

POE374 Annotated Bibliography

- Abbott, A. (2001). *Chaos of disciplines*. University of Chicago Press. “In this vital new study, Andrew Abbott presents a fresh and daring analysis of the evolution and development of the social sciences. *Chaos of Disciplines* reconsiders how knowledge actually changes and advances. Challenging the accepted belief that social sciences are in a perpetual state of progress, Abbott contends that disciplines instead cycle around an inevitable pattern of core principles. New schools of thought, then, are less a reaction to an established order than they are a reinvention of fundamental concepts. *Chaos of Disciplines* uses fractals to explain the patterns of disciplines, and then applies them to key debates that surround the social sciences. Abbott argues that knowledge in different disciplines is organized by common oppositions that function at any level of theoretical or methodological scale. Opposing perspectives of thought and method, then, in fields ranging from history, sociology, and literature, are to the contrary, radically similar; much like fractals, they are each mutual reflections of their own distinctions.” [oc-p]
- Abbott, A. (2014). *The system of professions: An essay on the division of expert labor*. University of Chicago Press. “In *The System of Professions* Andrew Abbott explores central questions about the role of professions in modern life: Why should there be occupational groups controlling expert knowledge? Where and why did groups such as law and medicine achieve their power? Will professionalism spread throughout the occupational world? While most inquiries in this field study one profession at a time, Abbott here considers the system of professions as a whole. Through comparative and historical study of the professions in nineteenth- and twentieth-century England, France, and America, Abbott builds a general theory of how and why professionals evolve.” [oc-ko]
- Acs, Z. (1999, 2013) *Regional Innovation, Knowledge, and Global Change*. Routledge. “There is little question that every aspect of economic activity is being affected by the processes of globalization. As we approach the twenty-first century, a worldwide system of production and distribution is evolving, in much the same way as national markets evolved from local and regional networks during the nineteenth century (Chandler 1990). In nearly every economically active country of the world, the importance of international trade and foreign direct investment (FDI) has risen significantly over the past decade. (For a review of the multinational corporation in the 1980s see Kindleberger and Audretsch 1983.) The growth of FDI has been particularly dramatic, increasing more rapidly than either world production or world trade. As a result, both in-bound and out-bound FDI stocks have increased relative to total investment and gross domestic product in nearly every country (Dunning 1995). Cross-border intra-firm activities are now the norm rather than the exception...Part I develops a conceptual framework to study innovation systems; Part II presents broad comparative perspective of regional innovation systems in Europe; Part III considers three vignettes of regional innovation systems in the US. Part IV looks at the role of firms in innovation systems; Part V, the city and the world, links regional innovation and globalization—the regions rather than nations are the new focal points of innovation (Ch. 14). The conclusion presents a ‘cosmology’ to understand knowledge-intensive capitalism. **I think this may have been trying to do what Zuboff did in *Surveillance capitalism*, but it doesn’t look as coherent.** [ki \$110]
- Acs, Z. J., & Varga, A. (2002). [Introduction to the special issue on regional innovation systems](#). *International Regional Science Review*, 25:1, pp. 3-7. The special issue addresses sectoral

innovation, clusters, urban innovation centres (Vienna, Stockholm, Barcelona), measuring quality of innovation through knowledge production functions, evolution of technology in time and space.

- Atkinson-Grosjean, J. (2002). Science policy and university research: Canada and the USA, 1979-1999. *International Journal of Technology, Policy and Management*, 2(2), 102-124. "The article examines convergence and divergence in national science policy frameworks over the past two decades. A comparative framework contrasts policy development in Canada and the USA, using the commercialisation of university research as a paradigm case. General indicators of Canadian and US R&D activities are compared to those of other G7 nations, and outcomes of university commercialisation activities are compared between the two countries. Historically, each country approached the policy mandate from different directions. The USA adopted a regulatory framework, while Canada took a more laissez-faire approach. An examination of policy content and instruments for the period 1979-1999 indicates that the two models appear equally effective in inducing universities to commercialise. This being the case, the article addresses three key policy questions through an analysis of the interplay of interests, institutions, ideas, and international organisations. First, where did policies promoting the commercialisation of university research originate? Second, why did Canada and the USA adopt different instruments to achieve similar policy goals? Third, after 20 years on a parallel path why is Canada now open to the US model? In terms of the first question, it appears that convergence on a policy of commercialising university research was strongly influenced by the international policy discourse. As to the second question, the paper points to the institutional differences between the two countries as a source of divergence. Regarding the third question, the paper suggests that the potential adoption of the US model is evidence that Canadian." [search]
- Auger, M. F. (2015). [The National Shipbuilding Procurement Strategy: A Five-Year Assessment](#). Library of Parliament/Bibliothèque du Parlement. 15 page summary: shipyard selection, umbrella agreements, small-ship construction program, repair, refit, and maint program, governance and oversight, estimated costs, production, opportunities and challenges.
- Auger, M. (2016). [The Evolution of Defence Procurement in Canada](#). Library of Parliament / Bibliothèque du Parlement. 12-page summary: WW1, interwar, WW2, post-war, Korea and Cold War, procurement since the Cold War, reforming defence procurement
- Autor, D. H., Levy, F., & Murnane, R. J. (2003). [The skill content of recent technological change: An empirical exploration](#). *The Quarterly journal of economics*, 118(4), 1279-1333. Abstract: "We apply an understanding of what computers do to study how computerization alters job skill demands. We argue that computer capital (1) substitutes for workers in performing cognitive and manual tasks that can be accomplished by following explicit rules; and (2) complements workers in performing nonroutine problem- solving and complex communications tasks. Provided that these tasks are imperfect substitutes, our model implies measurable changes in the composition of job tasks, which we explore using representative data on task input for 1960 to 1998. We find that within industries, occupations, and education groups, computerization is associated with reduced labor input of routine manual and routine cognitive tasks and increased labor input of nonroutine cognitive tasks. Translating task shifts into education demand, the model can explain 60 percent of the estimated relative demand shift favoring college labor during 1970 to 1998. Task changes within nominally identical occupations account for almost half of this impact."
- Bardach, Eugene. 2011. *Practical Guide for Policy Analysis: The Eightfold path to more effective problem solving*. CQ Press. From Preface "This handbook serves as a guide to concepts and methods

applied in the analysis of policy. I have developed the general approach and many of the specific suggestions over thirty-five years of teaching policy analysis workshops to first- and second-year graduate students at the Richard and Rhoda Goldman School of Public Policy, University of California, Berkeley. In the handbook's earliest incarnation, the ideas took form slowly and were conveyed to students in lectures. But because my faculty colleagues and I systematically overloaded our students with work, they would sometimes skip a lecture—and thus miss out on ideas that I regarded as essential. I determined that if I were to create a handout for the students, at least I would have discharged my responsibility, and it would be up to the students to retrieve the ideas they had missed. Over the years, as the handout grew, it was disseminated informally to colleagues at other universities and was posted on the Web site of the Electronic Hallway, based at the University of Washington. This book is the outgrowth of these previous compilations and the product of many years of experience.” [oc-ki] Appendix B: Things Governments do; Appendix D: strategic dynamics of gathering political support.

Barry, D., & Bratt, D. (2008). [Defense Against Help: Explaining Canada-US Security Relations](#). *American Review of Canadian Studies*, 38(1), 63-89. Abstract: “In recent years, the distinction between domestic and international security has become blurred, leading to new forms of large-smaller power collaboration. The main impetus has come from the United States, which reassessed the notion of "vulnerability" after the terrorist attacks on September 11, 2001. Raúl Benitez-Manaut writes, "Although its intelligence, security, justice, migration, and defense systems had successfully responded to the Cold War threat of communism, a profound transformation of its doctrines and institutions has been undertaken in order to confront the terrorist attack on the country and to fight the overall war against terrorism." The United States has waged a global war on terror, but it "has developed its security commitments to the maximum at the bilateral level" with its immediate neighbors, Canada and Mexico. Benitez-Manaut notes that "the relationship is limited between Canada and Mexico due to the lack of geographic proximity, and cooperation on defense, intelligence, migration, and policing is restricted to the exchange of information. However, the United States remains at the core of North American security ... requiring deeper cooperation from Canada and Mexico to protect its borders."Canada, with its "legendary" defense association with the United States, and Mexico, which had "almost no military relationship" with that country, have supported U.S. homeland security in order to protect themselves from terrorism and from becoming transit points for terrorists to attack the United States. They have formalized their understanding by means of so-called Smart Border agreements designed to keep the Canadian and Mexican borders with the United States secure while easing trade and transit....”

Beck, U. (2013) *World at Risk*. Polity. “Twenty years ago Ulrich Beck published *Risk Society*, a book that called our attention to the dangers of environmental catastrophes and changed the way we think about contemporary societies. During the last two decades, the dangers highlighted by Beck have taken on new forms and assumed ever greater significance. Terrorism has shifted to a global arena, financial crises have produced worldwide consequences that are difficult to control and politicians have been forced to accept that climate change is not idle speculation. In short, we have come to see that today we live in a world at risk. A new feature of our world risk society is that risk is produced for political gain. This political use of risk means that fear creeps into modern life. A need for security encroaches on our liberty and our view of equality. However, Beck is anything but an alarmist and believes that the anticipation of catastrophe can fundamentally change global politics. We have the opportunity today to reconfigure power in terms of what Beck calls a 'cosmopolitan material politics'. *World at Risk* is a timely and far-reaching analysis of the structural dynamics of the modern world, the global nature of risk and

the future of global politics by one of the most original and exciting social thinkers writing today.” [oc-ki]

- Becker, T. (2019) *The Four Industrial Revolutions: Demystifying Technological Innovation*. Challenges4Biz. “Decision-makers in industry, legislation, and society need to be equipped with the right knowledge about the 4th Industrial Revolution, the Internet of Things, and how technological innovation will shape the world of tomorrow. This book explains, what you need to know about Digitalization and the innovation momentum driving it. Technological progress has never been faster than it is today, and the advent of the Fourth Industrial Revolution frightens many stakeholders. Tobias Becker, a 25-year engineering world veteran at the forefront of innovation explains the fundamental mechanisms of innovation, their culmination in technological revolutions, and how these have always generated value for the human species. Becker lays out a unique concept of four Realms of Innovation, which are the base of all technological inventions. He demonstrates their context and critical contributions to the progress and the survival of humanity throughout history and today. Digitalization, the latest round of revolutionary technological progress, stands in a long line of advancement towards the optimization of human existence on our planet. Each Industrial Revolution left its footprints, both good and bad. Digitalization has the potential to mitigate some of the shortcomings of earlier industrial developments. However, it will take enormous efforts from all stakeholders to ensure that the balance tips fast enough towards the benefits.” [oc-ki]
- Bitzinger, R. A. (2003). [Chapter 2: Transition and Readjustment in Second-Tier Defence Industries: Five Case Studies](#). Adelphi series, 43(356), 39-62. “Despite professed goals of self-sufficiency, most so-called second-tier arms producers – i.e., the smaller industrialised countries and the major arms producers in the developing world – have largely failed to eliminate or even substantially reduce their dependencies on foreign technologies, due to continued deficiencies and weaknesses in these countries' R&D and manufacturing bases. Recent industrial readjustment strategies undertaken by many of these second-tier arms-producing countries point to their increasingly subordinate role in a more globalised and interdependent worldwide defence industry. Structurally, such a system could resemble a huge ‘hub and spoke’ model, comprising a few large first-tier firms operating at the centre – and providing the process of armaments production with its critical design, development and systems integration inputs – with lines of outsourced production of niche systems or low-tech items extending out to second-tier states on the periphery. Although such a global ‘division of labour’ in arms production will probably bring new economic and technological benefits to many second-tier arms producers, it is likely that it will entail the abandonment of their original objectives of self-sufficiency.”
- Block, F.L. (2018) *Capitalism: The Future of an Illusion*. University of California Press. “Virtually everyone—left, right, and center—believes that capitalist economies are autonomous, coherent, and regulated by their own internal laws. This view is an illusion. The reality is that economies organized around the pursuit of private profit are contradictory, incoherent, and heavily shaped by politics and governmental action. But the illusion remains hugely consequential because it has been embraced by political and economic elites who are convinced that they are powerless to change this system. The result is cycles of raised hopes followed by disappointment as elected officials discover they have no legitimate policy tools that can deliver what the public wants. In *Capitalism*, leading economic sociologist Fred L. Block argues that restoring the vitality of the United States and the world economy can be accomplished only with major reforms on the scale of the New Deal and the post–World War II building of new global institutions.” [ki, \$25]

