promise" (p. 380) that ensured its success. Could this success, counterfactually, have been duplicated by the Weldonian paradigm? Radick argues that it could have—on the basis of real-world testing of a Weldonian way to teach genetics, with the promise of giving our students a more sophisticated view, debunking genetic determinism. Here, on full display, is the utility of studying the history of biology: illuminating science in its contemporary complexity via the detailed consideration of recessive currents in its past.

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Inside Science: Revolution in Biology and Its Impact.

By Benjamin Lewin. Cold Spring Harbor (New York): Cold Spring Harbor Laboratory Press. $29.50. xiii + 327 p.; ill.; index. ISBN: 978-1-621825-01-2 (hc); 978-1-621825-02-9 (eb). 2023.

Ernst Haeckel: Ausgewählte Briefwechsel. *Band 4: Familienkorrespondenz, März-November 1859. Historisch-kritische Ausgabe.*

Herausgegeben und bearbeitet von Roman Göbel und Claudia Taszus unter Mitarbeit von Kathrin Polenz. Stuttgart (Germany): Franz Steiner Verlag. €142,00. xxxiv + 720 p. + 28 pl.; ill.; personenregister, ortsregister, sachregister, and taxonomisches register. ISBN: 978-3-515-13447-7 (hc); 978-3-515-13496-5 (eb). 2023.

Ernst Haeckel was a compulsive letter writer to colleagues (Charles Darwin, Carl Gegenbaur, Thomas Henry Huxley, August Weismann), students (the brothers Oskar and Richard Hertwig, Wilhelm Roux, Hans Driesch), the famous (the dancer Isadora Duncan), and the near-famous (the sexologist Magnus Hirschfeld), and he kept up a large correspondence with his family. Beginning in 1921, scattered collections of his letters have appeared, often in fragmented form; perhaps only 10% of the extant correspondence of over 44,000 letters in the archives of Haeckel-Haus have been previously published. This entire correspondence is now available online in searchable format (https://www.wissenschaftsgeschichte.uni-jena.de/en/ernst-haeckel-haus/ernst-haeckel-1834-1919-letters-edition).

In 2012, the German Academy of Sciences, in cooperation with the archives, began a long-term project to publish selected correspondence to and from Haeckel in 25 hefty volumes, thematically organized. These print volumes also contain introductions based on the correspondence and augmented by Haeckel's diaries. The volume under review is the second of the letters to family (a review of the first appears in *QRB* 93:359–360), sent mostly from Sicily and Würzburg, where the young student was enrolled in the most famous German medical school of the period. He had initially matriculated at the Berlin medical school, but found the lectures on botany boring, which drove him to seek a venue more oriented to research. Despite the change of institutions, Haeckel kept in contact with Johannes Müller, the well-known researcher at Berlin, and accompanied this famous naturalist to Helgoland (two islands in the North Sea) on a marine-biological research trip, which led to a portentous decision: to make research his vocation. He did not give up medicine but continued until obtaining his doctorate; he returned to Würzburg for the spring term (1855), where he became assistant to the pathologist and later statesman, Rudolf Virchow. He quite enjoyed working with Virchow, although later, in the 1870s, he would be accused by Virchow of fomenting socialism because of his evolutionary doctrines (R. Richards. 2008. *The Tragic Sense of Life: Ernst Haeckel and the Struggle Over Evolutionary Thought.* Chicago (IL): University of Chicago Press; pp.318–324).

At family gatherings during his visits from medical school, Haeckel had noticed his charming cousin, Anna Sethe, to whom he became completely devoted and whom he won over with Goethe's poetry. He wrote her in June of 1861: "What a great, inestimable, enviable happiness has bloomed in me during these years in which I have possessed the loveliest, purest maiden soul and the most noble, most beautiful friendship, and these continue to mature into ever more blossoms and happy fruit. Love and friendship! How happy they make me. I had earlier chosen science alone, but they promise me everything that science cannot give" (1927. Page 187 in *Himmelhoch Jauchzendem: Erinnerungen und Briefe der Liebe*, edited by H. Schmidt. Dresden (Germany): Verlag Carl Reissner. This volume contains Haeckel's letters to Sethe from spring 1858 to fall 1862. All translations are mine, unless otherwise noted).

After an engagement, Haeckel and Anna married in August 1862. Married life was bliss, but did not last long. In late 1864, Anna began suffering from severe abdominal pains; her misery became acute, with great tenderness in the area of the liver. On February 16th, Haeckel's 30th birthday and the day he learned of having won a scientific prize, Anna died. Haeckel became mad with grief, lying in bed for eight days in delirium; his parents thought he might commit suicide and, as a prophylactic, they sent him to Nice on the Mediterranean. He slowly recovered and eventually remarried, but on his birthday thereafter, his thoughts turned to suicide.

