

## ‘Using Nature’s Shuttle’: Judith M. Heimann’s fascinating new book about how scientists learned to create genetically modified crops

Judith M. Heimann’s recent book [Using Nature’s Shuttle] provides a thoroughly engaging account of how [the mystery of plant crown galls, a type of plant tumor] was solved and how that solution enabled crops to be genetically modified. It should also cause those readers who prefer their agriculture to be ‘natural’ to reflect on just how odd nature can be.

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Simply put, Agrobacteria have re-purposed their plasmid conjugation mechanisms to have sex not with other agrobacteria, but with plant cells.

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It is rare that a scientific discovery becomes so rapidly a financial and social ‘hot potato’. We all know of the controversy that genetically modified (GM) crops attract. Once it became clear that understanding Agrobacterium confers the power to insert any gene into a plant, the realization of the commercial opportunities created tensions between academic and financial motivations.

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To my mind, the most striking conclusion from the Agrobacterium story is the crucial importance of curiosity-driven basic research and, particularly, basic research in plant pathology. Who could have imagined that figuring out the molecular basis of crown gall of sunflowers, grapes and woody crops would lead to a multi-billion-dollar industry?

[Editor’s note: Judith M. Heimann retired as a career diplomat in 1992 and then transitioned into writing. She’s written numerous acclaimed books and best sellers, including a biography of an English eccentric polymath, Tom Harrisson—[The Most Offending Soul Alive: Tom Harrisson and his Remarkable Life](#)—and Borneo: The Airmen and the Headhunters, which was turned into a Hugo Prize winning documentary.]

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