Sedgwick, Eve Kosofsky. 2008 [1990]. *Epistemology of the Closet*. Berkeley: University of California Press.

The Floracrats: State-Sponsored Science and the Failure of the Enlightenment in Indonesia

ANDREW GOSS

Madison: University of Wisconsin Press, 2011, 264 p.

In *The Floracrats: State-Sponsored Science and the Failure of the Enlightenment in Indonesia*, Andrew Goss examines in sharp and engaging detail the relationship between science, state and society in modern Indonesia. Goss follows the professional careers of state-sponsored naturalists or "Floracrats" as they sought to expand their scientific knowledge and authority and examines how their Enlightenment vision to achieve societal transformation through science became absorbed or "co-opted" by the colonial and postcolonial state. In carefully researched chapters spanning from the mid-nineteenth century to the present day, Goss argues that the integration of scientists into the state bureaucracy has characterized the enduring failure of the Enlightenment in Indonesia.

This book, while part of a blossoming literature on the history of science and technology in modern Southeast Asia, represents an important departure from existing work in its attempt to address the legacy of colonial science for postcolonial societies[1] (Moon 2007; Mrázek 2002; Pols 2009). In contrast to recent studies that examine the political uses of science to reinforce authoritarian regimes or to fashion the self-identity of nationalists who protested against them, Goss instead focuses his work around the question of why science became so readily available for the colonial and postcolonial state's use and how this relationship imposed critical limits on scientific innovation.[2] This work therefore serves as an important contribution not only to the history of science in Indonesia but to its social and political history as well.

Across a series of richly detailed episodes, Goss analyzes how science, particularly botany and natural history, developed into a tool of the Indonesian state. Most interesting are the chapters on the establishment of the Buitenzorg Gardens and their transformation into a scientific empire under the careful stewardship of naturalist Melchior Treub. Treub was tasked with the challenge of both promoting the international status of the Gardens and making the plant and animal collections at Buitenzorg "legible" to colonial bureaucrats who sought to affect more practical changes at home. In the chapter on "Quinine Science," Goss explores the emergence of this notion that scientists prove their value to colonial capitalism by creating economically useful knowledge.

1) This focus on the history of science and technology is especially striking among recent scholarship on Indonesia. See References for more detail.
2) For example, see Warwick Anderson and Hans Pols (2012).

Recruited by the state to aid in the cultivation of cinchona trees for quinine, the first generation of Floracrats established an important precedent for science in the colony. Not only did the Floracrats prove the utility of their knowledge to the colonial state's program for increased quinine production; in making their knowledge of nature transparent to bureaucratic practices, they also demonstrated a unique capacity to manage the gap between the colonial bureaucracy and entrepreneurial Dutch planters. This would become the model for collaboration within which experts would be expected to carry out their science.

By the early twentieth century, the Dutch colonial state had steadily grown "adept at absorbing cultural innovations emerging from civil society" (p. 104). For instance, when "native floracrats" attempted to generate a popular Enlightenment and lift their countrymen into modernity through educational leadership, the Dutch state worked hard to promote their own brand of "official scientific nationalism." Native experts trained in state-run agricultural schools would instead be recruited into a functional elite to aid in the development of Indonesia and its peoples under Dutch control. In the last chapters of the book, Goss analyzes how this colonial legacy of bureaucratic science continues to shape the practices of professional biologists working in Indonesia today.

Throughout Goss underscores the failure of scientists to achieve their Enlightenment vision of creating useful knowledge that would allow professional biology to connect to and transform Indonesian society or culture. Instead the goals of scientists became regularly subsumed by the goal of the state to more effectively administer the biological diversity of Indonesia and its indigenous populations. Yet to claim a "failure" of the Enlightenment is to both presuppose a sincere, coherent vision of how science would transform Indonesian society and imply that scientists would otherwise have been able to meet their objectives. Neither seems at all clear. Using the trope of failure as a way to organize his narrative, Goss tends to stress continuities in the structure of scientific careers over time, obscuring real differences that could have been drawn out more explicitly. For example, Goss uses the term "apostles of the enlightenment" alternatively to describe Netherlands-trained scientists who sought to establish the reputation of Dutch civil society in Indonesia as "enlightened," colonial Floracrats who sought to establish the international authority of their work as "tropical" rather than "colonial" science, and native intellectual figures who sought popular empowerment through knowledge. Not enough is made of the contrasts between different "enlightenment" objectives for "useful science" held by these divergent groups of actors or how their political status as elites, rather than experts, shaped their investment in the colony's future and the meaning of failure.