The volume under review includes letters to and from his parents, aunt, and fiancé. The introduction, illustrations, commentaries, and identifications are

superbly done. The letters themselves allow curious readers glimpses of the life of an upper-middle class German family in the 19th century, as well as the activities and aspirations of a medical student of the period.

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KINGDOMS, EMPIRES, AND DOMAINS: THE HISTORY OF HIGH-LEVEL BIOLOGICAL CLASSIFICATION.

By Mark A. Ragan. Oxford and New York: Oxford University Press. $165.00. xx + 831 p.; ill.; index of persons and index of subjects. ISBN: 9780197643037 (hc); 9780197643051 (eb). 2023.

CULTURAL SELECTION. *Cambridge Elements in the Philosophy of Biology.*

By Tim Lewens. Cambridge and New York: Cambridge University Press. $64.99 (hardcover); $22.00 (paper). iv + 73 p.; ill.; no index. ISBN: 978-1-009-53906-7 (hc); 978-1-009-53909-8 (pb). 2024.

This book gives a brief conceptual analysis of some of the important ideas in the theory of cultural evolution, especially the role of selective processes. It has four parts. In the first, Lewens provides a brief, very clear account of what is, to my amazement, sometimes referred to as the received account initially developed by Cavalli-Sforza, Feldman, Richerson, and myself and extended by many others. As in his earlier *Cultural Evolution: Conceptual Challenges* (2015. Oxford (U.K.): Oxford University Press), he contrasts accounts that focus on selective processes with more catholic models that deal with a wider range of processes, arguing that the latter are more productive. In the second part, the author contrasts the received approach with the work of Dan Sperber and his many students, usually called the attractor approach. There has been a fair amount of jostling between proponents of the received account and the attractor account, but Lewens explains that there are lots of similarities and opportunities for productive synthesis and I fully agree.

Recently, a number of authors have argued that the Price equation provides a powerful formalism for modeling all kinds of cultural evolution. In the third part, the author points out that the Price equation is actually quite difficult to apply to cultural evolution, and not so useful after all. Much of the analysis in this section was new to me and I learned a lot. However, I also think that Lewens underestimates the problems with the Price equation because he accepts the premise that trait frequencies in a population is a sufficient state variable for modeling cultural change. This is not correct in structured populations because in cultural evolution, directional, often adaptive processes, are much faster than migration and, as a consequence, models must account for the frequency of different kinds of groups and the frequency of alternative cultural variants, and this is not possible using only the Price equation.

The final part applies the ideas discussed in the previous three sections to a single empirical example, the cultural evolution of manioc detoxification in tropical South America. He argues that although the received account provides a useful description of the processes that give rise to cumulative cultural adaptation, it does not easily explain the origin of complex traits, and adding ideas from the attractor tradition might solve this problem. I think Lewens is right here, and I also think these issues are very important for the rate of evolution of complex cultural adaptations.

I quite liked this volume. The analysis is smart, and it is fun and easy to read. Although I do not agree with all of it, I think it is an excellent conceptual analysis of cultural evolution theory, and its brevity makes it a good introduction to the philosophical issues raised by this theory.

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CURIOUS SPECIES: HOW ANIMALS MADE NATURAL HISTORY.

By Whitney Barlow Robles. New Haven (Connecticut): Yale University Press. $40.00. xiii + 301 p. + 14 pl.; ill.; index. ISBN: 978-0-300-26618-4. 2023.

ONE STEP SIDEWAYS, THREE STEPS FORWARD: ONE WOMAN'S PATH TO BECOMING A BIOLOGIST.

By B. Rosemary Grant. Princeton (New Jersey): Princeton University Press. $29.95. xiii + 311 p.; ill.; index. ISBN: 978-0-691-26059-4 (hc); 978-0-691-26069-3 (eb). 2024.

Love for the natural world often begins in childhood. But how do you take this love and develop it into a career, all while juggling societal expectations and family demands? Answers to this question are scarce in memoirs by professional scientists, but Rosemary Grant gives us one perspective in her new memoir, *One Step Sideways, Three Steps Forward: One Woman's Path to Becoming a Biologist.*

Together with her husband, scientist Peter Grant, Rosemary Grant gave the world unprecedented insight into the process of natural selection. However, her path in science was nearly as disrupted as it is distinguished. As we learn in an opening chapter, Grant almost did not become a scientist, and her bachelor's degree in zoology was hard won against her parents'