

do not necessarily run along disciplinary lines. In fact, most of the essays in this book are marked by a sincere desire for interdisciplinary dialogue.

This stimulating volume is useful not only to specialists but also invites broader discussion about the entangled history of Jewish emancipation and the formation of the secular legal state in Central Europe. It also demonstrates that Jewish scholars' significant contributions to German-speaking legal scholarship and practice had global effects. The scholars who survived persecution and the Holocaust were among those who leveraged the implementation of international humanitarian law, and some even managed to play a key role in shaping the international political and legal order after World War II.

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Die Familie unter dem Mikroskop. Das Bürgerliche Gesetzbuch und die Eizelle 1870–1900

By Bettina Bock von Wülfigen. Göttingen: Wallstein Verlag, 2021. Pp. 398. Cloth €40.00. ISBN: 978-3835336476.

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Situated at the crossroads of science, health, and politics, the history of genetics and reproductive biology has become one of the momentous topics of history of science. In the past fifteen years, several important volumes have set out to understand its historical development in a broader, cultural context. Among these are Nick Hopwood *et al.*'s, *Reproduction: Antiquity to the Present Day* (2018), Staffan Müller-Wille and Hans-Jörg Rheinberger's *Heredity Produced: At the Crossroads of Biology, Politics and Culture, 1500-1870* (2007) and *A Cultural History of Heredity* (2012), and Staffan Müller-Wille and Christina Brandt's *Heredity Explored: Between Public Domain and Experimental Science, 1850-1930* (2016). Bettina Bock von Wülfigen proceeds on this path and develops a fascinating analysis of the scientific, social, and legal implications of the discovery of fecundation. Her book uncloses unexpected insights into the interplay between biologists and jurists in the late nineteenth century. Yet, the book also has several shortcomings. The author's tendency to move between the two domains makes it often difficult to follow. Some conclusions seem too generalized, and the decision to analyse not one or a few authors but to refer to the entire German-speaking world entails many risks. Nevertheless, it is a book full of important aspects and relevant for future research on this topic.

The issue is intriguing. It touches on a seminal scientific discovery but also on questions of family policy, capitalistic worldviews, the labour movement, women's emancipation, the bourgeois family ideal, and care for illegitimate offspring. The starting point is Oscar Hertwig's description of the fecundation of sea urchin eggs in 1875. He qualified the still mysterious process as a penetration of a sperm into the egg and the subsequent fusion of the maternal and the paternal nuclei. That which today seems a simple, even all too obvious empirical fact constituted at the end of the nineteenth century a profound scientific and social challenge. The roles of cell nuclei, of cells, and even that of female and male parents in the process of conception were still unknown at that time. As the idea of nuclear fusion gained adherence, fecundation was conceived as the very moment of conception and as an equal material contribution by both parents. On the social level, the acceptance of this view

raised important questions about equal rights between fathers and mothers, biological and social fatherhood, genealogy, hereditary rights, and distributional justice. Bock von Wülfigen argues that the discussion in German-speaking lands was very specific. Only there did an intense interplay between biological and juridical conceptions take place. Only there did researchers set out as early as the 1880s to find rules and forms of material transmission and to interpret these as inheritance. Only there did biologists transfer the idea of the division of labour from organisms to subcellular structures and distinguish between a (male) nucleus and a (female) protoplasm. At the same time, the German Reich enacted a particular inheritance law that advocated a system of parentelic succession and conjugal community of property.

After the German unification of 1870–1871, legislators had to unify the laws of the twenty formerly independent states and adapt them to new social, economic, and cultural situations. One of these was the inheritance law that saw a first draft in 1883, a second in 1893, and became operative in 1900. The discussion involved great parts of the German society because it concerned their everyday life and their self-conception. The book's introduction and first chapter are both packed with interesting hints, concepts, and opinions, many worth further exploration. They discuss the etymology and meanings of crucial terms like "Anlage," "Generation," "Vermögen," "Vererbung," and "Erbschaft" and illustrate the contemporary legal and biological concepts of heredity and inheritance. Yet the density of these issues, the fact that these parts of the book rely almost exclusively on secondary literature, the lack of a clear argumentative structure, the frequent time jumps, and the excursions into the early twentieth century render these pages rather difficult to digest.