This rubric of failure does not encourage a more careful mapping of how these different generations of scientists related to each other, nor does it capture Goss's more nuanced observations of the ways in which the Floracrats negotiated their role as both state bureaucrats and scientists. The reader is struck less by the zealousness of the Floracrats' mission to popularize their knowl-

edge than their ambitious endeavors to expand and consolidate scientific authority within the infrastructure of the state—an opportunity for power and prestige that many would not have enjoyed in the Netherlands, for example. The Floracrats were generally successful at winning key appointments and held significant influence over the direction and implementation of colonial policies. Yet in pursuing knowledge through the "tentacles of the colonial state," which was at once paternalist and heavily bureaucratized, Goss reveals how the Floracrats were forced to ask questions of their research that exposed fundamental tensions over the role of science and scientists in Indonesian society.

Indeed the framing of the book around the failure of the Enlightenment elides what may be its most interesting and valuable contribution: the questions it raises about what it means to do science in the colonial context and how scientific knowledge comes to be defined, valued, and contested. Recurring debates over what counts as "useful" or "practical" science provides fascinating insight into how scientists and bureaucrats battled over the relative merits of "pure" and "applied" knowledge in shaping colonial policy.

To take one example, during the period of ethical policy reforms of the early 1900s, Melchior Treub advocated a vision of professional biology leading colonial agriculture, claiming that with science in charge, administration would become routine. He challenged the view of colonial bureaucrats who implied an opposition between science and practicality, suggesting that scientists would make for poor directors of agriculture being too distant from practical matters. In response, Treub leveled a critique at department leaders as inefficient and arbitrary users of science, claiming they do not "do scientific research, synthesize the desired knowledge or spread that knowledge in a practical way" (p. 89). Some scientists even challenged this emphasis on practicality, suggesting that the flavor for "applied" knowledge favored by the colonial state was "vulgar" and advocated the pursuit of "pure" knowledge that held no immediate economic benefit. These discussions reveal less about the failures of science to achieve social change than the ways in which colonial administrators and scientists debated the role of science in the future of Indonesian society.

Finally, Goss's attention to the interplay of politics and scientific knowledge yields invaluable insights into the day-to-day running of the colonial and postcolonial state. Rather than focusing on the uses of colonial science to rationalize imperialist rule, or for the creation of a healthier, more productive society, Goss organizes his study around the careers of the "Floracrats" as professional experts and their role in the dramatic expansion of a colonial bureaucracy that characterized the Dutch administration's broader political direction (p. 94). As Goss writes, "My own sense is that using technocracy as a category of analysis here is a distraction, as the state policies were not about creating technical solutions per se but about generating systems that could effectively administer" (p. 47). Goss does an excellent job of charting how these "systems" that used professionals and trained experts to rule were generated by the state even as they transcended it, providing key linkages between different political regimes.

By examining the origins of these technocratic ideals, and the political conditions that kept them alive, this work meticulously reconstructs a world of science shaped by administrative practices that at once expanded and limited its possibilities.

Claire Edington
History and Sociomedical Sciences, Mailman School of Public Health, Columbia University

References

Anderson, Warwick; and Pols, Hans. 2012. Scientific Patriotism: Medical Science and National Self-Fashioning in Southeast Asia. *Comparative Studies in Society and History* 54(1): 93–113.

Moon, Suzanne. 2007. *Technology and Ethical Idealism. A History of Development in the Netherlands East Indies*. Leiden: CNWS Publications.

Mrázek, Rudolf. 2002. *Engineers of Happy Land: Technology and Nationalism in a Colony*. Princeton: Princeton University Press.

Pols, Hans. 2009. European Physicians and Botanists, Indigenous Herbal Medicine in the Dutch East Indies, and Colonial Networks of Mediation. *EASTS 2009* 3(2–3): 173–208.

Spiritual Economies: Islam, Globalization, and the Afterlife of Development

DAROMIR RUDNYCKYJ

Ithaca: Cornell University Press, 2010, 304 p.

Daromir Rudnyckyj's book casts spiritual reform as a specific intervention designed to address economic crisis in the late 1990s brought about by what some perceived as a blind faith in development. In line with a policy of developmental nationalism that permeated Indonesian history, an enthusiastic dose of religious fervor was subsequently injected into economic development. Spiritual reform, based on an ethic of individual accountability to God, was emphasized thereafter to mitigate economic decline. Through this process, religious piety was linked to economic productivity that stressed long-term survival over immediate personal gain. The secular workplace is therefore reconfigured as a site of religious piety through public slogans and emotionally-charged training sessions. Based on anthropological research conducted in Krakatau Steel, a state-owned steel enterprise in Banten in west Java, Indonesia, Rudnyckyj's rich study provides a window into these training sessions and the methods known as "Emotional and Spiritual Quotient" (ESQ), which were developed by spiritual reformers Ary Ginanjar and Rinaldi Agusyana. Rather than divorcing economic development from religious precepts, as former Indonesian President Suharto had done, motivational speakers such as Ginanjar and Rinaldi ardently fused economic progress with spiritual reform. Ginanjar emphasized that the economic development and spiritual cleansing are in fact mutually reinforcing since the latter actually provides an ethical basis and