sentences; *its* confused with *it's*). Given that editorial handicap, Schlagel deserves kudos for occasionally producing text of accuracy, clarity, and concision. For example, his discussion on the emergence of modern atomic theory is masterful, and his section on Niels Bohr rises to greatness. One can only imagine how much better this book might have been had it received intelligent editorial guidance and disciplined review.

Unfortunately, Schlagel's moments of glad grace are undermined by the book's Whiggish ending, in which he extrapolates present science to envision its near future—an Impending Fourth Transition. Schlagel seizes on genetic technoscience, including genomics and proteomics, to limn a world in which humanity identifies its defective DNA and snips it out. From envy to aggression, every human failing will be mapped onto a specific nucleotide sequence—one sin, one gene—and permanently scoured away. The true name for this cringe-inducing notion is eugenics, whose assumption of man's perfectibility condemned the 20th century to unprecedented woe.

Let me temper the severity of this review with a heartfelt tribute. Even a flawed book is notable coming from a scholar in his 10th decade. One rejoices to see a honed mind refusing to go gentle into that good night. Seen in that way, *Three Scientific Revolutions* is a tribute to the human spirit. As Nikos Kazantzakis noted, "When the spirit is proud it stands erect and does not permit the years to touch it." Well done, Professor Schlagel. Now go find a publisher fit for you.

William Atkinson
York University
Toronto, Canada

A Singularly Unfeminine Profession

One Woman's Journey in Physics

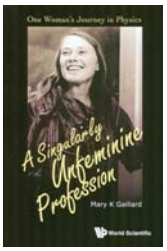
Mary K. Gaillard

World Scientific, 2015. $24.00 paper (200 pp.).
ISBN 978-981-4713-22-1

"A most unfeminine profession," spoken by a fellow high school student about Mary K. Gaillard's university plans, catches the essential message that female scientists must put aside simply to go forward. And Gaillard did go forward! Love and enthusiasm for physics and for a full life as a human being distills with all the joy of creation from the pages of her memoir *A Singularly Unfeminine Profession: One Woman's Journey in Physics*. At a presentation in October 2015, she gave the following advice to today's young women: "You just need to love physics enough, to let it be a true passion for you, and keep dismissing all that."

The fascinating adventure of particle physics from the 1960s to today is described by one of its major contributors. The hesitations, glimmerings, deceptions, and exhilaration of frontier research throb through the veins of her essay. Of high interest to physics experts, the text shows a larger audience how science is lived on a daily basis and how it blends with personal aspects to permeate and mold life trajectories.

Gaillard's story of her work is most interesting because during that time the core of our present understanding of the elementary components of the visible world was being built, and she worked in almost all that was relevant. Her contributions include such a historical landmark as the prediction, in collaboration with Benjamin Lee, of the mass of the charm quark. She also contributed to several other results that helped establish the standard model of particle physics: for example, recognizing that certain experimental data implied the light quarks were much lighter than the proton, a result that was instrumental to establishing the confinement of the strong force; or indicating how to discover the gluon; or making the first computation of Higgs decay into two photons. This Higgs paper still provokes a smile: Its final paragraph contains apologies for the enormous experimental resources the Higgs search would require; decades later the decay channel analyzed in it was central to the Higgs discovery at CERN.



The history is told in the first person, and it shows how difficult it was for even a gifted woman like Gaillard to take an active part in the development of particle physics. The way in which she slowly and painfully learns about discrimination and feminist issues is told with deep honesty and

rings true all the way. Elegantly and generously—almost no names are given—the path is described. At the end, the main offending characters are the French "Grandes Écoles" system of elite universities and even more so CERN's theory division, which is still without a single female senior staff member. In contrast, CERN's first female experimental senior staff member, Fabiola Gianotti, was hired in 1994; last month, she became the organization's director general.

The fact that Gaillard was not granted a permanent position is probably the main reason she left CERN, to its loss, and accepted a professorship at the University of California, Berkeley. The story of her time at CERN unfolds over a background of such blatant failures as the continued absence of a nursery—still missing, in spite of multiple requests since Gaillard's time—and a take-for-granted and patronizing attitude toward women.

