

avers that this cluster of ideas—the ecological consciousness—took hold within the “mainstream population” (American? global?), though not yet in its political and economic institutions (p. 17).

Historians of science will have questions. How can we square Bateson’s disgust at military applications of science with his enthusiasm for cybernetics? How were Bateson’s ideas received within cybernetics and ecology? Chaney leaves it to future historians to bring his argument into conversation with recent scholarship on these fields (e.g., the work of Sharon Kingsland and Ron Kline); *Runaway* has little to say about ecology, conventionally defined. And while Chaney describes market-based individualism as the antithesis of the ecological consciousness, free-market thinkers eagerly took up cybernetic ideas about system-level wisdom, as Philip Mirowski has pointed out.

In raising such questions, *Runaway* should inspire further scholarship following Gregory Bateson and other difficult-to-place characters. Perhaps the history of science can help illuminate how our world arrived at the brink of runaway—and how it might find an alternative path forward.

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Vivek Neelakantan. *Science, Public Health, and Nation-Building in Soekarno-Era Indonesia.* viii + 237 pp., illus., bibl., index. Newcastle upon Tyne: Cambridge Scholars Publishing, 2017. £61.99 (cloth). ISBN 9781443886543.

When the Dutch had to cede sovereignty of Indonesia in 1949, they left the country in ruins. After seven years of warfare, Japanese occupation, and struggle for independence, the state of the health system was deplorable. Epidemics of infectious diseases, especially smallpox, plague, and cholera, resurged; malaria, tuberculosis, yaws, and leprosy were endemic; there was a shortage of essential medicinal drugs, and there were only 1,200 physicians to serve a population of 70 million. Perhaps of even more importance was that rice production in the new Indonesian republic was insufficient to feed that population. This ruinous state of the country is the starting point for Vivek Neelakantan’s monograph on the role of science, and in particular of medicine, in the development of the new republic under the leadership of its first president, Soekarno, from 1945 until his loss of power in the military coup of 1965. Science and medicine were of special importance for the Soekarno regime—and not only to improve the health situation in the country. As Neelakantan emphasizes, science and medicine were pivotal in *pembangunan*: nation-building. *Rakyat Sehat, Negara Kuat* (Healthy People, Strong Nation), a slogan first introduced by Soekarno during the Japanese occupation of Indonesia, became central to health policies in the course of the 1950s. In Indonesian society physicians should be concerned not only with curing sick patients but with the cultivation of a strong and healthy citizenry. For the influential Johannes Leimena, who served as Minister of Health from 1947 to 1953 and from 1955 to 1956, this meant that public health was an essential part of a social revolution that emphasized the unity of Indonesia and inclusive citizenship above the enormous ethnic and religious diversity of the archipelago. Public health education was accorded an essential role in this revolution. While the ideology of *Pantjasila* centered on a specific Indonesian identity, at the same time Leimena and other collaborators of the Soekarno regime were infused with a general modernist optimism and belief in scientific progress.

In a thorough analysis of the writings and policies of Indonesian policy makers and scientists that draws on a great variety of primary sources, including national and international archives as well as official publications, Neelakantan shows how the Indonesians attempted to find their “own path to modernity”—independent of the power blocs of the Cold War, the United States and the Soviet Union. At the 1955 Bandung conference Indonesia declared the solidarity of Asian and African nations in a “third way,” the so-called Bandung Spirit. In fact, improvement of public health was also perceived as a weapon against communist

revolution. In this context Neelakantan could have observed that the Indonesians subscribed to a framework of thought similar to the one that had characterized colonial administrators even before World War II and that has been labeled by the anthropologist James C. Scott as “authoritarian high modernism”: it featured a belief not only in a rational ordering of society based on the progress of scientific and medical knowledge but also in the exercise of state power to achieve its goals.

As so often in history, the Indonesian attempt to improve the human condition was confronted again and again with the refractoriness of social, economic, and political realities. After an introduction, Neelakantan organizes his monograph in five chapters: the attempts at appropriation and transformation of social medicine; reconciling national interests with international health politics; the campaigns against endemic diseases; the role of medical education; and the specific characteristics of Soekarno-era science. In all these chapters we encounter similar problems of the practical implementation of modernist ideologies and policies. For instance, despite the Bandung Spirit, Indonesia was heavily dependent on international aid, especially American. The medical school and its curriculum were reorganized with American help, exchanging a Dutch educational system for a new American-based one. This led to a significant increase in the number of graduating physicians, from 12 every year before 1959 to 188 in 1964. However, nearly all of them preferred to set up financially more rewarding private practices in urban centers rather than building health care for the poor in rural areas. Attempts were made to boost scientific research, but low salaries, bureaucratic red tape, and even the costs of importing textbooks all hampered these efforts. Bureaucracy and low pay were also stumbling blocks in the malaria eradication program. In general, the high prevalence of malnutrition meant that the campaigns against endemic diseases had a limited effect.

Neelakantan’s monograph developed from his Ph.D. thesis, and that is noticeable in his style of writing. His presentation is solid but often rather repetitious. Nevertheless, *Science, Public Health, and Nation-Building in Soekarno-Era Indonesia* is a welcome addition to the historiography of postcolonial science and medicine in general and of Indonesia in particular.

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Adam Becker. *What Is Real? The Unfinished Quest for the Meaning of Quantum Physics.* 357 pp., notes, bibl., index. New York: Basic Books, 2018. \$25.91 (cloth). ISBN 9780465096053.

Adam Becker’s book is an excellent introduction to the history of the conceptual foundations of quantum mechanics. It traces the interaction between the physical and philosophical ideas that have led to our current understanding of the quantum world. It is well written and accessible, and it contains a wealth of historical detail. In short, it is a great read for physicists interested in the history of physics, historians and philosophers of science, and most anyone else who wants a better understanding of the genesis of quantum mechanics and why it has proven so puzzling.

The story is built around a tension between the sense that orthodox quantum mechanics, given its predictive success, must glom onto something deep and subtle about the physical world and the realization that, given the quantum measurement problem, neither of the orthodox formulations of the theory (Bohr’s Copenhagen interpretation and the standard von Neumann–Dirac collapse theory) can ultimately be taken as providing a complete and coherent description of the physical world. It begins by describing how quantum mechanics was originally formulated and the worries of early discontents like Albert Einstein and