- Blyth, Mark (2002) *Great Transformations: Economic Ideas and Institutional Change in the 20th Century*. Cambridge University Press. “This book picks up where Karl Polanyi's study of economic and political change left off. Building upon Polanyi's conception of the double movement, Blyth analyzes the two periods of deep-seated institutional change that characterized the twentieth century: the 1930s and the 1970s. Blyth views both sets of changes as part of the same dynamic. In the 1930s labor reacted against the exigencies of the market and demanded state action to mitigate the market's effects by 'embedding liberalism.' In the 1970s, those who benefited least from such 'embedding' institutions, namely business, reacted against these constraints and sought to overturn that institutional order. Blyth demonstrates the critical role economic ideas played in making institutional change possible. *Great Transformations* rethinks the relationship between uncertainty, ideas, and interests, achieving profound new insights on how, and under what conditions, institutional change takes place.” [oc-ki]
- Bratton, B. H. (2016). *The stack: On software and sovereignty*. MIT press. “A comprehensive political and design theory of planetary-scale computation proposing that The Stack—an accidental megastructure—is both a technological apparatus and a model for a new geopolitical architecture. What has planetary-scale computation done to our geopolitical realities? It takes different forms at different scales—from energy and mineral sourcing and subterranean cloud infrastructure to urban software and massive universal addressing systems; from interfaces drawn by the augmentation of the hand and eye to users identified by self—quantification and the arrival of legions of sensors, algorithms, and robots. Together, how do these distort and deform modern political geographies and produce new territories in their own image? In *The Stack*, Benjamin Bratton proposes that these different genres of computation—smart grids, cloud platforms, mobile apps, smart cities, the Internet of Things, automation—can be seen not as so many species evolving on their own, but as forming a coherent whole: an accidental megastructure called The Stack that is both a computational apparatus and a new governing architecture. We are inside The Stack and it is inside of us. In an account that is both theoretical and technical, drawing on political philosophy, architectural theory, and software studies, Bratton explores six layers of The Stack: Earth, Cloud, City, Address, Interface, User. Each is mapped on its own terms and understood as a component within the larger whole built from hard and soft systems intermingling—not only computational forms but also social, human, and physical forces. This model, informed by the logic of the multilayered structure of protocol “stacks,” in which network technologies operate within a modular and vertical order, offers a comprehensive image of our emerging infrastructure and a platform for its ongoing reinvention. The Stack is an interdisciplinary design brief for a new geopolitics that works with and for planetary-scale computation. Interweaving the continental, urban, and perceptual scales, it shows how we can better build, dwell within, communicate with, and govern our worlds.”
- Brown, C., & Campbell, B. A. (2002). [The impact of technological change on work and wages](#). *Industrial Relations: A Journal of Economy and Society*, 41(1), 1-33. “This review begins with a discussion of how technology affects wage structures. The literature reviewed is divided into two segments—studies of the impact of technological change on wages (and growing inequality), productivity, and employment and studies of the interrelationship of technology, human resource systems, and labor productivity. We conclude with suggestions for future research topics. Overall, we find that technological change accounts for only part of the changing wage structure in the United States, whereas changes in institutional forces that affect the creation of industry rents and the distribution of rents are also an important factor.”

- Brooks, R. (2007). *Creating military power: The sources of military effectiveness*. Stanford University Press. "Creating Military Power examines how societies, cultures, political structures, and the global environment affect countries' military organizations. Unlike most analyses of countries' military power, which focus on material and basic resources—such as the size of populations, technological and industrial base, and GNP—this volume takes a more expansive view. The study's overarching argument is that states' global environments and the particularities of their cultures, social structures, and political institutions often affect how they organize and prepare for war, and ultimately impact their effectiveness in battle. The creation of military power is only partially dependent on states' basic material and human assets. Wealth, technology, and human capital certainly matter for a country's ability to create military power, but equally important are the ways a state uses those resources, and this often depends on the political and social environment in which military activity takes place." [oc-ki]
- Buxton, N., & Hayes, B. (Eds.). (2016). *The Secure and the Dispossessed: How the military and corporations are shaping a climate-changed world*. Pluto Press. "While the world's scientists and many of its inhabitants despair at the unfolding impacts of climate change, corporate and military leaders see nothing but challenges and opportunities. For them, melting ice caps mean newly accessible fossil fuels, borders to be secured from 'climate refugees', social conflicts to be managed, and more failed states in which to intervene. With one eye on the scientific evidence and the other on their global assets and supply chains, powerful elites are giving increasing thought as to how to maintain control in a world gradually reshaped by climactic extremes. *The Secure and the Dispossessed* looks at these deadly approaches with a highly critical eye. It also considers the flip-side: that the legitimacy of the global elite is under unprecedented pressure – from resistance by communities to resource grabs to those creating new ecological and socially just models for managing our energy, food and water. Adaptation and resilience to a climate-changed world is desperately needed, but the form it will take will affect all of our futures. This collection of authoritative essays by high profile journalists, academics and activists will shape this most important of debates for years to come. [oc-ki]
- Caplan, N. (1979). [The two-communities theory and knowledge utilization](#). *American behavioral scientist*, 22(3), 459-470. Extract: "Even though the amount of empirical data on social science utilization in policy formulation is limited, the literature abounds with social scientists' speculation about why the information they produce has little impact on policy matters. Either explicitly or implicitly, the most prevalent theory found in this literature may be characterized as the 'Two-Communities' theory. Authors who hold this view attempt to explain non-utilization in terms of the relationship of the researcher and the research system to the policy maker and the policy-making system. They argue that social scientists and policy makers live in separate worlds with different and often conflicting values, different reward systems, and different languages. The social scientist is concerned with 'pure' science and esoteric issues. By contrast, government policy makers are action-oriented, practical persons concerned with obvious and immediate issues. Some argue that the gap between the knowledge producer and the policy maker needs to be bridged through personal relationships involving trust, confidence, and empathy. Others see this gap as something apart from cultural differences. They stress conflict over who determines the ends of policy as an important factor that keeps the social scientists and policy makers apart."
- Clark, G. (2008). *A farewell to alms: a brief economic history of the world*. Princeton University Press. "Why are some parts of the world so rich and others so poor? Why did the Industrial Revolution—and the unprecedented economic growth that came with it—occur in eighteenth-century

England, and not at some other time, or in some other place? Why didn't industrialization make the whole world rich--and why did it make large parts of the world even poorer? In *A Farewell to Alms*, Gregory Clark tackles these profound questions and suggests a new and provocative way in which culture--not exploitation, geography, or resources--explains the wealth, and the poverty, of nations. Countering the prevailing theory that the Industrial Revolution was sparked by the sudden development of stable political, legal, and economic institutions in seventeenth-century Europe, Clark shows that such institutions existed long before industrialization. He argues instead that these institutions gradually led to deep cultural changes by encouraging people to abandon hunter-gatherer instincts--violence, impatience, and economy of effort--and adopt economic habits--hard work, rationality, and education. The problem, Clark says, is that only societies that have long histories of settlement and security seem to develop the cultural characteristics and effective workforces that enable economic growth. For the many societies that have not enjoyed long periods of stability, industrialization has not been a blessing. Clark also dissects the notion, championed by Jared Diamond in *Guns, Germs, and Steel*, that natural endowments such as geography account for differences in the wealth of nations." [oc-ko]

Clarke, T. (1997) *Silent Coup: confronting the big business takeover of Canada*. Lorimer. "Silent Coup alerts us to the destructive effects of corporate control of our economy, jobs, social programs, and political democracy. The book outlines a detailed and workable plan for challenging the agenda for Canada set by large transnational corporations. It shows how social movements and community organizations can be retooled and revitalized to confront these corporations and how true economic, social, and political democracy can be restored. *Silent Coup* offers a sharp diagnosis of the challenges confronting Canadian democracy and a clear prescription for action." [na-e]

Collins, J. F. (2019). [Overcoming 'Boom and Bust'? Analyzing National Shipbuilding Plans in Canada and Australia](#). Canadian Global Affairs Institute. "While both Canada and Australia share similar constitutional frameworks and imperial histories, they are also no stranger to procurement challenges. Cost overruns, delays, regionalism, and protracted intellectual property disputes have all been part of major defence acquisition projects in recent decades. This Policy Paper analyzes the largest and most expensive procurement projects undertaken by either country, Canada's \$73 billion (estimated) National Shipbuilding Strategy (NSS), launched in 2010, and Australia's A\$90 billion Naval Shipbuilding Plan (NSP), launched in 2017. Each project represents an attempt to implement a rational, multi-decade approach to naval acquisition. Driven by a desire to overcome previous boom-and-bust cycles, the NSS and NSP aim to create a sustainable shipbuilding sector capable of meeting the immediate and future naval demands of Ottawa and Canberra. Neither country has attempted a shipbuilding plan on this scale before."

Cooke, P., Uranga, M. G., & Etxebarria, G. (1997). Regional innovation systems: Institutional and organisational dimensions. *Research policy*, 26(4), 475-491. "The paper explores the case for Regional Systems of Innovation. Acknowledging the major contribution of research on National Innovation Systems, it suggests that for conceptual and methodological reasons, mostly concerning problems of scale and complexity, that approach may be complemented in important ways by a subnational focus. Taking an evolutionary economics standpoint, the paper specifies the concepts of 'region,' 'innovation' and 'system' as the prelude to an extended discussion of the importance of financial capacity, institutionalised learning and productive culture to systemic innovation. Building on the notion of regions as occupying different positions on a continuum referring to processes constituting them and their powers vis-à-vis innovation

policy, the paper concludes by advocating strengthening of regional level capacities for promoting both systemic learning and interactive innovation.

Cornish, S. and Mayrand, K. (2020) [Canada Needs a Green Recovery to Confront COVID-19 and Other Crises](#). Policy Options. “We don’t have to choose between economic recovery and the environment. Funding should be directed at helping us rebuild for long-term resilience.”

Cudworth, Erika, Peter Senker, and Kathy Walker, editors. (2013) *Technology, Society and Inequality: New Horizons and Contested Futures*. Peter Lang. “Over the last 250 years, the global capitalist system has been responsible for rapid economic growth and technological change. The consequent increase in production of an ever-changing and expanding range of products and services has lifted hundreds of millions of people out of poverty and deprivation. This book suggests, however, that the primary purpose of current production and distribution is not to satisfy human needs but to create profit for the owners of capital that in turn has devastating consequences for the environment and for vulnerable people. Multidisciplinary in perspective, contributors to this volume addresses issues of inequality which affect both developed and developing countries. While they are concerned with the framework of income distribution they also explore the wider dynamics of capitalist systems of production and consumption and examine the dimensions of inequality from both an economic and socio/cultural perspective. The book has three key themes: relations between technologies, inequalities and exploitation; issues surrounding technologies and development; and the nature of technologies and their associated opportunities in the face of the future. That future is contested, and in the present context of persistent inequalities, a debate about where we might be going and how we might get there is crucial. This book makes a trenchant and challenging contribution to this debate.”

