**Sidney M. Edelstein Prize 2018**

**Edward Jones-Imhotep**
For *The Unreliable Nation: Hostile Nature and Technological Failure in the Cold War* (Cambridge, Mass: The MIT Press, 2017).

This book offers more than its title promises. While it is indeed a reflection of how technological failure could come to define national identity under specific Cold War circumstances, it is also a fascinating exploration of over twenty years of producing ionograms in Canada as part of an operational and technical definition of the ionosphere through radio transmissions. This case contributes to the book's more general thesis because it was the specific problems associated to radio communication in the North that enabled researchers and authorities to present Canada as a place in which ionospheric predictions needed particular methods and approaches.

Thus, *The Unreliable Nation* explores the role of failing machines in crafting national identity through the example of telecommunications in Cold War Canada. It does so in a skillful way that combines novel archival research with an original conceptual structure that brings together the geophysics of the ionosphere and the political history of the global Cold War through a sharp analysis of machines and their environments.

The book starts with some conceptual precisions that enrich existing approaches in the history of technology. First, the analytic distinction between nature as natural environment (to be tamed by technology) and nature as natural order (to be apprehended by science) aims at bringing closer together historians of science, technology and the environment in more ways than usually thought. To keep with the author's own example, Canada's ionospheric natural order was made responsible for the technological failures that would define the specific place of Canada's research on northern warfare (and with it the unique role of Canada in postwar geopolitics). This leads to a second useful distinction: that between failed machines–those which were never built or pursued–and failing machines–those which not always function and require tuning, maintenance, replacement or, as in this case, a *machinic order* that enables prediction of failure by association to a natural order.

The story starts with WWII submarine warfare. German U-boot responded to allied convoys by forming "wolf-packs" guided by radio signals. Famously, the allies worked on decoding the signals. But they also endeavored to locate their origins. While it was known that the ionosphere did not let high-frequency waves go through and thus allowed long-distance radio communications, it was at first assumed that its behavior varied only according to latitude. In 1942, anomalies above India caused the "longitude effect". Frank Davies and others linked this anomaly to polar aurora and other phenomena, making Canadian science key to global war. After the war, Canadian researchers created the Defence Research Telecommunications Establishment (DRTE) to promote the specificities of Canadian ionospheric science. They explicitly claimed that the specific failures of northern radio-transmissions (as identified by ionograms) legitimized a Canadian research program more accurate than, and independent from, the British and the American ones.

*The Unreliable Nation* then goes on to analyze the development of ionograms and the Canadian ionosphere in the next twenty years, including the enrolment of satellites to the cause and offering a geography of Canadian geophysics through an unusual (and welcomed)

focus on failure. It concludes by a thought-provoking reflection on the place of technology in modern history which puts the book into dialogue with the vast literatures on envirotech, on technology and state-building, on Cold War science and technology, and on modernity.