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[Invited book review of Theodore M. Porter. Genetics in the Madhouse: The Unknown History of Human Heredity.]

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Last but not least, it was essential that a new theory of soil and fertility emerged, based on a circulatory model. The chemical elements essential for the growth of plants had to be properly recycled for agriculture to flourish. Warde presents a precise history of the reflections on the cause of plant growth from the sixteenth century (Bernard de Palissy) to the nineteenth century. The towering figure of Justus Liebig, the great expert—and prophet of doom—on soil exhaustion, closes his story: “the modern problem of sustainability had arrived,” writes Warde, “when experts could successfully engineer the flow of nutrients in a society whose practices systematically endangered its existence” (p. 307).

One critical remark to conclude: by choosing to define “sustainability” at the most general level (i.e., avoiding the collapse of a state or a nation owing to resource exhaustion), Warde finds himself writing mainly the story of an *absence* (from seventeenth-century agronomy to eighteenth-century political economy). And when the idea of limit does appear in early modern texts (in Giovanni Botero’s or Bernard de Palissy’s writings, for instance), Warde insists that it is only in a limited version (with regard to a particular resource, for instance). But, as the author himself indicates, other definitions of “sustainability” could have been chosen, which would have led to different stories. For example, one would have liked to know more about the connection between the “practices of sustainability” and the early modern ecological and agromonic lay knowledge held by, say, peasants or fishermen. Such sources are more difficult to find, but they do exist, especially in cases where these practices of and knowledge about sustainability came into conflict with other modes of resource management inspired precisely by the kind of discourse on sustainability that this book studies very well.

Jean-Baptiste Fressoz

Jean-Baptiste Fressoz is a historian of science, technology, and the environment at the Centre National de la Recherche Scientifique (EHESS, Paris). His publications include L'apocalypse joyeuse: Une histoire du risque technologique (Seuil, 2012) and, with Christophe Bonneuil, The Shock of the Anthropocene (Verso, 2016).

Theodore M. Porter. *Genetics in the Madhouse: The Unknown History of Human Heredity.* xii + 447 pp., illus., notes, bibl., index. Princeton, N.J.: Princeton University Press, 2018. \$35 (cloth). ISBN 9780691164540.

In this winner of the Cheiron Book Prize, Theodore M. Porter returns to the theme of his classic works—*The Rise of Statistical Thinking, 1820–1900* (Princeton, 1986) and *Trust in Numbers: The Pursuit of Objectivity in Science and Public Life* (Princeton, 1995)—to trace the human side of the numbers that became the basis for modern population genetics. And he locates them, unexpectedly, in the prehistory of the psy-disciplines.

In other words: before the study of genetics became biology, it was psychological and psychiatric. (Although not psychology or psychiatry because, like biology, these were disciplined alongside the developments described.) Porter therefore returns us to the original meaning of “genetic,” which is to say *genesis* (as “coming into being”) and thus also incorporating *degeneration* and *feeble-mindedness*. But his text isn’t just about the original background to our thinking regarding inheritance as *pedigree*. It also provides a prehistory of evolutionary-developmental thought from before the modern synthesis of Darwinian natural selection with Mendelian particulate inheritance, and it follows that thread through to how these ideas shaped society as their attendant bureaucracies worked to intervene in their own futures.

To make this case, the book is organized into three parts: “Recording Heredity” (pp. 15–100) is pre-*Origin*, “Tabular Reason” (pp. 101–216) spans the publication of *Origin* and engages with the context it afforded, and “A Data Science of Human Heredity” (pp. 217–341) introduces the rediscovery of Mendel and takes the reader through the intersecting debates of the modern synthesis, intelligence testing, and eugenics. Each part is also introduced with a short essay that situates and sets up the narrative that follows.

Porter's approach is informed by a deep dive into the archives. He assembled innumerable examples of the different numbers produced and preserved by asylums, retreats, centers for moral hygiene and mental health, psychiatric hospitals, and the national census of several countries in Europe and North America between 1789 and 1939. These are then presented as underlying the broader process of disciplining data regarding the *genesis* of *alienism* such that the same numbers could later become used as evidence of *heritability*.

In short, Porter shows how the numbers were given their contemporary voice and came to stand in for their subjects, as the resulting data were themselves institutionalized and technologized and made ever more trustworthy. The result is therefore a history from below of the numbers now treated from above.

That said, however, the book seems purposeful in its engagement with historians of biology. That is the presumed audience, as asylum historians will find many of the details familiar. It is therefore perhaps best considered alongside Stephen Jay Gould's *The Mismeasure of Man* (Norton, 1996). Yet despite the inclusion of Francis Galton and Henry Goddard, in discussing intelligence testing through the lens of Mendelism, we suspect historians of psychology will be disappointed that there was no engagement with Alfred Binet's data work as he collaborated with educators against psychiatrists to keep slower children *out* of asylums. There is also only a brief mention of Lewis Terman, although this is perhaps forgivable: his longitudinal "genetic studies of genius" mostly took place after the period of Porter's narrative focus, and these can now be reconsidered through the background presented so thoroughly here.