The author is exceptional not only for her scientific stature but also for her human characteristics. Although the quality and relevance of her work were as obvious as the injustice of her professional situation prior to job offers from Berkeley and from Fermilab, she was not discouraged; her driving force is clearly physics, not medals. My impression is that she kept her sense of humor in the face of the many nonsensical situations and comments she had to endure. I can imagine Gaillard telling herself: "Here is this guy again with the usual impertinences, but all I really want is to finish my computation."

A Singularly Unfeminine Profession is priceless in transmitting the most intangible but crucial aspects of how discrimination and prejudice act even on those well intended and determined not to fall into the traps. It should be illuminating to anybody concerned about discrimination in science. The repeated examples of the gender-based double standard when evaluating candidates' strengths are as illustrative as the uncalled-for "explanations" from her friends and colleagues about her job situation.

A rich addition to the literature on the history of the standard model and a must-have testimony of a pioneering woman, this well-written book can be read in one sitting. It contains some excellent explanations of the physics involved, which will be accessible mainly to a particle-physics audience. The brush strokes on the author's life and work allow us to glimpse a scientist and a human being of enormous stature, an inspiring role model for all.

Belén Gavela
Universidad Autónoma de Madrid
Madrid, Spain

NEW BOOKS

Cosmology and relativity

Inertia and Gravitation: The Fundamental Nature and Structure of Space-Time. H. Pfister, M. King. Springer, 2015. $49.99 *paper* (180 pp.). ISBN 978-3-319-15035-2

Device physics

The Art of Electronics. 3rd ed. P. Horowitz, W. Hill. Cambridge U. Press, 2015. $120.00 (1192 pp.). ISBN 978-0-521-80926-9

Progress in High-Efficient Solution Process Organic Photovoltaic Devices: Fundamentals, Materials, Devices and Fabrication. Y. Yang, G. Li, eds. Springer, 2015. $199.00 (417 pp.). ISBN 978-3-662-45508-1

Surface Plasmon Resonance Sensors: A Materials Guide to Design and Optimization. L. C. Oliveira, A. M. N. Lima, C. Thirstrup, H. F. Neff. Springer, 2015. $54.99 *paper* (183 pp.). ISBN 978-3-319-14925-7

Energy and environment

Combined Cycle Driven Efficiency for Next Generation Nuclear Power Plants: An Innovative Design Approach. B. Zohuri. Springer, 2015. $179.00 (359 pp.). ISBN 978-3-319-15559-3

Geological Storage of CO_2—Long Term Security Aspects. A. Liebscher, U. Münch, eds. Springer, 2015. $129.00 (245 pp.). ISBN 978-3-319-13929-6

Mathematical Modelling and Numerical Simulation of Oil Pollution Problems. M. Ehrhardt, ed. Springer, 2015. $69.99 *paper* (166 pp.). ISBN 978-3-319-16458-8

Photovoltaic Solar Energy Conversion. G. H. Bauer. Springer, 2015. $89.99 *paper* (227 pp.). ISBN 978-3-662-46683-4

Radioactive Waste Engineering and Management. S. Nagasaki, S. Nakayama, eds. Springer, 2015. $179.00 (296 pp.). ISBN 978-4-431-55416-5

Sand and Gravel Spits. G. Randazzo, D. W. T. Jackson, J. A. G. Cooper, eds. Springer, 2015. $129.00 (344 pp.). ISBN 978-3-319-13715-5

Fluids

Aerodynamic and Aerothermodynamic Analysis of Space Mission Vehicles. A. Viviani, G. Pezzella. Springer, 2015. $279.00 (898 pp.). ISBN 978-3-319-13926-5

Differential Reynolds Stress Modeling for Separating Flows in Industrial Aerodynamics. B. Eisfeld, ed. Springer, 2015. $99.00 (101 pp.). ISBN 978-3-319-15638-5