

BOOK REVIEW

Lab Girl

Hope Jahren (2016), Alfred A. Knopf, 290 pages, ISBN 978-0-349-00619-2

Man of Science, Man of God, Gregor Mendel — Discovering the Gene — for his 150th anniversary

David J. Galton, Timaeus Press at Wolfson, 241 pages, ISBN 978-1-326-25936-5

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Compare these two books: David Galton about the 150th anniversary of Mendel's discovery of the gene and the life and work of a whole cast of characters, with Darwin, Mendel, and Galton as the lead actors, and Hope Jahren's memoir of a contemporary scientist.

David Galton (no relation of Francis Galton) writes about an era in science when scientists were gentlemen, who had wives, or when a wife had died, a sister or a cousin who looked after them and their estates. A scientist from a much poorer background — Mendel — came from a family of farmers, and his younger sister Theresia donated her trousseau to him to fund his education. At the age of 25 years, he was ordained as a priest, and a few years later his monastery funded his education at the Imperial University of Vienna.

In contrast, Hope Jahren, born 1969, who is a professor of geobiology at the University of Hawaii, details in her memoir *Lab Girl* having absolutely no money, having to work multiple jobs as a student, and scouring Salvation Army stores to find old equipment to use in her first lab. She suffers from social ineptitude, but has eccentric Bill Hagopian as her devoted lab manager. He is even worse off than she, sometimes sleeping in his car and living in the lab without a salary that can cover the rent. Bill shares significant characteristics with the Victorian wives in looking after Hope, and guaranteeing that she can focus on her research, analyzing fossil forests. Her career focuses on plants and her book al-

ternates between her life as a scientist and the lives of plants. It conveys the uniqueness of plants: machines upon which human life itself depends, 'invented more than 400 million years ago', which create sugar out of inorganic matter.

David Galton's book gives in 200 pages a wonderful overview of the breadth of the work of Francis Galton, his work on large pedigrees with as many as 75 members in a single pedigree, before he moved on to studying twins, his work in quantifying familial resemblance, and also the large number of years he spent and the huge investment he made into working on Darwin's hypothesis of 'gemmules'. These were the particles of inheritance proposed by Darwin as part of his Pangenesis theory. They were carried from all parts of the body by the bloodstream to the reproductive organs where they were stored in germ cells. To prove the theory, Galton and others such as George Romanes carried out experiments in rabbits, giving them blood transfusions and testing whether by this manipulation coat color in the next generation would resemble coat color of the blood donor (it never did). Long after it was clear these experiments would not confirm Darwin's Pangenesis theory, they carried on with their studies, not wanting to disappoint the person they admired. But after Darwin's death, Francis Galton at the age of nearly 80 years, attended a series of lectures by William Bateson on Mendel's work and the laws of heredity and for the first time understood what Mendel had done. Mendel had sent his paper to Darwin

and traveled to the United Kingdom to visit the Great Exhibition of the Works of Industry at the Crystal Palace in London, in 1851. Sadly, Darwin never seems to have learned of Mendel's discovery and the two men never met. David Galton speculates that Darwin's (and Galton's) lack of knowledge of the German language did not help, and nor did the mathematical treatment of the laws of inheritance.

Although there are enormous contrasts in their wealth, background, age, and gender there is much that unites Mendel, Darwin, Galton, and Jähren. They are scientists who love their work. These two books come highly recommended: one as a very comprehensive history of human genetics, the other one as an appreciation of what current lab life is like.
