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Nikolas Rose and Joelle M. Abi-Rached, *Neuro: The New Brain Sciences and the Management of the Mind*. Princeton, NJ, and Oxford, UK: Princeton University Press, 2013. Pp. 325. USD\$29.95 (paper). ISBN 978-1-4008-4633-7.

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Neuroscience is the discipline that explores the nervous system and especially its centre — the brain. In modern understanding, the brain became the place where thoughts and feelings are generated, the place where concepts like personhood and human free will are shaped. Neuroscience is therefore a much-discussed field, and the ensuing debates have transcended the laboratories into the public and the political sphere. *Neuro: The New Brain Sciences and the Management of the Mind* is an intellectual history of neuroscience with an emphasis on the second half of the twentieth century, when the knowledge of neurons and of nervous system function was increasingly expanded and framed in molecular contexts. The authors Nikolas Rose, professor of sociology, and historian Joelle M. Abi-Rached, then based at Harvard's Department of History of Science, describe major conceptual shifts in the scientific and public understanding of the brain over the last half century. Further, they set out to chart the emergence of a new neuromolecular vision of the brain, while their approach is rooted in cultural history and the social sciences, and it considers the various connections between neuroscience, its allied sciences, society, politics, and economics. Written in an engaging eloquent style, the book addresses both experts in the field as well as the wider public. *Neuro: The New Brain Sciences and the Management of the Mind* maps key findings in the history of the neurosciences, which each influenced the paths that the discipline took: psychiatric pharmacology, psychiatric genomics, and new technologies in visual imagery, leading to paradigmatic changes regarding both the anatomy of the brain and the physiological activity of the living brain.

Chapter 1 ("The Neuromolecular Brain") follows the key conceptual shifts driven by new technical means for exploring the biological nature of the brain. Rose and Abi-Rached demonstrate that the modern exploration of the brain as an organ of human thought involves a dissolution of the mind-body dualism. This has led to a new polarization, however, between the humanistic and the neuroscientific understandings of what the brain does.

Chapter 2 ("The Visible Invisible") discusses epistemological issues, such as the gap between new technologies and new scientific and psychological insights: Visualization of brain functions does not "enable the neuroscientist to walk among thoughts, feelings, or desires" (81). Technology alone cannot bridge the gap between the molecular level and higher mental states.

Chapter 3 ("What's Wrong with Their Mice") points out limits in neuroscientific research by looking at animal models. While the book's purpose is rather to give an overview of the many discourses within the field itself, this chapter takes an argumentative stand by criticizing the problems of translating scientific findings from animal models to humans. The lack of ethical consideration regarding animal testing in this

chapter — for the benefit of neuroscientific research within this epistemological discussion — is somewhat puzzling.

Chapter 4 (“All in the Brain?”) looks at the benefits of neuroscience and its new pathological insights into diagnostics in the field of psychiatry. The perceptive history of psychiatric diagnostic tools and charts provided in this chapter nevertheless makes for a great read. The authors judge the diagnostic benefits of neurosciences for psychiatric patients as rather limited: “Has neuropsychiatry brought us any closer to resolving that centuries-old problem of how to define ‘true madness’ . . .? At present, one must answer in the negative” (140). In this chapter, the terminology remains somewhat unclear, for example, when the authors state: “At root, the neurobiological project in psychiatry finds its limit in the simple and often repeated fact: mental disorders are problems of persons, not of brains. Mental disorders are not problems of brains in labs, but of human beings in time, space, culture, and history. And, indeed, so is diagnosis . . .” (140). What is a person as opposed to a brain? Where does “personhood” happen in the body if not in the brain? And where do the social and cultural factors manifest themselves if not in the brain?

Chapter 5 (“The Social Brain”) explores the findings of the neurosciences, particularly on empathy and the social self by discussing key studies like those of neurophysiologist Michael Gazzaniga and behavioural scientist Robin Dunbar. Rose and Abi-Rached show how the “mental hygiene movement” of the first half of the twentieth century was transformed into the discourse of social neuroscience during the second half: “Parenting, biography, experience, diet, alcohol, drugs, stress, and lifestyle all pass through the brain, shaping and reshaping the brain at the very same times those capacities and attributes — cognition, emotion, conduct, disorder, resilience, and the like — are shaped by the brain” (162–163). In their attempt to argue for a stronger liaison between traditional psychological understandings of mental health and the conceptualization in modern neuroscientific disciplines, the argument in this chapter appears somewhat flawed: “It is not that human beings have become conceived of as mere puppets of their brains, far from it. Human beings are not thought of as identical with their brains, or reduced to their brains or determined by their brains” (163). The ensuing philosophical question is, in fact, where does personhood happen if not in the structure and functioning of the brain?

Chapter 6 (“The Antisocial Brain”) deals with brain pathologies of criminals — a topic with a particularly dark history under National Socialism in Germany, when criminals were incarcerated in concentration camps merely due to their alleged criminal biological “nature.” Brain research into the underlying pathologies of mental disabilities became an infamous ally in this regard, seen in the “euthanasia” killings of mentally ill patients during that time. *Neuro: The New Brain Sciences and the Management of the Mind* follows the historical route of research into the pathological brain and discusses the political claims of the findings through a chronological perspective. When, during the heyday of eugenics (until the 1950s), pathologies were linked to the biology of genes, today’s understanding regarding the connections between genetics and brain pathologies appears much more differentiated and less deterministic. It particularly recognizes the adaptability of the developing brain. Pathologies such as attention deficit hyperactivity disorder, autism, schizophrenia, bipolar disorder, or dementia are now seen as developmental, and not as written into the human genes. Where the societal management of criminal individuals used to focus on eugenic measures in the past, it concentrates today rather on measures of prevention by acting on the child’s developing brain.

Chapter 7 (“Personhood in a Neurobiological Age”) discusses the socio-political claims deriving from present neuroscientific understandings of the brain as a malleable entity, leading to a constant call for self-improvement (223). The authors do not shy away from a stand regarding the current debates in the neurosciences themselves. A central topic in this chapter is the relationship with social science and how concepts of the brain, personhood, or free will are challenged by recent and genetically oriented neurosciences. They stress similarities rather than contradictions between the disciplines: “We argue that despite apparent contradictions, neurobiological research emphasizing the role of nonconscious neural

processes and habits in our decisions and actions can — and does — happily coexist with longstanding ideas about choice, responsibility, and consciousness that are so crucial to contemporary advanced societies” (21).

Looking at the volume overall, how the two disciplines — the neurosciences and social sciences — should bring their different views together is somewhat blurry in parts. The book nevertheless provides a thorough and thoughtful intellectual history of neurosciences by considering not only the discipline’s scientific history but also a social history of many of its key protagonists. Especially, the very insightful descriptions of the entanglement of the neurosciences with politics, the public, and (pharmaceutical) markets makes the overview very informative and a must-read for everyone interested in the field.