Dahl, Kristina, Erika Spanger-Siegrfried, Rachel Licker, Astrid Caldas, John Abatzoglou, Nicholas Mailloux, Rachel Cleetus, Shana Udvardy, Juan Deplet-Barreto, and Pamela Worth (2019) *Killer Heat in the United States: Climate Choices and the Future of Dangerously Hot Days*. Cambridge, MA: Union of Concerned Scientists. <https://www.ucsusa.org/resources/killer-heat-united-states-0> “The United States is facing a potentially staggering expansion of dangerous heat over the coming decades. This analysis shows the rapid, widespread increases in extreme heat that are projected to occur across the country due to climate change, including conditions so extreme that a heat index cannot be measured. The analysis also finds that the intensity of the coming heat depends heavily on how quickly we act now to reduce heat-trapping emissions. The results highlight a stark choice: We can continue on our current path, where we fail to reduce emissions and extreme heat soars. Or we can take bold action now to dramatically reduce emissions and prevent the worst from becoming reality.” **Implications for Canada – survival migration, border permeability, threat to social cohesion?**

Dartnell, L. (2014) *The knowledge: How to Rebuild our World from Scratch*. New York: Penguin. “If our technological society collapsed tomorrow what would be the one book you would want to press into the hands of the postapocalyptic survivors? What crucial knowledge would they need to survive in the immediate aftermath and to rebuild civilization as quickly as possible? Human knowledge is collective, distributed across the population. It has built on itself for centuries, becoming vast and increasingly specialized. Most of us are ignorant about the fundamental principles of the civilization that supports us, happily utilizing the latest—or even the most basic—technology without having the slightest idea of why it works or how it came to be. If you had to go back to absolute basics, like some sort of postcataclysmic Robinson Crusoe, would you know how to re-create an internal combustion engine, put together a microscope, get metals out of rock, or even how to produce food for yourself? Lewis Dartnell proposes that the key to

preserving civilization in an apocalyptic scenario is to provide a quickstart guide, adapted to cataclysmic circumstances. The Knowledge describes many of the modern technologies we employ, but first it explains the fundamentals upon which they are built. Every piece of technology rests on an enormous support network of other technologies, all interlinked and mutually dependent. You can't hope to build a radio, for example, without understanding how to acquire the raw materials it requires, as well as generate the electricity needed to run it. But Dartnell doesn't just provide specific information for starting over; he also reveals the greatest invention of them all—the phenomenal knowledge-generating machine that is the scientific method itself.”

- De Fraja, G., & Hartley, K. (1996). [Defence procurement: theory and UK policy](#). Oxford Review of economic policy, 12(4), 70-88. “Since the early 1980s, competition as a means of obtaining best value for money has dominated UK defence procurement policy. This paper describes the UK defence equipment market and the procurement problem. There are sections on the economic theory of procurement, contracting, regulation and competition. The conclusion evaluates UK defence procurement policy and assesses some of the policy issues for the 1990s”
- Doloreux, D., & Parto, S. (2005). [Regional innovation systems: Current discourse and unresolved issues](#). Technology in society, 27(2), 133-153. “In recent years, the concept of regional innovation systems has evolved into a widely used analytical framework that generates the empirical foundation for innovation policy making. Yet, the approaches that utilize this framework remain ambiguous on such key issues as the territorial dimension of innovation, i.e. the region, and the apparently important role played by ‘institutions’ or the institutional context in the emergence and sustenance of regional innovation systems. This paper reviews and summarizes important ideas and arguments in the recent theorizing on regional innovation systems. It also examines such issues as (a) definition confusion and empirical validation; (b) the territorial aspect of regional innovation systems; and (c) the role of institutions.”
- Dunbar, K. (1995). How scientists really reason: Scientific reasoning in real-world laboratories. The nature of insight, 18, 365-395. [rff: Zolli, 2012, 205] See Sternberg and Davidson (1995)
- Edgar, A. D. (2001). [Growth pains or growing strains? The limits of neighbourliness and the politicization of Canada-US defence industry integration](#). Canadian Foreign Policy Journal, 8(2), 1-22. [\[search\]](#)
- Edwards, J. (2011). [The EU Defence and Security Procurement Directive: a step towards affordability?](#) Chatham House, International Security Paper. “The European Union’s Defence and Security Procurement Directive provides a framework for cross-border defence procurement within the EU. The directive is due to be transposed into EU- wide national legislation on 21 August 2011. Its aim is to facilitate the development of an EU defence equipment market that will increase industrial competition, reduce duplication and lower prices. A key difficulty the European Commission faces in upholding the directive is the culture of national defence-industrial protectionism that has been facilitated through the use of Article 346 of the Lisbon Treaty. Article 346 states that ‘any member state may take such measures as it considers necessary for the protection of essential interests of its security which are connected with the production of or trade in arms, munitions and war material’. In financially constrained times, the success or failure of the directive will depend to a large extent on its ability to add value by making defence-industrial manufacturing more efficient and affordable. This paper analyses the ability of the directive to tackle affordability and reaches conclusions for short, medium, and long term...”

- Engler, Y. (2016) *A Propaganda System: How Canada's Government, Corporations, Media, and Academia Sell War and Exploitation*. RED Publishing. "A Propaganda System: How Government, Corporations, Media and Academia Sell War and Exploitation reveals why most Canadians believe their country is a force for good in the world, despite a long history of supporting empire, racism and exploitation. The book details the vast sums Global Affairs Canada, Veterans Affairs and the Department of National Defence spend articulating a one-sided version of Canada's foreign policy. With the largest PR machine in the country, the Canadian Forces promotes its worldview through a history department, university, journals, war commemorations, think tanks, academic programs and hundreds of public relations officers. A Propaganda System traces the long history of government information control during war, including formal censorship, as well as extreme media bias on topics ranging from Haiti to Palestine, investment agreements to the mining industry. The book also details the corporate elite's funding for university programs and think tanks. Written for ordinary Canadians interested in the structures impeding understanding of this country's role in the world, the book should be of interest to journalists curious about the institutions seeking to "spin" them, development workers dependent on government funds and academics interested in the foreign-policy establishment's influence on campus." [oc-ki]
- Etkin, David (2016) [Disaster Risk](#). Science Direct. "The risk society hypothesis, initially developed by Ulrich Beck and Anthony Giddens, has gained traction in the field of sociology and created a very interesting debate about risk in postmodern society. To me, the most interesting notion underlying the debate is that society has been going through a transformation in terms of shared meanings, shared interests, and the construction and management of risk. It is this latter point that is most relevant to disaster theory. Beck sometimes uses the word risk in a hazard context and at other times from a vulnerability context."
- Faleg, G., & Giovannini, A. (2012). [The EU between Pooling & Sharing and Smart Defence. Making a virtue a necessity](#). CEPS Special Report." The financial crisis has deeply affected European defence budgets and, as a consequence, the EU's capability to act as a provider of global security. This paper assesses the extent to which pooling & sharing (P&S) of military capabilities is a viable plan to boost collective capacity-building and offset the heavy budget cut-backs, drawing impetus from the NATO 'smart defence' agenda. Although multilateral cooperation is proven more efficient than the status quo through the lens of economics, and a set of external stimuli would facilitate deeper military integration, the paper acknowledges that a fully-fledged EU defence market remains difficult to attain due to short-term political and strategic considerations. However, piecemeal progress in specific areas is possible and viable, if political conditions are met. The last section of the paper offers some policy recommendations towards a pragmatic and feasible roadmap for P&S."
- Fergusson, J. (2002). [Canadian Defence and the Canada-US Strategic Partnership: The Aerospace Dimension](#). In A paper presented to a Canadian Defence and Foreign Affairs Institute seminar. Ottawa, September. "...strategic partnership has come to a fork in the road. As the US moves in the near future to deploy a range of missile defences, continues to develop new technologies to practice space control, and proceeds to create a real global engagement, precision strike capability beneath the rubric of the Revolution in Military Affairs, Canada faces a difficult choice. It must decide whether to continue a strategic aerospace partnership or transform the partnership into an operational or theatre one limited to North America and operating within only a portion of the aerospace sector. In fact, it must make a decision very quickly on the most pressing issue - missile defence. Failure to do so will likely result in having the decision made in

Washington; one which will result in transformation to the detriment of a range of Canadian national strategic interests." See Sokolsky for a less apocalyptic view, which proved accurate in hindsight

Fergusson, J. (2014). [In search of a strategy: the evolution of Canadian defence industrial and regional benefits policy](#). The Economics of Offsets: Defence Procurement and Countertrade, 107. Outline: the Canadian context for regional economic benefits; stage 1 the IRB period, 1975-1985; stage 2 – major crown projects; 1982-2014; the EH-101 case.

Figueres, C. and Rivett-Carnac, T. (2020) The Future we Choose: Surviving the Climate Crisis. Knopf. "In The Future We Choose, Christiana Figueres and Tom Rivett-Carnac—who led negotiations for the United Nations during the historic Paris Agreement of 2015--have written a cautionary but optimistic book about the world's changing climate and the fate of humanity. The authors outline two possible scenarios for our planet. In one, they describe what life on Earth will be like by 2050 if we fail to meet the Paris climate targets. In the other, they lay out what it will be like to live in a carbon neutral, regenerative world. They argue for confronting the climate crisis head-on, with determination and optimism. The Future We Choose presents our options and tells us what governments, corporations, and each of us can and must do to fend off disaster."

Fioramonte, L. (2013) Gross Domestic Problem: the politics behind the world's most powerful number. Zed Books. "Gross domestic product is arguably the best-known statistic in the contemporary world, and certainly amongst the most powerful. It drives government policy and sets priorities in a variety of vital social fields - from schooling to healthcare. Yet for perhaps the first time since it was invented in the 1930s, this popular icon of economic growth has come to be regarded by a wide range of people as a 'problem'. After all, does our quality of life really improve when our economy grows 2 or 3 per cent? Can we continue to sacrifice the environment to safeguard a vision of the world based on the illusion of infinite economic growth? Lorenzo Fioramonti takes apart the 'content' of GDP - what it measures, what it doesn't and why - and reveals the powerful political interests that have allowed it to dominate today's economies. In doing so, he demonstrates just how little relevance GDP has to moral principles such as equity, social justice and redistribution, and shows that an alternative is possible, as evinced by the 'de-growth' movement and initiatives such as transition towns." [oc-p,k,ki \$20]

Fleck, L. (1935, 2012). Genesis and development of a scientific fact. University of Chicago Press. "Originally published in German in 1935, this monograph anticipated solutions to problems of scientific progress, the truth of scientific fact and the role of error in science now associated with the work of Thomas Kuhn and others. Arguing that every scientific concept and theory—including his own—is culturally conditioned, Fleck was appreciably ahead of his time. And as Kuhn observes in his foreword, "Though much has occurred since its publication, it remains a brilliant and largely unexploited resource." "To many scientists just as to many historians and philosophers of science facts are things that simply are the case: they are discovered through properly passive observation of natural reality. To such views Fleck replies that facts are invented, not discovered. Moreover, the appearance of scientific facts as discovered things is itself a social construction, a made thing. A work of transparent brilliance, one of the most significant contributions toward a thoroughly sociological account of scientific knowledge."— Steven Shapin, Science. [ki, \$35]

Flyvbjerg, B. (2001). [Making social science matter: Why social inquiry fails and how it can succeed again](#). Cambridge university press. "Making Social Science Matter presents an exciting new approach to the social and behavioral sciences including theoretical argument, methodological guidelines, and examples of practical application. Why has social science failed in attempts to emulate

natural science and produce normal theory? Bent Flyvbjerg argues that the strength of social sciences lies in its rich, reflexive analysis of values and power, essential to the social and economic development of any society. Richly informed, powerfully argued, and clearly written, this book opens up a new future for the social sciences. Its empowering message will make it required reading for students and academics across the social and behavioral sciences.” [oc-ki]

