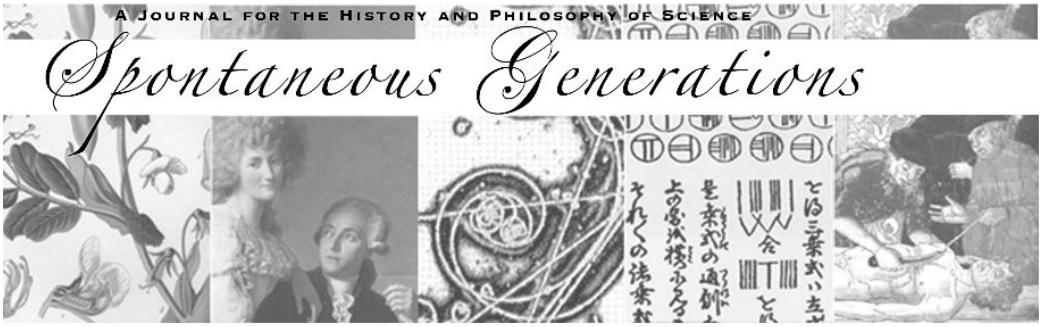

REVIEW: Phillip Thurtle, *The Emergence of Genetic Rationality*

Author(s): Ari Gross

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E D I T O R I A L O F F I C E S

Institute for the History and Philosophy of Science and Technology
Room 316 Victoria College, 91 Charles Street West
Toronto, Ontario, Canada M5S 1K7
hapsat.society@utoronto.ca

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Ari Gross†

The primary goal of Phillip Thurtle's *The Emergence of Genetic Rationality* is ostensibly to address the emergence of a novel set of biological views and practices in early 20th century America which Thurtle dubs "genetic rationality." These include active experimentation, changing notions of space and time, and the conceptual reduction of organisms to bundles of geographically-independent traits.

Thurtle believes that the roots of this new "rationality," which arose at the expense of observational natural history, lie firmly in 19th century mercantile industrial capitalism, changes in managerial practices, and, above all, innovations in record keeping. These changes helped redefine notions of space and time and gave rise to the symbolic informational practices required by modern genetics. In situating the emergence of genetic rationality within a wider cultural context, Thurtle focuses not on American geneticists themselves, but on horse breeders, authors, plant hybridizers, the Pacific Railroad Survey, museum builders, and David Starr Jordan (1851-1931), ichthyologist, eugenicist, and president of Stanford University (Thurtle's *alma mater*, where he studied under Tim Lenoir), whose life and work provide the narrative thread responsible for holding together Thurtle's otherwise scattered book.

The Emergence of Genetic Rationality is divided into five parts. Part one begins by bringing the reader back to Gilded Age America, where up-and-coming industrial capitalists were sowing the seeds of social, economic, and scientific change. Here, Thurtle discusses the connections between trotting-horse breeding, the values of the rising industrial capitalist "middle-class," and shifting perspectives on evolution, eugenics, and early education. Trotter farms, which bred horses for speed

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†Ari Gross is currently a PhD candidate at the Institute for the History and Philosophy of Science and Technology at the University of Toronto. His research interests frequently address questions pertaining to forms of scientific reasoning. He is presently investigating visual reasoning in mid-twentieth century theoretical particle physics.

from a young age, were modeled after the corporations owned by their benefactors. Horses became creatures literally shaped by Gilded Age meritocratic values and novel corporate developments, such as middle management.

Part two introduces two important concepts for Thurtle's work: the "panoramic mode," a way of viewing/describing the world which involves expansive and detailed description; and "the space of flows," a term borrowed from sociologist Manuel Castells, which refers to exchange of knowledge and goods. Focusing on natural historian and Smithsonian secretary Spencer Baird, Thurtle explores the ways in which natural historical activities (such as the collecting of specimens) and the corporate practices of mercantile business shared the same channels of exchange and required similar forms of management, especially novel means of record-keeping conducive to "absentee ownership." This point is supported through Baird's Pacific Railroad Survey, at once a work of national, commercial, and scientific interest. Furthermore, the Survey can be viewed as a typical product of the "panoramic mode," producing thirteen volumes of local descriptions, unified into a single narrative of the American West.