It will be interesting to see how historians of psychology use Porter's arguments to reinterpret and contextualize other such "genetic" stories from the period. And his investigation can certainly be developed beyond adding chapters for Binet and Terman. For example, although already international in scope—covering developments in England, France, Norway, Germany, and the United States—there is a straightforward further connection to be made between the American and French academies, as well as between Biology and Psychology, through James Mark Baldwin (of the eponymous Baldwin effect), who decamped for Paris after a sex scandal led to his dismissal from Johns Hopkins in 1908. In France, he lunched weekly with Pierre Janet, who in turn adopted and adapted Baldwin's "genetic psychology" and "genetic logic" in considering the genesis of psychopathology. That extension would return us directly to Porter's narrative, albeit from the reverse angle. Through Janet's priority dispute with Sigmund Freud (Austria), we would also be reconnected in a new way to the histories of psychoanalysis, psychiatry, and clinical psychology. And through Janet's postdoctoral mentorship of Jean Piaget (Switzerland)—as well as his simultaneous influence on Lev Vygotsky (USSR)—we would be similarly connected to the histories of developmental psychology, pedology, and education (as well as of "genetic epistemology").

In other words, *Genetics in the Madhouse* makes critically important contributions to both the history of biology and the history of psychology broadly conceived. Yet it is perhaps better considered as a discipline-spanning history of human science, since the boundaries it crosses are more recent innovations than the archival source materials with which Porter engages so deeply.

Finally, a paper copy of the book is, of course, easily bought or borrowed. But there are also electronic versions available for Kindle and other platforms. (Those interested in assigning chapters individually will be delighted to find segmented e-books in the JSTOR Demand-Driven Acquisition collection, as well as in De Gruyter's PDA Package.) And there is an audiobook, whose narrator is clear and crisp, available for a single credit through Audible. Students who benefit from listening, while following along in a text, will appreciate the combination.

Jeremy Trevelyan Burman

Jennifer L. Bazar

Frederic Weizmann

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Fredric Weizmann, Ph.D., is Senior Scholar and Professor Emeritus at York University in Toronto, Canada, where he continues to be affiliated with the Graduate Program in Historical, Theoretical, and Critical Studies of Psychology. He often writes about the influence of embryological and genetic ideas on psychological models of development.

Mirko D. Grmek. *Pathological Realities: Essays on Disease, Experiments, and History.*

Edited and translated by **Pierre-Olivier Méthot.** (Forms of Living.) xv + 261 pp., notes, bibl., index. New York: Fordham University Press, 2018. \$28 (paper). ISBN 9780823280353.

Mirko Dražen Grmek (1924–2000) is a major figure in contemporary history of medicine. Born in Krapina (Croatia), he enlisted in the Resistance in 1943 and began medical school in Zagreb after the end of World War II. Graduating with the M.D. in 1951, he soon turned his attention to the history of medicine and was appointed head of the Department of History of Medicine at the University of Zagreb in 1953. Between 1958 and 1962 he traveled several times to France, and in 1963 he obtained a grant from the CNRS (the National Center for Scientific Research) to classify the Claude Bernard archives at the Collège de France. With the support of Pierre Huard, Georges Canguilhem, René Taton, and Fernand Braudel, he was recruited in 1967 as a researcher at the CNRS, where he completed his thesis on Bernard's experimental reasoning and toxicology (1971). From 1971 to 1973 he was a lecturer in the Historical and Philological Sciences Section of the Ecole Pratique des Hautes Etudes; he then succeeded Huard in the Chair of History of Medicine and Biological Sciences, which he held until 1989.

Grmek's work, a vast field of more than a thousand publications, includes major contributions in the history of diseases—notably on the concept of pathocenosis (which he introduced in 1969 to account for all diseases affecting a given population), retrospective diagnosis, paleopathology, and AIDS—and on the history of concepts and theories, notably the concept of disease and theories of aging and death. We also find work on the history of physicians, editions of source texts, and contributions to philology (Grmek edited Bernard's laboratory notebooks and R.-T.-H. Laennec's translation of Aretaeus of Cappadocia), as well as social history, with studies on quarantine and medical secrecy. Also noteworthy are several contributions on epistemology and history of science, including analysis of experimental reasoning (*Le chaudron de Médée: L'expérimentation sur le vivant dans l'Antiquité* [Synthélabo, 1997]), and “methodological myths” in the history of science. Finally, Grmek directed a landmark series on Western medical thought (1993–1999) (first published in Italian and French; only the first volume has been translated into English: *Western Medical Thought from Antiquity to the Middle Ages* [Harvard, 1998]).

In *Pathological Realities* Pierre-Olivier Méthot offers nine texts by Grmek, either originally published in English (five texts) or translated by Méthot (four texts): “Preliminaries for a Historical Study of Diseases” (1969), “The Concept of Emerging Disease” (1993), “Some Unorthodox Views and a Selection Hypothesis on the Origin of the AIDS Viruses” (1995), “First Steps in Claude Bernard's Discovery of the Glycogenic Function of the Liver” (1968), “The Causes and the Nature of Ageing” (1958), “A Survey of the Mechanical Interpretations of Life from the Greek Atomists to the Followers of Descartes” (1966), “A Plea for Freeing the History of Scientific Discoveries from Myth” (1980), “A Memoricide” (1991), and