Ford, M. (2015) *Rise of the Robots: Technology and the threat of a jobless future*. Basic Books. “In a world of self-driving cars and big data, smart algorithms and Siri, we know that artificial intelligence is getting smarter every day. Though all these nifty devices and programs might make our lives easier, they're also well on their way to making "good" jobs obsolete. A computer winning Jeopardy might seem like a trivial, if impressive, feat, but the same technology is making paralegals redundant as it undertakes electronic discovery and is soon to do the same for radiologists. And that, no doubt, will only be the beginning. In Silicon Valley the phrase "disruptive technology" is tossed around on a casual basis. No one doubts that technology has the power to devastate entire industries and upend various sectors of the job market. But *Rise of the Robots* asks a bigger question: can accelerating technology disrupt our entire economic system to the point where a fundamental restructuring is required? Companies like Facebook and YouTube may only need a handful of employees to achieve enormous valuations, but what will be the fate of those of us not lucky or smart enough to have gotten into the great shift from human labor to computation? The more Pollyannaish, or just simply uninformed, might imagine that this industrial revolution will unfold like the last: even as some jobs are eliminated, more will be created to deal with the new devices of a new era. In *Rise of the Robots*, Martin Ford argues that is absolutely not the case. Increasingly, machines will be able to take care of themselves, and fewer jobs will be necessary. The effects of this transition could be shattering. Unless we begin to radically reassess the fundamentals of how our economy works, we could have both an enormous population of the unemployed—the truck drivers, warehouse workers, cooks, lawyers, doctors, teachers, programmers, and many, many more, whose labors have been rendered superfluous by automated and intelligent machines.” [oc-ki]

Freeman, C. (2002). [Continental, national and sub-national innovation systems: complementarity and economic growth](#). *Research policy*, 31(2), 191-211. Abstract “The purpose of this paper is to discuss the relevance of innovation systems to economic growth rates over the last two centuries. The focus is on complementarity (or lack of it) between sub-systems of society and on models of active learning in catching up economies. The paper discusses variations in rates of growth of economic regions and the extent to which variations may be attributed to “innovation systems”. The analysis is applied to Britain in the 18th century, the United States in the second half of the 19th century and the innovation systems of catching up countries in the 20th century.”

Galbraith, James K. (2012) *Inequality and Instability: a study of the world economy just before the great crisis*. Oxford University Press. “As Wall Street rose to dominate the U.S. economy, income and pay inequalities in America came to dance to the tune of the credit cycle. As the reach of financial markets extended across the globe, interest rates, debt, and debt crises became the dominant forces driving the rise of economic inequality almost everywhere. Thus the "super-bubble" that investor George Soros identified in rich countries for the two decades after 1980 was a super-crisis for the 99 percent—not just in the U.S. but the entire world. *Inequality and Instability* demonstrates that finance is the driveshaft that links inequality to economic instability. The book challenges those, mainly on the right, who see mysterious forces of technology behind rising inequality. And it also challenges those, mainly on the left, who have

placed the blame narrowly on trade and outsourcing. *Inequality and Instability* presents straightforward evidence that the rise of inequality mirrors the stock market in the U.S. and the rise of finance and of free-market policies elsewhere. Starting from the premise that fresh argument requires fresh evidence, James K. Galbraith brings new data to bear as never before, presenting information built up over fifteen years in easily understood charts and tables. By measuring inequality at the right geographic scale, Galbraith shows that more equal societies systematically enjoy lower unemployment. He shows how this plays out inside Europe, between Europe and the United States, and in modern China. He explains that the dramatic rise of inequality in the U.S. in the 1990s reflected a finance-driven technology boom that concentrated incomes in just five counties, very remote from the experience of most Americans—which helps explain why the political reaction was so slow to come. That the reaction is occurring now, however, is beyond doubt. In the aftermath of the Great Financial Crisis, inequality has become, in America and the world over, the central issue.”

Gordijn, B., & Chadwick, R. (Eds.). (2008). *Medical enhancement and posthumanity* (Vol. 2). Springer Science & Business Media. “As we are increasingly using new technologies to change ourselves beyond therapy and in accordance with our own desires, understanding the challenges of human enhancement has become one of the most urgent topics of the current age. This volume contributes to such an understanding by critically examining the pros and cons of our growing ability to shape human nature through technological advancements. The authors undertake careful analyses of decisive questions that will confront society as enhancement interventions using bio-, info-, neuro- and nanotechnologies become widespread in the years to come. They provide the reader with the conceptual tools necessary to address such questions fruitfully. What makes the book especially attractive is the combination of conceptual, historical and ethical approaches, rendering it highly original. In addition, the well-balanced structure allows both favourable and critical views to be voiced. Moreover, the work has a crystal clear structure. As a consequence, the book is accessible to a broad academic audience. The issues raised are of interest to a wide reflective public concerned about science and ethics, as well as to students, academics and professionals in areas such as philosophy, applied ethics, bioethics, medicine and health management.” [na ki \$310]

Gore, A. (2013). *The future: Six drivers of global change*. Random House Incorporated. “sober, learned, and ultimately hopeful forecast in the visionary tradition of Alvin Toffler’s *Future Shock* and John Naisbitt’s *Megatrends*. In *The Future*, Gore identifies the emerging forces that are reshaping our world: (1) Ever-increasing economic globalization has led to the emergence of what he labels “Earth Inc.”—an integrated holistic entity with a new and different relationship to capital, labor, consumer markets, and national governments than in the past. (2) The worldwide digital communications, Internet, and computer revolutions have led to the emergence of “the Global Mind,” which links the thoughts and feelings of billions of people and connects intelligent machines, robots, ubiquitous sensors, and databases. (3) The balance of global political, economic, and military power is shifting more profoundly than at any time in the last five hundred years—from a U.S.-centered system to one with multiple emerging centers of power, from nation-states to private actors, and from political systems to markets. (4) A deeply flawed economic compass is leading us to unsustainable growth in consumption, pollution flows, and depletion of the planet’s strategic resources of topsoil, freshwater, and living species. (5) Genomic, biotechnology, neuroscience, and life sciences revolutions are radically transforming the fields of medicine, agriculture, and molecular science—and are putting control of evolution in human hands. (6) There has been a radical disruption of the relationship between human

beings and the earth's ecosystems, along with the beginning of a revolutionary transformation of energy systems, agriculture, transportation, and construction worldwide. [oc-p,k]

Gummett, Phillip and Judith Reppy (editors) 1988. [The Relations Between Defence and Civil Technologies](#). Springer Netherlands "This book arises from a meeting held at Wiston House, Sussex, UK, in September 1987. The meeting brought together academic, governmental and industrial experts from eight countries to discuss the increasingly important subject of the relations between civil and defence technologies. It was primarily funded under the Advanced Research Workshops Programme of NATO's Scientific Affairs Division and was the first science policy workshop funded by the Programme. Additional financial support came from the Leverhulme Trust. The choice of topic, of speakers and, finally, of papers to be published was entirely ours. The conclusions reached were our own and those of the participants. They were not in any way guided by NATO; nor do they represent NATO policy..." [parts available for free preview] **mostly of historical interest, Lynda Weiss is a better illustration of the two-way flow between defence and consumer technology, but this reflects an earlier phase...**

Gutstein, D. (2018) *The Big Stall: How Big Oil and Think Tanks are blocking action on Climate Change in Canada*. Lorimer. "In fall 2015, the newly elected Trudeau government endorsed the Paris Agreement and promised to tackle global warming. In 2016, it released a major report which set out a national energy strategy embracing clean growth, technological innovation and carbon pricing. Rather than putting in place tough measures to achieve the Paris targets, however, the government reframed global warming as a market opportunity for Canada's clean technology sector. The Big Stall traces the origins of the government's climate change plan back to the energy sector itself — in particular Big Oil. It shows how, in the last fifteen years, Big Oil has infiltrated provincial and federal governments, academia, media and the non-profit sector to sway government and public opinion on the realities of climate change and what needs to be done about it. Working both behind the scenes and in high-profile networks, Canada's energy companies moved the debate away from discussion of the measures required to create a zero-carbon world and towards market-based solutions that will cut carbon dioxide emissions — but not enough to prevent severe climate impacts. This is how Big Oil and think tanks unraveled the Kyoto Protocol, and how Rachel Notley came to deliver the Business Council of Canada's energy plan. Donald Gutstein explains how and why the door has been left wide open for oil companies to determine their own futures in Canada, and to go on drilling new wells, building new oil sands plants and constructing new pipelines." [oc-ki]

Harari, Y.N. (2014) *Sapiens: A Brief History of Humankind*. Signal Books. Addresses four revolutions in human history: cognitive revolution; agricultural revolution; unification of humankind; scientific revolution; and an afterword on the animal that became a god, which sets him up for homo deus. [oc-ki]

Harari, Y.N. (2016) *Homo Deus*. Signal Books. "...envisions a not-too-distant world in which we face a new set of challenges. In *Homo Deus*, he examines our future with his trademark blend of science, history, philosophy and every discipline in between. *Homo Deus* explores the projects, dreams and nightmares that will shape the twenty-first century — from overcoming death to creating artificial life. It asks the fundamental questions: Where do we go from here? And how will we protect this fragile world from our own destructive powers? This is the next stage of evolution. This is *Homo Deus*." [oc-ki]

Harper, S. (2020) "After Coronavirus, Government Will Have to Shrink: Leftists see an opportunity in the crisis, but today's big spending will limit their options tomorrow," *Wall Street Journal*.

- Harrison, K., & Hoberg, G. (1994). Risk, science, and politics: Regulating toxic substances in Canada and the United States. Montreal and Kingston: McGill-Queen's University Press. "Paying particular attention to how politicians and bureaucrats in the two countries deal with the scientific uncertainty that pervades environmental decision making, Harrison and Hoberg analyse case studies of seven controversial substances suspected of causing cancer in humans: the pesticides Alar and alachlor, urea-formaldehyde foam insulation, radon gas, dioxin, saccharin, and asbestos. They weigh the strengths and weaknesses of each country's approach according to five criteria: stringency and timeliness of the regulatory decision, balancing of risks and benefits by decision makers, opportunities for public participation, and the interpretation of science in regulatory decision making. The Canadian approach is exemplified by closed decision making, case-by-case review that relies heavily on expert judgement, and limited public debate about the scientific basis of regulatory decisions. In contrast, regulatory science in the United States is characterized by publication of lengthy rationales for regulatory decisions, reliance on standardized procedures for risk assessment, and controversy surrounding the interpretation of scientific evidence." [na-e, request? \$34]
- Hartley, K. (2018). [The profitability of non-competitive defence contracts: The UK experience](#). Defence and Peace Economics, 29(6), 577-594. "This paper explains and assesses the UK experience with determining prices and profitability for non-competitive defence contracts. Three periods are considered, namely pre-1968, the 1968 Profit Formula Agreement and the changes introduced in 2014. Two cases of 'excessive' profits were major determinants of the 1968 Profit Formula Agreement; but continued dissatisfaction with the 1968 Agreement led to changes in 2014. The historical overview of UK experience provides a basis for understanding current UK policy and offers insights for other countries facing similar policy challenges. A critique is presented of UK policy on single source pricing and profitability."
- Hartley, K. (1996). [Defence industries adjusting to change](#). Defence and Peace Economics, 7(2), 169-184. Review article of six recent government and academic publications about industrial adjustment to the end of the Cold War.
- Hartley, K. and J. Belin, eds (2019) The Economics of the Global Defence Industry. Routledge. "This book makes an original contribution to our knowledge of the world's major defence industries. Experts from a wide range of different countries – from the major economies of North America and Western Europe to developing economies and some unique cases such as China, India, Singapore, South Africa and North Korea – describe and analyse the structure, conduct and performance of the defence industry in that country. Each chapter opens with statistics on a key nation's defence spending, its spending on defence R&D and on procurement over the period 1980 to 2017, allowing for an analysis of industry changes following the end of the Cold War. After the facts of each industry, the authors describe and analyse the structure, conduct and performance of the industry. The analysis of 'structure' includes discussions of entry conditions, domestic monopoly/oligopoly structures and opportunities for competition. The section on 'conduct' analyses price/non-price competition, including private and state funded R&D, and 'performance' incorporates profitability, imports and exports together with spin-offs and technical progress. The conclusion explores the future prospects for each nation's defence industry. Do defence industries have a future? What might the future defence firm and industry look like in 50 years' time?" [ki-\$65]
- Harvey, H., Orvis, R., and Rissman, J. (2018) Designing Climate Solutions: A Policy Guide for Low-Carbon Energy. Island Press. "With the effects of climate change already upon us, the need to cut global greenhouse gas emissions is nothing less than urgent. It's a daunting challenge, but the

