University.

This is where the first publication with her as a co-author on *Neurospora crassa* appeared.





Esther Lederberg (1922-2006)

She was part of a team that received the Nobel Prize in 1958 for the regulatory role of genes in biochemical reactions in cells.

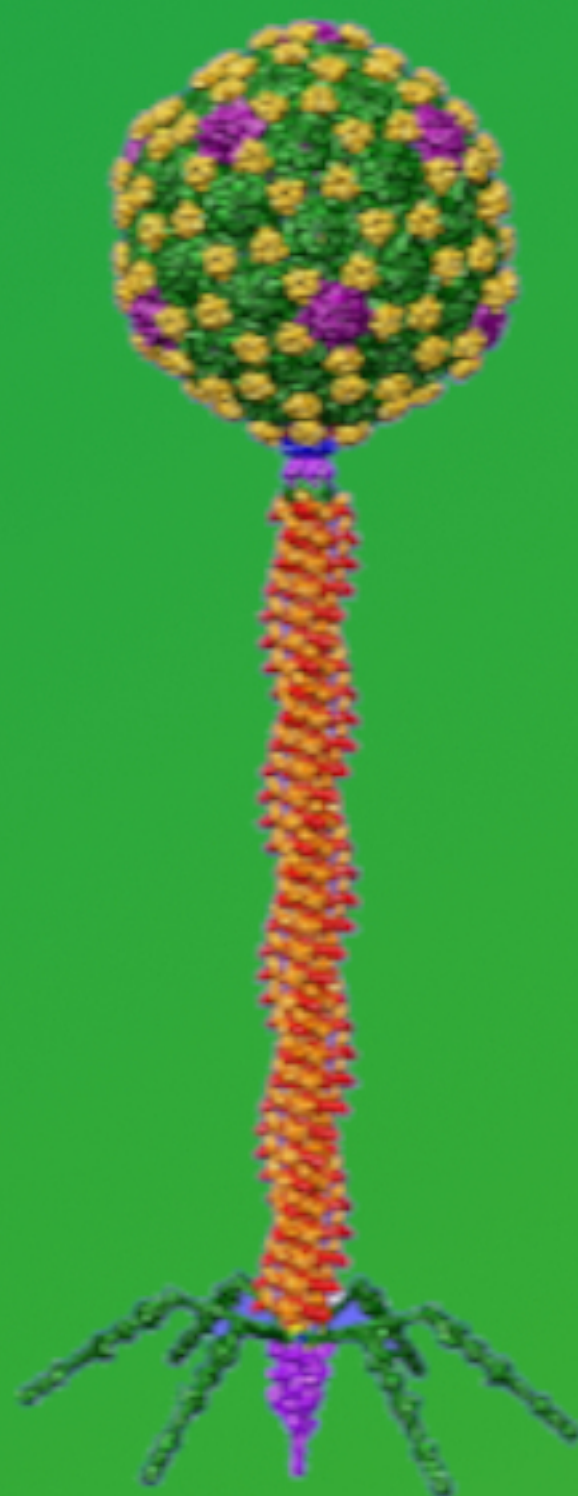
The marriage to her colleague Joshua Lederberg was also the reason why she did not receive a permanent position at the University of Wisconsin or in her further career, and her achievements were often overlooked.



In fact, her research results were groundbreaking for genetics:  
During her doctoral thesis, she discovered the lambda phage, a virus that infects *E.coli*.

This virus provided the foundation for the study of gene regulation and viral infection of cells.

It is still used today as a vector in genetic engineering to clone DNA fragments (recombinant DNA).



The F-factor discovered by her in bacteria is a plasmid that plays a crucial role in antibiotic and other drug resistances, as many resistance genes are carried on the F-factor (or similar plasmids).

The F-factor is also essential for the transfer of DNA between bacteria (DNA conjugation), thereby enabling gene transformations and manipulations.

