

Book Review

Eric Scerri: *A Tale of Seven Scientists and a New Philosophy of Science*, Oxford: Oxford University Press, 2016,
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by George B. Kauffman

In this exciting, informative, and provocative book, Eric Scerri of the University of California, Los Angeles (UCLA), a leading philosopher of science specializing in the history and philosophy of chemistry particularly of the periodic table, offers a completely original account of the nature of scientific progress, consisting of a holistic and unified approach in which science is seen as a living and evolving single organism.

Instead of scientific revolutions featuring exceptionally gifted individuals, Scerri argues that the 'little people' contribute as much as the 'heroes' of science. In order to do this he examines seven case studies of virtually unknown chemists and physicists in the early 20th-century quest to discover the structure of the atom:

- (1) Physicist John Nicholson (1884-1955), who is virtually unknown and yet was the first to propose the notion of quantization of angular momentum that was soon put to good use by Niels Bohr.
- (2) Amateur scientist Anton van den Broek (1870-1926), who pioneered the notion of atomic number.
- (3) Chemist Richard Abegg (1869-1910), who furnished the missing links between Mendeleev's work on valence and G. N. Lewis' pioneering ideas on chemical bonding in terms of the number of electrons.
- (4) Chemist Charles Bury (1890-1968), who provided a detailed and successful explanation of the periodic table of the elements in terms of the electronic configurations of their atoms.
- (5) British chemist John D. Main Smith, who proposed some improved electronic arrangements that were subsequently and independently rediscovered by Edmund Stoner.
- (6) British theoretical physicist Edmund Stoner (1899-1968), whose article led Wolfgang Pauli to his exclusion principle.

- (7) French engineer, company director, innovator, and biologist Charles Janet (1849-1932), known for his innovative left-step presentation of the periodic table of the chemical elements.

Rather than focusing on the logic and rationality of science, Scerri elevates the role of trial and error and multiple discovery, and he moves beyond the notion of scientific developments being right or wrong. While criticizing Thomas Kuhn's notion of scientific revolutions, he agrees with Kuhn that science is not drawn towards an external truth but is rather driven from within. This book should enliven the long-standing debate on the nature of science, which has increasingly shied away from the big question of 'what is science?'

Scerri's book continues the debate about the nature of scientific advance, change, and growth in Popper's, Kuhn's, and Lakatos' tradition. In its depiction of the forgotten 'little people', it offers an important corrective to the common belief that science is developed only by persons of exceptional intellectual talents. It maintains that science is not a systematic, logical process but rather an organic, gradual series of heuristic problem-solving steps in which mistakes and inconsistencies are not only inevitable but actually necessary and fruitful.

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