technologies and strategies to meet it exist today. A small set of energy policies, designed and implemented well, can put us on the path to a low carbon future. Energy systems are large and complex, so energy policy must be focused and cost-effective. One-size-fits-all approaches simply won't get the job done. Policymakers need a clear, comprehensive resource that outlines the energy policies that will have the biggest impact on our climate future, and describes how to design these policies well. *Designing Climate Solutions: A Policy Guide for Low-Carbon Energy* is the first such guide, bringing together the latest research and analysis around low carbon energy solutions. Written by Hal Harvey, CEO of the policy firm Energy Innovation, with Robbie Orvis and Jeffrey Rissman of Energy Innovation, *Designing Climate Solutions* is an accessible resource on lowering carbon emissions for policymakers, activists, philanthropists, and others in the climate and energy community. In Part I, the authors deliver a roadmap for understanding which countries, sectors, and sources produce the greatest amount of greenhouse gas emissions, and give readers the tools to select and design efficient policies for each of these sectors. In Part II, they break down each type of policy, from renewable portfolio standards to carbon pricing, offering key design principles and case studies where each policy has been implemented successfully. We don't need to wait for new technologies or strategies to create a low carbon future—and we can't afford to. *Designing Climate Solutions* gives professionals the tools they need to select, design, and implement the policies that can put us on the path to a livable climate future." [ki, \$27]

Hawken, Paul (2017) *Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming*. Penguin. "In the face of widespread fear and apathy, an international coalition of researchers, professionals, and scientists have come together to offer a set of realistic and bold solutions to climate change. One hundred techniques and practices are described here—some are well known; some you may have never heard of. They range from clean energy to educating girls in lower-income countries to land use practices that pull carbon out of the air. The solutions exist, are economically viable, and communities throughout the world are currently enacting them with skill and determination. If deployed collectively on a global scale over the next thirty years, they represent a credible path forward, not just to slow the earth's warming but to reach drawdown, that point in time when greenhouse gases in the atmosphere peak and begin to decline. These measures promise cascading benefits to human health, security, prosperity, and well-being—giving us every reason to see this planetary crisis as an opportunity to create a just and livable world." [oc-ki]

Hennessy, M. A. (2006). [Canadian NATO Mutual aid and the reinvigoration of the Hyde park agreement: a Multilateral program in the interest of Bilateral defense trade](#). *Multinational operations, alliances, and international Military cooperation: past and Future*, 157. "... examines the relationship between the origins of Canada's North Atlantic Treaty Organization (NATO) mutual aid program and the bilateral Canadian-US exchange of notes that reinvigorated the Hyde Park defence production-sharing agreement. Little known outside North America, the Hyde Park Agreement (1941) was the cornerstone accord reached during the Second World War that helped harmonize North American defense production. It is one of the pillars of what Canadians like to consider the 'special relationship' with the United States. The reaffirmation of the agreement on 26 October 1950 ensured the continuity of this postwar economic arrangement. Ut the details concerning the exchange of notes and the quid pro quo with the United States over NATO mutual aid has had little or no examination in the secondary literature. Most accounts stress the

seamlessness between the wartime and postwar arrangements, but this paper demonstrates that the transition was neither seamless nor a sure thing.”

Heuninckx, B. (2008). [A primer to collaborative defence procurement in Europe: Troubles, achievements and prospects](#). Public Procurement Law Review, 3, 123. “What are the characteristics of collaborative defence procurement in Europe, and how successful has it been in achieving its objectives? Is there any coherent legal regime that applies to it? Even though some dedicated studies have been performed on the subject over the years, procurement practitioners and academics should be provided with an updated and more integrated view of what collaborative defence procurement entails, and this is the aim of this article. Moreover, the lessons of collaborative defence procurement could be useful for collaborative procurement initiatives in other fields.”

Holmes, Ken (2012) Foreign Ownership Control and Influence in the 21st Century: Analysis of Risk, Technical, and Organizational Requirements. Ottawa: Industrial Security Sector, Public Works and Government Services.

Homer-Dixon, T. (2002) The Ingenuity Gap. Vintage Canada. Part I: how are we changing our relationship to the world? Part 2: do we need more ingenuity to solve the problems of the future? Part 3: Can we supply the ingenuity we need? Part 4: what does the ingenuity gap mean for our future? [oc-ko]

Homer-Dixon, T. (2007) The Upside of Down: Catastrophe, Creativity, and the Renewal of Civilizations. Vintage Canada. “Environmental disasters. Terrorist wars. Energy scarcity. Economic failure. Is this the world's inevitable fate, a downward spiral that ultimately spells the collapse of societies? Perhaps, says acclaimed author Thomas Homer-Dixon - or perhaps these crises can actually lead to renewal for ourselves and planet earth. The Upside of Down takes the reader on a mind-stretching tour of societies' management, or mismanagement, of disasters over time. From the demise of ancient Rome to contemporary climate change, this spellbinding book analyzes what happens when multiple crises compound to cause what the author calls "synchronous failure." But, crisis doesn't have to mean total global calamity. Through catagenesis, or creative, bold reform in the wake of breakdown, it is possible to reinvent our future.” [oc-ko]

Howard, P.N. (2015) Pax Technica: How the Internet of Things may set us free or lock us up. Yale University Press. “Should we fear or welcome the internet’s evolution? The “internet of things” is the rapidly growing network of everyday objects—eyeglasses, cars, thermostats—made smart with sensors and internet addresses. Soon we will live in a pervasive yet invisible network of everyday objects that communicate with one another. In this original and provocative book, Philip N. Howard envisions a new world order emerging from this great transformation in the technologies around us. Howard calls this new era a Pax Technica. He looks to a future of global stability built upon device networks with immense potential for empowering citizens, making government transparent, and broadening information access. Howard cautions, however, that privacy threats are enormous, as is the potential for social control and political manipulation. Drawing on evidence from around the world, he illustrates how the internet of things can be used to repress and control people. Yet he also demonstrates that if we actively engage with the governments and businesses building the internet of things, we have a chance to build a new kind of internet—and a more open society.” [oc-ki]

Howlett, M., Ramesh, M. and Perl, A. (2009) Studying Public Policy: Policy Cycles and Policy Subsystems. New York: OUP. “Studying Public Policy examines three dimensions of efforts to engage and

resolve public problems: policy actors, institutions, and ideas. Using this focus, the book overviews past efforts to understand public policy-making, outlines the different stages of the policy-making process, and discusses the principal elements and patterns of policy dynamics. Developing an analytical framework of the subject, the text examines the theoretical and conceptual foundations of, and approaches used in, policy sciences giving students a solid basis for understanding public policy. This edition has been fully updated with new developments in the field and revised with clear language and an easy-to-understand structure, making it the most current, student-friendly resource available.” [ki, \$119]

Hughes, Thomas, P. (2004) *Human-Built World: How to Think about Technology and Culture*. Chicago: University of Chicago Press. [used for HIE289] “To most people, technology has been reduced to computers, consumer goods, and military weapons; we speak of "technological progress" in terms of RAM and CD-ROMs and the flatness of our television screens. In *Human-Built World*, thankfully, Thomas Hughes restores to technology the conceptual richness and depth it deserves by chronicling the ideas about technology expressed by influential Western thinkers who not only understood its multifaceted character but who also explored its creative potential. Hughes draws on an enormous range of literature, art, and architecture to explore what technology has brought to society and culture, and to explain how we might begin to develop an "ecotechnology" that works with, not against, ecological systems. From the "Creator" model of development of the sixteenth century to the "big science" of the 1940s and 1950s to the architecture of Frank Gehry, Hughes nimbly charts the myriad ways that technology has been woven into the social and cultural fabric of different eras and the promises and problems it has offered. Thomas Jefferson, for instance, optimistically hoped that technology could be combined with nature to create an Edenic environment; Lewis Mumford, two centuries later, warned of the increasing mechanization of American life. Such divergent views, Hughes shows, have existed side by side, demonstrating the fundamental idea that "in its variety, technology is full of contradictions, laden with human folly, saved by occasional benign deeds, and rich with unintended consequences." In *Human-Built World*, he offers the highly engaging history of these contradictions, follies, and consequences, a history that resurrects technology, rightfully, as more than gadgetry; it is in fact no less than an embodiment of human values. [oc-ki]

Jasanoff, S. (Ed.). (2004). *States of knowledge: the co-production of science and the social order*. Routledge. “Notes on contributors Acknowledgements 1. The Idiom of Co-production Sheila Jasanoff 2. **Ordering Knowledge, Ordering Society** Sheila Jasanoff 3. Climate Science and the Making of a Global Political Order Clark A. Miller 4. Co-producing CITES and the African Elephant Charis Thompson 5. Knowledge and Political Order in the European Environment Agency Claire Waterton and Brian Wynne 6. Plants, Power and Development: Founding the Imperial Department of Agriculture for the West Indies, 1880-1914 William K. Storey 7. Mapping Systems and Moral Order: Constituting property in genome laboratories Stephen Hilgartner 8. Patients and Scientists in French Muscular Dystrophy Research Vololona Rabearisoa and Michel Callon 9. Circumscribing Expertise: Membership categories in courtroom testimony Michael Lynch 10. The Science of Merit and the Merit of Science: Mental order and social order in early twentieth-century France and America John Carson 11. Mysteries of State, Mysteries of Nature: Authority, knowledge and expertise in the seventeenth century Peter Dear 12. Reconstructing Sociotechnical Order: Vannevar Bush and US science policy Michael Aaron Dennis 13. Science and the Political Imagination in Contemporary Democracies Yaron Ezrahi 14. Afterword Sheila Jasanoff References Index” [ki, \$105]

Jerven, M. (2014). [Poor numbers and what to do about them](#). *The Lancet*, 383(9917), 594-595. GDP numbers are unreliable collecting and analyzing the data is beyond the capacity of most third-world bureaucracies. If we want them to be better, we have to invest in human capital, and we can't expect to improve evidence or results without better data.