Holding together such expansive Gilded Age narratives required epic heroes, Great Men. In part three, Thurtle explores such tales of Great Men and the recapitulation narratives they embodied. Arguing for a common logic to both literary and scientific narratives of the late 19th century, Thurtle discusses the tropes of biological/social development, certain eugenic themes (such as the benefits of competition and the individual embodiment of racial qualities), and the biogenetic law (ontogeny recapitulates phylogeny). Such examined narratives include G. Stanley Hall's *The Story of a Sand-Pile*, in which children recapitulate the "evolution" of Western society, and the works of Jack London, in particular *The Valley of the Moon*, which explores the inherent qualities of the 'American' race.

This focus on story-telling and narratives continues in part four, which addresses the literary and scientific aspects of "wandering." This subject allows Thurtle to return to his discussion of conceptions of space and time, which he earlier asserts as having informed late 19th century narratives. However, any support for this claim is obscured by Thurtle's rambling discussions of sensation, acquisition of property, (racial) memory, and the relationship between wandering and industrial culture. Part four concludes by describing two "memories," "memory 1" which corresponds to a biological interaction between an organism and its environment and "memory 2" in which organic information is disembodied and decontextualized, a critical feature of his genetic rationality.

In part five Thurtle regains a semblance of coherence and turns to describing the botanical practices of Luther Burbank, who hybridized

plants searching for "golden crosses," and botanist Hugo de Vries, who did not, but rather scoured his greenhouses in search of chance mutations. While both their practices were industrial in scale, Burbank differed from de Vries not only in his views on the impact of the environment on the development of plants, but in his holistic conception of living organisms and his idiosyncratic record-keeping practices. These differed remarkably from de Vries' systematic records and strong sense of genetic reductionism, practices and beliefs mirrored by eugenicist Charles Davenport which firmly situate both individuals in the "space of flows," the space of genetic rationality far removed from the old "panoramic mode" in which Burbank operated.

Thurtle's work is impressive in scope and, at times, highly compelling. However, the principal problem with *The Emergence of Genetic Rationality* is that Thurtle has written a fundamentally different book from that which he claims throughout. At its heart, this work is a discussion of several dominant social/biological themes and literary techniques of turn-of-the-century America. If Thurtle's primary goal was the establishment of the "panoramic mode," his diffuse cultural approach, sociological and Continental in style, would be understandable though certainly not beyond critique. However, Thurtle's attempt to contrast this older "mode" with an emerging "genetic rationality" falls flat. No wider cultural aspects of genetic rationality (or even scientific ones, save for a handful of botanical and eugenic records) are discussed, leaving Thurtle's work asymmetric to the point at which one wonders why he even bothered to mention "genetic rationality" in the first place. Furthermore, for all his talk of importance of record-keeping practices no in-depth history of such practices is provided, rendering his seemingly technologically determinist claim, while interesting and potentially valid, impossible to establish.

Thurtle's work suffers other shortcomings. His desultory narrative can, at times, be frustrating. The continuity of Thurtle's work is complicated by his interspersed analysis (perhaps stemming from this book's original construction as Thurtle's doctoral thesis) which is often unnecessarily confusing. His highly abstract manner of theorizing ensures that he rarely misses an opportunity to obfuscate a simple, and perhaps otherwise sensible, point. Furthermore, his desire to divide the history of American biology into two distinct sets of views and practices rooted in record-keeping innovations and changing "folds" in space and time is highly suspect. One cannot help but doubt the validity of such grand, unified epistemic-methodological-technological categories and wonder to what degree such supposed historical changes are a function of the author and not the actors.

That said, *The Emergence of Genetic Rationality* does contain portions

of interest, especially in its early chapters devoted to the ideas and values of the Gilded Age. At its best, Thurtle's work paints a rich and textured picture of 19th century America and helps underscore the intricate historical relations between now-outdated biological concepts, such as recapitulation and racial narratives, and "progressive" industrial capitalism. However, such insights are sadly lost amongst the wider confusion and porous, albeit suggestive, historical research.

ARI GROSS
IHPST, University of Toronto
91 Charles St. West
Toronto, ON
Canada, M5S 1K7