Beginning with the 1957 launching of Sputnik 1, the first artificial Earth satellite, *Tug of War* captures the interrelations of the rising markets of military and surveillance technologies, the expanding apparatuses of security states, and the globalizing influences of multinational corporations. Jocelyn Wills’ investigation of “surveillance capitalism” spans more than four decades of on again, off, and on again research focusing on the diverse experiences and developments of the Canadian company MacDonald, Dettwiler and Associates (MDA). Founded in 1969 and presently a global giant in satellite communications, Wills shares the accounts of the ascendance of MDA and the way in which “the forces of surveillance capitalism integrated Canada into regional, industrial, academic, and military alliances” worldwide (2017: 6).

*Tug of War* is a comprehensive work entailing 366 pages of text, more than 100 pages of notes and bibliographical references, as well as a number of key interviews with the founding members of MDA and various government patrons. The book is divided into three parts, each containing three chapters, with plenty of text before and after these parts, including two “introductions”—the first titled “Introduction: Satellites and Surveillance Capitalism,” and the second (Chapter 1 actually) titled “A Permanent State of ‘Cold War’”: Preparing the Environment, 1940-1968.

In the conclusion, “Unseen, in the Background”: A View from the Security State, we find that MDA is once again reorganizing itself. This time into two business divisions—Communications as well as Surveillance and Intelligence—“with global offices and subsidiaries providing a host of systems and services ‘to support a wide range of defence and commercial applications,’ all wrapped into an interactive network designed to expand on government funding for the ‘next generation’ of even more powerful satellites” (351).

In the first introduction, Wills establishes the setting with the front-stage telling of MDA while foreshadowing backstage the importance of a multinational corporation playing a crucial role to this day “in the long-term development of the information systems and products that proliferate in global positioning devices, flight navigation systems, drones, mobile satellites, Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR, also known as “Battle Command”), and a host of other networks that dominate various industries, from communications
and financial services to environmental monitoring and resource extraction” (7). She underscores that while MDA did not initially work on surveillance technologies, its scientists and engineers would play a significant role in turning satellites into a multibillion-dollar commodity and outer space into a competitive, militarized zone, while at the same time contributing to the “neoliberal project of privatization, fiscal austerity, deregulation, free trade, and reduced social spending, as well as the use of more efficient data mining systems, precision surveillance, first-strike capabilities, and the use of robotics for commerce as well as war” (7). The rest of the first introduction addresses four topics: the significance of satellites, sovereignty, and surveillance studies; the military context of MDA’s participation in surveillance capitalism; Canada’s ambivalent place within the continental defence market; and the stages in the development of MDA and its associate players.

Chapter 1 (or the second introduction) provides the necessary background, 1940-1968, for understanding the emergence of MDA in 1969. First, it establishes Canada’s special role in the North American defence industrial base during World War II. Next, it discusses Canada’s ambivalent cold war alliance, especially with the United States, and then moves on to explore the educational training and backgrounds of MDA’s founders, John MacDonald and Vern Dettwiler, including their early organizing of businesses into the areas of electrical computing and software consulting.

In Part I, The Technology Enthusiasts, Wills explores the period from 1969 to 1982, when MDA focused on research and innovative technology without consideration to either geopolitical context or the business structures necessary for profitability over the long haul. Chronologically, Chapter 2 examines MDA’s launch and initial business model, including the mentors who assisted the young associates as well as examples of the software projects that fostered the corporation’s acquisition of sweat equity. Chapter 3 “explores changing procurement policies and the government contracting paradigm that influenced MDA’s most exciting period of technological innovation,” and which “laid the foundations for the company’s future as a systems integrator” (24). Lastly, Chapter 4 explores both the internal challenges and external forces that almost brought about the demise of MDA during this formative period.

In Part II, The Investor-Business Strategists, Wills investigates the changes that occurred between 1982 and 1993, when outside investors, the federal government, and MDA’s new CEO, John Pitts, saved the young company from an early passing on. Chapter 5 reviews both MDA’s refinancing and restructuring under Pitts’ leadership and the lessons learned from the corporation’s early experiences as a military contractor for the US government. Chapter 6 tells the story of how investor strategies moved MDA away from its manufacturing mission and towards its systems mission. Chapter 7 chronicles the events that steered MDA to “going public” with the firm.

In Part III, The System Integrators, Wills examines the period between 1993 and 2012 when MDA moved deeply into surveillance capitalism and into government contracting with militaries worldwide. Chapter 8 identifies those lessons learned by the MDA leadership from being a US-owned subsidiary, 1993 to 2001. Chapter 9 examines post-9/11 developments at MDA and issues of sovereignty as these arise with the firm’s increasing visibility as a global player fundamental to Canada’s “military space.” Chapter 10 bores down into the corporation’s viability and evolution between 2008 and 2012 when the Canadian government intervened to help MDA not only survive the Global Recession, but to succeed as a global space and defence contractor.

Back to the Conclusion from which this review began, Wills writes: “Neither central architects nor passive participants in the ongoing drama of capitalist expansion and the techno-security state, people at MDA simply learned how to adjust to changing circumstances, even if some of the outcomes had nothing to do with what they originally intended. The trajectory of Canada’s participation in global surveillance incorporated the Canadian people into the larger objectives of the United States and the interests of capital” (362). Once again, it is underscored that with the launch of Sputnik, Canada’s elite had learned...
that to compete with their counterparts in the US they would have to continue to nurture a satellite surveillance capability. As a result, the Canadian state “encouraged Canada’s surveillance capability through public policies aimed at incubating private businesses and providing ongoing support for technological innovation so that Canadian firms could wend their way from obscurity to international prominence” (355-56).

By 2014 MDA had become a multibillion-dollar operation and a “global commercial satellite powerhouse,” employing 4800 people. Still small when compared to other global conglomerates, MDA now provides communications and drone services to military and commercial customers globally. Today, MDA also provides support to the oil, gas, and mining industries. Jocelyn Wills’ examination of the rise of surveillance capitalism and the security state vis-à-vis the story of MDA is a powerful tour de force of the political economy of science, technology, and global capital at work. I highly recommend this book to anyone interested in business history and surveillance studies.