Jerven, M. (2013) *Poor Numbers: How we are misled by African Development Statistics and What to do about it*. Cornell University Press. "One of the most urgent challenges in African economic development is to devise a strategy for improving statistical capacity. Reliable statistics, including estimates of economic growth rates and per-capita income, are basic to the operation of governments in developing countries and vital to nongovernmental organizations and other entities that provide financial aid to them. Rich countries and international financial institutions such as the World Bank allocate their development resources on the basis of such data. The paucity of accurate statistics is not merely a technical problem; it has a massive impact on the welfare of citizens in developing countries. Where do these statistics originate? How accurate are they? *Poor Numbers* is the first analysis of the production and use of African economic development statistics. Morten Jerven's research shows how the statistical capacities of sub-Saharan African economies have fallen into disarray. The numbers substantially misstate the actual state of affairs. As a result, scarce resources are misapplied. Development policy does not deliver the benefits expected. Policymakers' attempts to improve the lot of the citizenry are frustrated. Donors have no accurate sense of the impact of the aid they supply. Jerven's findings from sub-Saharan Africa have far-reaching implications for aid and development policy. As Jerven notes, the current catchphrase in the development community is "evidence-based policy," and scholars are applying increasingly sophisticated econometric methods-but no statistical techniques can substitute for partial and unreliable data." [oc-ko]

Johnson, D. (2016). *Thinking Government: Public Administration and Politics in Canada*, fourth edition. University of Toronto Press. "Thinking Government: Public Administration and Politics in Canada, Fourth Edition introduces students to power relations between elected politicians and unelected public servants, while also covering important topics such as the institutions of the federal government, financial and human resources management, and accountability and responsibility. Johnson explores the ways that the ideological framework of this country shapes what Canadians, their political parties, and their governments think about policy actions and the responsibilities of public servants. The fourth edition is revised and updated throughout and addresses the legacy of the Harper government on public administration in Canada. Comprehensive pedagogical supports for students highlight key issues in public administration to help connect theories to the reality of practice." [oc-ki]

Juneau, T., P. Lagassé, S. Vucetic (2019) *Canadian Defence Policy in theory and practice*. Palgrave-MacMillan. See especially David Perry, Ch. 5; Stone and Solomon Ch. 9; MacDonald, Ch. 14. "This edited volume provides a comprehensive overview of contemporary debates and issues in Canadian defence policy studies. The contributors examine topics including the development of Canadian defence policy and strategic culture, North American defence cooperation, gender and diversity in the Canadian military, and defence procurement and the defence industrial base. Emphasizing the process of defence policy-making, rather than just the outcomes of that process, the book focuses on how political and organizational interests impact planning, as well as the standard operating procedures that shape Canadian defence policy and practices. [oc-ki]

Kaplan, J. (2015) *Humans Need Not Apply: A guide to wealth and work in the age of artificial intelligence*. Yale University Press. "After billions of dollars and fifty years of effort, researchers are finally cracking the code on artificial intelligence. As society stands on the cusp of

unprecedented change, Jerry Kaplan unpacks the latest advances in robotics, machine learning, and perception powering systems that rival or exceed human capabilities. Driverless cars, robotic helpers, and intelligent agents that promote our interests have the potential to usher in a new age of affluence and leisure — but as Kaplan warns, the transition may be protracted and brutal unless we address the two great scourges of the modern developed world: volatile labor markets and income inequality. He proposes innovative, free-market adjustments to our economic system and social policies to avoid an extended period of social turmoil. His timely and accessible analysis of the promise and perils of artificial intelligence is a must-read for business leaders and policy makers on both sides of the aisle.” [oc-ki] **a bit cliché and superficial... more for entertainment than enlightenment.**

Kasurak, P. (2008) Fools, Knaves or Something Else? The Canadian Forces, 1990-2000: An Auditor’s Report. (Speech) [oc] His conclusion: sometimes fools, sometimes knaves, but usually victims of competing policy pressures. In other words, we get what you would expect when you rotate people through staffing on complex projects and present them with unclear and changing rules and politically inspired expectations.

Kellert, S. (2008) Borrowed Knowledge: Chaos Theory and the Challenge of Learning Across Disciplines. Chicago: University of Chicago Press. “What happens to scientific knowledge when researchers outside the natural sciences bring elements of the latest trend across disciplinary boundaries for their own purposes? Researchers in fields from anthropology to family therapy and traffic planning employ the concepts, methods, and results of chaos theory to harness the disciplinary prestige of the natural sciences, to motivate methodological change or conceptual reorganization within their home discipline, and to justify public policies and aesthetic judgments. Using the recent explosion in the use (and abuse) of chaos theory, Borrowed Knowledge and the Challenge of Learning across Disciplines examines the relationship between science and other disciplines as well as the place of scientific knowledge within our broader culture. Stephen H. Kellert’s detailed investigation of the myriad uses of chaos theory reveals serious problems that can arise in the interchange between science and other knowledge-making pursuits, as well as opportunities for constructive interchange. By engaging with recent debates about interdisciplinary research, **Kellert contributes a theoretical vocabulary and a set of critical frameworks for the rigorous examination of borrowing.**” [oc-ko]

Klein, N. (2015). This changes everything: Capitalism vs. the climate. Simon and Schuster. “Forget everything you think you know about global warming. The really inconvenient truth is that it’s not about carbon—it’s about capitalism. The convenient truth is that we can seize this existential crisis to transform our failed system and build something radically better. In her most provocative book yet, Naomi Klein, author of the global bestsellers *The Shock Doctrine* and *No Logo*, tackles the most profound threat humanity has ever faced: the war our economic model is waging against life on earth. Klein exposes the myths that are clouding the climate debate. We have been told the market will save us, when in fact the addiction to profit and growth is digging us in deeper every day. We have been told it’s impossible to get off fossil fuels when in fact we know exactly how to do it—it just requires breaking every rule in the “free-market” playbook: reining in corporate power, rebuilding local economies and reclaiming our democracies. We have also been told that humanity is too greedy and selfish to rise to this challenge. In fact, all around the world, the fight back is already succeeding in ways both surprising and inspiring. Climate change, Klein argues, is a civilizational wake-up call, a powerful message delivered in the language of fires, floods, storms and droughts. Confronting it is no longer about changing the

light bulbs. It's about changing the world—before the world changes so drastically that no one is safe. Either we leap—or we sink.” [oc-ki]

- Kunstler, J.H. (2012) *Too Much Magic: Wishful Thinking, Technology, and the Fate of the Nation*. New York: Grove Press. An alternative view of the future (US-centric, as usual), which is short on oil, post-car, contracting rather than growing, where technology creates problems not solutions, where American politics is gridlocked and impotent in the long crisis, where Wall Street doesn't generate wealth but sucks it up, where technology has no good solutions to the energy crisis, and the planet is biting back after long insults...[oc-ki]
- Landry, R., Amara, N., & Lamari, M. (2001). [Utilization of social science research knowledge in Canada](#). *Research policy*, 30(2), 333-349. Abstract: “This paper addresses three questions: What is the extent of the use of social science research in Canada? Are there differences between the social sciences disciplines regarding extent of use? What are the determinants of utilization of social science research knowledge in Canada? **The paper develops and tests an empirical model that derives its dependent and independent variables from prior studies in knowledge utilization.** Instead of limiting utilization to instrumental use, the paper defines utilization as a six-stage cumulative process. Based on a survey of 1229 Canadian social science scholars, the findings of this study show that **nearly half of the research results lead to some use by practitioners**, professionals and decision-makers. Furthermore, comparisons of means of utilization show that the professional social sciences (social work and industrial relations) lend to higher levels of utilization than the disciplinary social sciences (economics, political science, sociology and anthropology). Multivariate regression analyses show that the most important determinants of utilization are the mechanisms linking the researchers to the users, the dissemination efforts, the adaptation of research outputs undertaken by the researchers, the users' context and the publication assets of the researchers. The other explanatory factors exert a more mitigated influence on knowledge utilization. The last part of the paper derives policy implications from the regression results. Overall, the most important finding of this paper is that knowledge utilization depends much more heavily on factors regarding the behavior of the researchers' and users' context than on the attributes of the research products.”
- Leavis, F. R. (1962). [Two cultures? The significance of CP Snow](#). *Critical Review*, 5, 90. Leavis mounts a ferocious attack on the philosophy of science-based education (or at least, balanced education) that Snow advocated in his 1959 Rede Lecture, *Two Cultures*. See also Tallis et al, 2011.
- Lerhe, E. J. (2013). [The National Shipbuilding Procurement Strategy: An Update](#). Canadian Defence & Foreign Affairs Institute. Summary: “Barely a year old, there are already claims that the \$35 billion National Shipbuilding Procurement Strategy is in trouble as a result of contractual, financial, and design difficulties. This paper analyzes the state of the various shipbuilding projects within it, assesses the seriousness of the reported problems, and examines the government's options. The paper confirmed that there are initial problems of project delay and that the final result may well be slightly fewer vessels of which some may not fully meet the original stated operational requirement. This is the inevitable result of tight defence dollars that force difficult capability tradeoffs. Moreover, these problems are by no means unique to the shipbuilding strategy and have marked defence purchases for decades. The paper also argues that the new ship procurement strategy is more likely to overcome these problems than any other option. The data collected also demonstrates that buying offshore is by no means cheaper or faster. Further, by breaking the traditional ‘boom and bust’ Canadian shipbuilding cycle, there is a very strong likelihood that the two selected shipyards will have the years needed to develop the expertise and manufacturing efficiencies needed to turn out on-time, capable warships.”

- Lejano, R. P. (2006). *Frameworks for policy analysis: Merging text and context*. Routledge. "Frameworks for Policy Analysis argues that, in order to bring relevance back to policy analysis, we need to approach policy situations as complex phenomena and employ multiple ways of looking at things in order to understand the essential elements of each policy case. The book is an exploration of distinct, sometimes radically different, models for analysis, but it is also a reference for these multiple methodologies that all come under the term "analysis." Along with classic and recent models, the book introduces some new concepts that serve to deepen our analysis and aspire to what Geertz calls "thick description." This text, written for advanced courses in policy analysis, is an answer to the critical gap between the complexity and dimensionality of policy situations and the abstract and formal character of policy analysis, in general. The book begins by introducing the reader to dominant models of analysis, pointing out their limitations and the potential for transcending these limits. It also introduces new analytical approaches that help to merge text and context, increasing the dimensionality and authenticity of the analysis." [oc-ki]
- Liston-Heyes, C. (1995). [Management systems and defence procurement](#). *Defence and peace economics*, 6(1), 1-11. In this paper, we examine how defence procurement policy should be adapted to take account of a particular type of informational asymmetry that exists between a government and a defence contractor. For any particular project, a firm must choose the comprehensiveness of the information available to its decision-makers which they use to coordinate construction activities. However, because the procurement agency has access to all project-relevant data held by the firm, when it chooses how thorough its records are to be, the firm simultaneously determines its 'cost transparency' to the agency. Since this degree of transparency affects its ability to extract rents from the government, the firm's choice of management input will generally be biased. Policy implications are considered.
- Lundvall, B. Å. (2007). [National innovation systems—analytical concept and development tool](#). *Industry and innovation*, 14(1), 95-119 Abstract: "The term national system of innovation has been around for more than 20 years and today it has become widely spread among policy makers as well as scholars all over the world. In this lecture I will take stock and look ahead from a rather personal point of view. I will give some insight in why the concept came about and give some space to criticism and self-criticism. I will mention but certainly not give justice to alternative conceptualizations of innovation system. In the paper I reflect on the origin and use of the national innovation system concept in terms of theory and practice. I will argue that the concept has some characteristics in common with an engineering approach but also with critical theory and grounded theory. The intuition behind the Aalborg-version of the NSI-concept pointed in the right direction but the concept was certainly not fully worked out when first introduced. Some of the major weaknesses have been repaired but some remain. In the paper I criticize attempts to make the concept 'more rigorous' through organizing the definition and analysis around a list of 'functions', 'factors' and 'activities' and I present the principles used to organize the Danish DISKO-project as an alternative and less agnostic approach.¹ Here a core of the system is defined and it is illustrated that it is necessary to both to understand micro-behavior in the core and understand 'the wider setting' within which the core operates. At the end of the paper I discuss some further developments needed to make the concept relevant and applicable to developing countries. Here special attention is given to institutions and capabilities supporting learning. I point to the need to give more emphasis to the distribution of power, to institution building and to the openness of innovation systems."