Much more coherent is Bock von Wülfigen's exposition in the following chapters. Chapter two traces a parallelism between the emerging capitalistic theories and the biological understanding of inheritance as a transmission of material carriers, *Anlagen*, capitals, and potentialities. Chapters three (equal distribution on offspring), four (division of labour), and six (child education) are the most stimulating ones. The analysis concentrates on publications by eminent German biologists and is therefore detailed and plausible. Conceiving fecundation as a fusion of two nuclei and hence an equal contribution by both parents posed the problem of how maternal and paternal characters are distributed and activated in the offspring. According to the author, analogies with legal inheritance laws helped biologists bridge this gap and, on the other hand, favoured laws promoting the continuity of transmission – i.e., (biological) children as universal heirs – curtailing the power of testamentary disposition of the father. However, ambitions of equal treatment found an end as soon as the role of men in marriage and family was at stake. Inside the cell, Bock von Wülfigen argues, German embryologists conceived a new dualism. Oscar Hertwig and Theodor Boveri understood the nucleus (the male) as the part that governs and directs, and the protoplasm (the female) as that which implements the directives, cares, and nurtures. A look at the work done in embryological and genetic laboratories in the United States (chapters five and eight) shows a very different situation, with many female researchers and greater emphasis on the functional unity of the cell and the equal cooperation of its parts.

The final chapter presents an excursus into very recent debates, raising, among others, the issues of the influence of the new field of epigenetics, in particular genomic imprinting, on the question of gender and custody, and of the economic evaluation of the work of housewives. A few final pages contain remarks on the main issue of the book. Disappointingly, these are mainly limited to two statements. Firstly, that the concepts of Carl Nägeli, August Weismann, and Hertwig as well as the new German inheritance law excluded any (extra-familial or cytoplasmic) context from heredity. Secondly, that the inquiry of phenomena happening below the resolving power of optical lenses was a "submicroscopic wonderland" (303) and a site of speculation and fantasy. Both statements do not do justice to the preceding chapters.

The author reveals striking parallelisms in her book. Yet she goes even further, stating that "The German concept of inheritance, which will become the leading one after 1900,

emerged from biology and law, prepared by legal experts like Levin Goldschmidt and Otto Gierke as well as biologists like Oscar Hertwig and August Weismann” (15). This is a strong thesis. Yet the evidence for this supposed cross-fertilization is somewhat thin. Just setting (generic) statements on the history of biological inheritance research alongside (generic) statements on the legal disputes over inheritance and family law is interesting but insufficient as a proof. It would have been instructive to read, for instance, if the legal experts actually knew about the embryological cutting-edge research of those years. Yet Goldschmidt is not mentioned again in the book. In chapter seven, the author tries to demonstrate an interference between Hertwig and Gierke. Yet the principal evidence she adduces is that they were colleagues in Berlin, as professor of anatomy and professor of criminal law, and that both supported organicist views. However, organicism, even organicist theories of the state, had many varieties, and none of these contained specific views on inheritance. Therefore, the reader wonders whether these jurists actually incorporated specific embryological knowledge into their bills or at least used it as justification, or whether biological and legal views just developed on a common ideological ground. The book does not always satisfy the great expectations it raises, and I do not agree with all of its conclusions. Nevertheless, Bock von Wülffingen’s book is an intriguing and stimulating read and a seminal piece.

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Experten der Erschliessung. Akteure der deutschen Kolonialtechnik in Afrika und Europa 1890–1943

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In March 1914, the German Empire inaugurated the so-called Central Line in its colony German East Africa (today’s Tanzania, Rwanda, and Burundi), a railway line stretching 1,250 kilometers inland from the Indian Ocean. The railway turned out to be of little use to the empire: within months of its inauguration, the First World War reached the colony and put an end to Germany’s colonial ambitions.

Sebastian Beese’s book, which is also published open access, draws our attention to the European engineers employed in this and other infrastructure projects in Germany’s African empire, focusing on the East African colony. The main aim of the book, situated “at the intersection of history of technology and colonial history” (3), is to provide insights into the motivations and activities of this group of experts. Drawing on published memoirs as well as a broad range of unpublished sources, mostly found in the German National Archives and the Tanzanian National Archives, Beese sets out to trace the careers of German colonial engineers, discusses their motivations, and explores their work and life in the colonial world.

Proposing Pierre Bourdieu’s concepts of habitus and capital as a conceptual framework, the study provides in-depth analyses of four forms of capital embodied in Germany’s colonial engineers: physical, economic, social, and cultural. Beese demonstrates that colonial engineering was a prestigious profession that not only allowed aspiring engineers to work on large-scale infrastructure projects but also to accumulate these different forms of capital.