- Macdonald, D. (2020). *Carbon Province, Hydro Province: The Challenge of Canadian Energy and Climate Federalism*. University of Toronto Press. “Why has Canada been unable to achieve any of its climate-change targets? Part of the reason is that emissions in two provinces, Alberta and Saskatchewan, already about half the Canadian total when taken together, have been steadily increasing as a result of expanding oil and gas production. Declining emissions in other provinces, such as Ontario, Quebec, Nova Scotia and New Brunswick, have been cancelled out by those western increases. The ultimate explanation for Canadian failure lies in the differing energy interests of the western and eastern provinces, overlaid on the confederation fault-line of western alienation. Climate, energy, and national unity form a toxic mix. How can Ottawa possibly get all the provinces moving in the same direction of decreasing emissions? To answer this question, Douglas Macdonald explores the five attempts to date to put in place co-ordinated national policy in the fields of energy and climate change – from Pierre Trudeau’s ill-fated National Energy Program to Justin Trudeau’s bitterly contested Pan-Canadian program – analyzing and comparing them for the first time. Important new insights emerge from this analysis which, in turn, provide the basis for a new approach.”
- MacDonald, G. (2019) *Defence Policy Perspectives: Special Interests and Lobbying*. In Juneau, T., P. Lagassé, S. Vucetic (2019) *Canadian Defence Policy in theory and practice*. Palgrave-MacMillan. “A full examination of defence policy perspectives would not be complete without considering the activities of those with special interests and the lobbying that is conducted. This chapter will address these in some detail, including the identification of the main special interest participants and lobbyists attempting to influence Canadian defence policy, the methodology of their approach and the influence they achieve.” [oc-ki]
- Manning, A. (2004). [We can work it out: the impact of technological change on the demand for low-skill workers](#). *Scottish Journal of Political Economy*, 51(5), 581-608. Abstract: “There is little doubt that technology has had the most profound effect on altering the tasks that we humans do in our jobs. Economists have long speculated on how technical change affects both the absolute demand for labour as a whole and the relative demands for different types of labour. In recent years, the idea of skill-biased technical change has become the consensus view about the current impact of technology on labour demand, namely that technical change leads to an increase in the demand for skilled relative to unskilled labour painting a bleak future for the employment prospects of less-skilled workers. But, drawing on a recent paper by Autor, Levy and Murnane (2003) about the impact of technology on the demand for different types of skills, this paper argues that the demand in the least-skilled jobs may be growing. But, it is argued that employment of the less-skilled is increasingly dependent on physical proximity to the more-skilled and may also be vulnerable in the long-run to further technological developments.
- Markowski, S., Hall, P., & Wylie, R. (Eds.). (2009). *Defence Procurement and Industry Policy: A small country perspective*. Routledge. “Arms purchases are among the most expensive, technologically challenging and politically controversial decisions made by modern-day governments. Superpower spending on weapons systems is widely analysed and discussed. But defence procurement in smaller industrial countries involves different issues which receive less attention. This volume presents a general framework for understanding smaller country defence procurement supported by country, industry and project studies. Part I provides a general framework for analysing smaller country defence procurement, focusing on the formation of national defence capabilities. The framework is then used to analyse issues around the development of procurement demand, the characteristics of defence industry supply, contracts and relationships between buyers and sellers, and government policy for defence procurement

and industry development. Part II focuses on defence procurement in seven smaller industrial nations with widely varying historical and political settings (Australia, Canada, Israel, Singapore, Spain, Sweden and The Netherlands). Part III consists of two Australian case studies of the procurement issues raised in, respectively, the naval shipbuilding industry and in a major, complex defence project. The book addresses the needs of public and private sector managers, military planners, procurement specialists, industry policy-makers, and defence procurement and industry educators. It presents general principles in an accessible manner and points to real-world experience to illustrate the principles at work. Therefore it will be of interest to scholars and practitioners in defence economics, strategic procurement, public sector procurement, and defence industry policy.” [oc-ki]

Marland, A., & Wesley, J. (2018). *The Public Servant's Guide to Government in Canada*. University of Toronto Press. “The Public Servant’s Guide to Government in Canada is a concise primer on the inner workings of government in Canada. This is a go-to resource for students, for early career public servants, and for anyone who wants to know more about how government works. Grounded in experience, the book connects core concepts in political science and public administration to the real-world practice of working in the public service. The authors provide valuable insights into the messy realities of governing and the art of diplomacy, as well as best practices for climbing the career ladder.” (1) core concepts (2) public sector bargain [cf, Savoie, 2003, *Breaking the Bargain*] (3) politics of public policy (4) politics of public administration (5) the art of navigating government (6) roles and competencies (7) achieving career goals... [oc-ki]

Martin, S., & Hartley, K. (1995). [UK firms’ experience and perceptions of defence offsets](#): survey results. *Defence and Peace Economics*, 6(2), 123-139. “Offsets are a growing feature of international trade in defence equipment. This article assesses the economics of offsets and outlines UK offsets policy. There is a lack of empirical work in the field and the article presents the results of a survey of UK firms’ experience of their involvement in offsets against UK imports of defence equipment. There is also a case study of the AWACS offset programme and an evaluation of policy implications.”

Mason, D. N. (2005). [The Canadian American North American Defence Alliance in 2005](#). *International journal*, 60(2), 385-396. 2005 was an important year for Canada and NORAD. New Bush Administration and new minority Conservative Government, NORAD up for renewal in 2006, spectators expecting shifting relationships. In hindsight, it wasn’t that momentous. See Sokolsky and Lagassé on what actually transpired—no big deal.

Mazzucato, Mariana (2014). *The Entrepreneurial State: Debunking Public vs. Private Myths in Risk and Innovation*. Anthem Press. “This book, which builds on the author's work for a high-impact DEMOS report, debunks the myth of the state as a large bureaucratic organization that can at best facilitate the creative innovation which happens in the dynamic private sector. Analysing various case studies of innovation-led growth, in particular examples from Silicon Valley - from the Internet to the technologies behind the iPhone - it describes the opposite situation, whereby the private sector only finds the courage to invest after the entrepreneurial state has made the high-risk investments. It argues that in the history of modern capitalism - and today in what might soon become the 'green' revolution - the state has not only fixed market failures but also shaped and created markets, actively investing in new technologies and sectors that private investors only later find the courage to move into.” [oc-ki]

McNeely and Wolverson (2008) *Reinventing Knowledge: From Alexandria to the Internet*. New York: WW Norton. “Here is an intellectual entertainment, a sweeping history of the key institutions

that have organized knowledge in the West from the classical period onward. With elegance and wit, this exhilarating history alights at the pivotal points of cultural transformation. The motivating question throughout: How does history help us understand the vast changes we are now experiencing in the landscape of knowledge? Beginning in Alexandria and its great center of Hellenistic learning and imperial power, we then see the monastery in the wilderness of a collapsed civilization, the rambunctious universities of the late medieval cities, and the thick social networks of the Enlightenment republic of letters. The development of science and the laboratory as a dominant knowledge institution brings us to the present, seeking patterns in the new digital networks of knowledge. Full of memorable characters, this fresh history succeeds in restoring the strangeness and the significance of the past.” [oc-ko]

Meadows, D.H. (2008) *Thinking in Systems: A Primer*. Chelsea Green Publishing. “In the years following her role as the lead author of the international bestseller, *Limits to Growth*—the first book to show the consequences of unchecked growth on a finite planet— Donella Meadows remained a pioneer of environmental and social analysis until her untimely death in 2001.” This describes the elements of systems (stocks, flows, feedback loops etc) and illustrates how they work in simple terms, with examples from natural and social sciences. [oc-ko]

Miller, L. C. D. A. (2004). [A Future North American Defence Arrangement](#): Applying a Canadian Defence Policy Process Model. *UNorth American Security*, 55. US Air Force Officer says the geostrategic environment has evolved rapidly since end CW; addresses binational planning group (BPG), options for joint command, evolution towards NorthCom. The interesting part of the article is the American effort to understand the Canadian defence policy process under what (at the time) was the Martin minority government about to hand over to a Harper minority.

Mirowsky, Philip (2013) *Never let a serious crisis go to waste: How neoliberalism survived the financial meltdown*. London: Verso. “At the onset of the Great Recession, as house prices sank and joblessness soared, many commentators concluded that the economic convictions behind the disaster would now be consigned to history. Yet in the harsh light of a new day, attacks against government intervention and the global drive for austerity are as strong as ever. *Never Let a Serious Crisis Go to Waste* is the definitive account of the wreckage of what passes for economic thought, and how neoliberal ideas were used to solve the very crisis they had created. Now updated with a new afterword, Philip Mirowski’s sharp and witty work provides a roadmap for those looking to escape today’s misguided economic dogma.” [oc-ko]

Mishra, R. (2014) *Improving Self-Reliance and Indigenous Content in Defence Sector*. National Maritime Foundation. The Indian case—home-grown, hand-me-downs, or joint development: “The need for improving India’s self-reliance quotient in defence technology is an imperative that requires urgent attention. The debates on ‘self-reliance’ and ‘indigenisation’ should be framed through the proposition that, given the globalized nature of military technology, a full spectrum autarchy in defence sector is an unrealistic expectation. A case in point being the US, which as the leading arms exporter and the world’s largest defence budget, is also the sixth largest importer of military hardware. Considering India’s vexed security environment a ‘phase zero’ (starting from scratch) approach is not a good option, if India is to leapfrog the technology deficit. Joint development and coproduction concept has some inherent benefits that LP/ToT models do not provide especially for long term advanced technology needs. India has made some progress and the offer of US-2 amphibian aircraft by Japan suggests that countries are ready to engage India in such endeavours. Crosscutting defence collaboration with the US can be achieved but would depend on the ‘politico- strategic will’ from both sides to engage in a mutual ‘give and take’ for a ‘win-win’ solution. India will also have to assuage Russian concerns (majority of Indian military

hardware being of Russian origin) and the China overhang, where it may be interpreted as sign of India joining the US camp. Smart policy footwork and minor geopolitical readjustments can help tide over these 'somewhat turbulent seas'."

Mulgan (2013) *The Locust and the Bee: Predators and Creators in Capitalism's future*. Princeton University Press. "The recent economic crisis was a dramatic reminder that capitalism can both produce and destroy. It's a system that by its very nature encourages predators and creators, locusts and bees. But, as Geoff Mulgan argues in this compelling, imaginative, and important book, the economic crisis also presents a historic opportunity to choose a radically different future for capitalism, one that maximizes its creative power and minimizes its destructive force. In an engaging and wide-ranging argument, Mulgan digs into the history of capitalism across the world to show its animating ideas, its utopias and dystopias, as well as its contradictions and possibilities. Drawing on a subtle framework for understanding systemic change, he shows how new political settlements reshaped capitalism in the past and are likely to do so in the future. By reconnecting value to real-life ideas of growth, he argues, efficiency and entrepreneurship can be harnessed to promote better lives and relationships rather than just a growth in the quantity of material consumption. Healthcare, education, and green industries are already becoming dominant sectors in the wealthier economies, and the fields of social innovation, enterprise, and investment are rapidly moving into the mainstream--all indicators of how capital could be made more of a servant and less a master." There are predators and creators in capitalism, and the balance may determine whether capitalism survives as a productive system. [oc-ko]

Nelson, R. (1998). National innovation systems. *Regional innovation, knowledge and global change*, 11-26. [not found]

Nelson, R. (1993) *National Innovation systems: A Comparative Analysis*. Oxford University Press. "The slowdown of growth in Western industrialized nations in the last twenty years, along with the rise of Japan as a major economic and technological power (and enhanced technical sophistication of Taiwan, Korea, and other NICs) has led to what the authors believe to be a "techno-nationalism." This combines a strong belief that technological capabilities of a nation's firms are a key source of their competitive process, with a belief that these capabilities are in a sense national and can be built by national action. This book is about these national systems of technical innovation. The heart of the work contains studies of seventeen countries--from large market-oriented industrialized ones to several smaller high-income ones, including a number of newly industrialized states as well. Clearly written, this work highlights institutions and mechanisms which support technical innovation, showing similarities, differences, and their sources across nations, making this work accessible to students as well as the scholars of innovation." [ki, \$175]

Niosi, Jorge. 2000. *Canada's National System of Innovation*. Kingston: McGill-Queen's University Press. This is a tentative portrait of the state of Canada's innovation system in the mid-1990s, aiming to identify strengths, weaknesses, and core elements. Canada's national system of innovation (NSI) consists of innovating firms, universities, public laboratories, public and private institutions, and finance innovation. It developed slowly after confederation and in the first four decades of the 20th century, and experienced rapid growth from 1940 to the end of the century, but faces major challenges in adapting to the new environment of the 21st century. It suffers from gaps and inefficiencies, overlapping governmental jurisdictions, duplication of corporate efforts, missing elements, and lack of coordination, and is challenged by government spending priorities in every routine cycle of budgetary austerity. Chapter 1 describes theories of national systems of innovation; chapter 2 traces the evolution of Canada's NSI, chapters 3-5 study

domestic systems of R&D. Part II, chapters 6-8 analyze internationalization of Canadian R&D in the context of North American economy. **This looks like a different take to Smardon's interpretation of the branch-plant weaknesses of Canada's R&D system.** [Amazon available only hardcover, \$82; e-book available from Google for \$76] **see also Niosi 2018,**

- Nossal, K. R. (2016). *Charlie foxtrot: Fixing defence procurement in Canada*. Dundurn. "Defence procurement in Canada is a mess. New equipment is desperately needed for the Canadian Armed Forces, but most projects are behind schedule, over budget, or both. Not only has mismanagement cost Canadian taxpayers hundreds of millions of dollars, it has also deprived Canada and the CAF of much-needed military capacity. Successive governments — both Liberal and Conservative — have managed the complexities of defence procurement so poorly that it will take years before the Royal Canadian Navy, the Royal Canadian Air Force, and the Canadian Army regain the capabilities they need. While new prime ministers invariably come to power promising to fix problems inherited from their predecessors, getting it right has remained frustratingly elusive. Charlie Foxtrot offers a fresh take on this important policy issue. It shows why governments have found it so difficult to equip the CAF efficiently, and offers a set of political prescriptions for fixing defence procurement in Canada. [oc-ki]"
- Oudot, J. M. (2005, June). [Risk-allocation: Theoretical and empirical evidences, application to public-private partnerships in the defence sector](#). In Proc., 9th Annual Conf. of the Institutions of Market Exchange. Abstract: "Using a Principal – Agent framework, we start by pointing out two normative risk allocation criteria. We show that the risk allocation criteria come from the incentive and participation constraints within the maximization program. The first criterion is expressed as follows: risk should be allocated to the partner best able to manage it. The second criterion stipulates that risk should be allocated to the least risk-bearing cost partner. A third constraint is introduced to complete the theoretical criteria: The procurement autonomy. We deduct from it a third criterion: the Principal can support some risks in order to support the Agent's development. The underlying economic mechanisms of risk allocation are presented. The second part of this article is dedicated to the application case. We first aim to apply the theoretical propositions to the case of the public-private partnerships in the French defence procurement sector. To that purpose, we extend the theoretical propositions and enounce three application propositions. We base our analysis on a large qualitative risk assessment recently realised in this sector in France. Then, we compare the theoretical risk allocation to what is envisaged in the French defence procurement sector for public – private partnerships and to the current practices in public market contracts."
- Page, K. (2015). *Unaccountable: Truth and lies on parliament hill*. Penguin Canada. "In March 2008, Kevin Page was appointed by the federal Conservatives to be the country's first Parliamentary Budget Officer. The move fulfilled a Tory campaign promise to deliver greater government transparency and accountability. He was later denounced by the same people who appointed him to scrutinize their spending. When he challenged the government on several issues--most notably about the true costs of the F-35 fighter planes--and publicly claimed the government was misleading Canadians, Page was vilified. He was called "unbelievable, unreliable and incredible" by then-Finance Minister Jim Flaherty. Page's term was not extended and he retired from the civil service. Page's assessment of the F-35 procurement was proven right, a major embarrassment to the Harper government. But Page's overriding concern is that Parliament does not get the information and analysis it needs to hold the executive (the prime minister and cabinet) to account. Parliament, he argues, is broken, with power centralized in the PMO. The civil service appears cowed, and members of parliament almost never see enough financial

analysis to support the policy decisions they make. That was true at various times on the tough-on-crime legislation, new military procurement as well as changes to the Canada Health Transfer and Old Age Security. In this shocking insider's account, Page argues that democracy is being undermined by an increasingly autocratic government that does not respect facts that run counter to its political agenda. Elected officials need accurate, independently verified data to support the implementation of policies and programs. In *Unaccountable*, Page tells all Canadians why we should be concerned.” [oc-ki]

Pawson, Roy. (2006) *Evidence-Based Policy: A Realist Perspective*. London: Sage See also the supporting web site: www.leeds.ac.uk/realistsynthesis. “In this important new book, Ray Pawson examines the recent spread of evidence-based policy making across the Western world. Few major public initiatives are mounted these days in the absence of a sustained attempt to evaluate them. Programmes are tried, tried and tried again and researched, researched and researched again. And yet it is often difficult to know which interventions, and which inquiries, will withstand the test of time. The evident solution, going by the name of evidence-based policy, is to take the longer view. Rather than relying on one-off studies, it is wiser to look to the 'weight of evidence'. Accordingly, it is now widely agreed the most useful data to support policy decisions will be culled from systematic reviews of all the existing research in particular policy domains. This is the consensual starting point for Ray Pawson's latest foray into the world of evaluative research. But this is social science after all and harmony prevails only in the first chapter. Thereafter, Pawson presents a devastating critique of the dominant approach to systematic review - namely the 'meta-analytic' approach as sponsored by the Cochrane and Campbell collaborations. In its place is commended an approach that he terms 'realist synthesis'. On this vision, the real purpose of systematic review is better to understand programme theory, so that policies can be properly targeted and developed to counter an ever-changing landscape of social problems. The book will be essential reading for all those who loved (or loathed) the arguments developed in *Realistic Evaluation* (Sage, 1997). It offers a complete blueprint for research synthesis, supported by detailed illustrations and worked examples from across the policy waterfront. It will be of especial interest to policy-makers, practitioners, researchers and students working in health, education, employment, social care, criminal justice, regeneration and welfare.”

Perry, D. (2019) *Canadian Defence Budgeting*. Ch. 5 in Juneau et al, *Canadian Defence Policy*. “Defence spending in Canada matters more than the public defence policy of the day. Canada's defence policy has been “remarkably consistent over time”, inevitably directing the Canadian military to defend Canada, defend North America with the Americans and make various contributions to international security abroad. How many defence dollars are actually made available and how those dollars are internally allocated, provides a clearer indication of a government's priorities and commitments on defence than formal policies. In many respects, when it comes to Canada's defence, “dollars are policy”.” [oc-ki]

Pielke, Roger A. (2007) *The Honest Broker: Making Sense of Science in Policy and Politics*. Cambridge University Press. “Scientists have a choice concerning what role they should play in political debates and policy formation, particularly in terms of how they present their research. This book is about understanding this choice, what considerations are important to think about when deciding, and the consequences of such choices for the individual scientist and the broader scientific enterprise. Rather than prescribing what course of action each scientist ought to take, the book aims to identify a range of options for individual scientists to consider in making their own judgments about how they would like to position themselves in relation to policy and

politics. Using examples from a range of scientific controversies and thought-provoking analogies from other walks of life, *The Honest Broker* challenges us all - scientists, politicians and citizens - to think carefully about how best science can contribute to policy-making and a healthy democracy." [ki, \$45]

Piketty, Thomas (2014) *Capital in the Twenty-First Century*. Harvard University Press. "The main driver of inequality—returns on capital that exceed the rate of economic growth—is again threatening to generate extreme discontent and undermine democratic values. Thomas Piketty's findings in this ambitious, original, rigorous work will transform debate and set the agenda for the next generation of thought about wealth and inequality." [oc-ki, ko] See also Galbraith (2012)

Piva, M. and Vivarelli, M. (2017) "[Technological Change and Employment: Were Ricardo and Marx Right?](#)" IZA Discussion Paper, papers.ssrn.com "The aim of this paper is twofold. On the one hand, the economic insights about the employment impact of technological change are disentangled starting from the classical economists to nowadays theoretical and empirical analyses. On the other hand, an empirical test is provided; in particular, longitudinal data – covering manufacturing and service sectors over the 1998-2011 period for 11 European countries – are used to run GMM-SYS and LSDVC estimates. Two are the main results: 1) a significant labour-friendly impact of R&D expenditures (mainly related to product innovation) is found; yet, this positive employment effect appears to be entirely due to the medium-and high-tech sectors, while no effect can be detected in the low-tech industries; 2) capital formation is found to be negatively related to employment; this outcome points to a possible labour-saving effect due to the embodied technological change incorporated in gross investment (mainly related to process innovation).

Polanyi, K. (1947, 2001) *The Great Transformation: The Political and Economic Origins of our Time*. Beacon Press. "In this classic work of economic history and social theory, Karl Polanyi analyzes the economic and social changes brought about by the "great transformation" of the Industrial Revolution. His analysis explains not only the deficiencies of the self-regulating market, but the potentially dire social consequences of untempered market capitalism. New introductory material reveals the renewed importance of Polanyi's seminal analysis in an era of globalization and free trade." Market failures in the early 20th century led to communism and fascism that sought to protect the people hurt by markets. [oc-ko]

Pool, Robert. (1997) *Beyond Engineering: How Society Shapes Technology*. New York: Oxford University Press. [used for HIE289] "We have long recognized technology as a driving force behind much historical and cultural change. The invention of the printing press initiated the Reformation. The development of the compass ushered in the Age of Exploration and the discovery of the New World. The cotton gin created the conditions that led to the Civil War. Now, in *Beyond Engineering*, science writer Robert Pool turns the question around to examine how society shapes technology. Drawing on such disparate fields as history, economics, risk analysis, management science, sociology, and psychology, Pool illuminates the complex, often fascinating interplay between machines and society, in a book that will revolutionize how we think about technology. We tend to think that reason guides technological development, that engineering expertise alone determines the final form an invention takes. But if you look closely enough at the history of any invention, says Pool, you will find that factors unrelated to engineering seem to have an almost equal impact. In his wide-ranging volume, he traces developments in nuclear energy, automobiles, light bulbs, commercial electricity, and personal computers, to reveal that the ultimate shape of a technology often has as much to do with outside and unforeseen forces. For instance, Pool explores the reasons why steam-powered cars lost out to internal combustion

engines. He shows that the Stanley Steamer was in many ways superior to the Model T--it set a land speed record in 1906 of more than 127 miles per hour, it had no transmission (and no transmission headaches), and it was simpler (one Stanley engine had only twenty-two moving parts) and quieter than a gas engine--but the steamers were killed off by factors that had little or nothing to do with their engineering merits, including the Stanley twins' lack of business acumen and an outbreak of hoof-and-mouth disease. Pool illuminates other aspects of technology as well. He traces how seemingly minor decisions made early along the path of development can have profound consequences further down the road, and perhaps most important, he argues that with the increasing complexity of our technological advances--from nuclear reactors to genetic engineering--the number of things that can go wrong multiplies, making it increasingly difficult to engineer risk out of the equation. Citing such catastrophes as Bhopal, Three Mile Island, the Exxon Valdez, the Challenger, and Chernobyl, he argues that it is time to rethink our approach to technology. The days are gone when machines were solely a product of larger-than-life inventors and hard-working engineers. Increasingly, technology will be a joint effort, with its design shaped not only by engineers and executives but also psychologists, political scientists, management theorists, risk specialists, regulators and courts, and the general public." [oc-ki]

Rand, T. (2020) *The Case for Climate Capitalism: Economic Solutions for a Planet in Crisis*. ECW Press. "A warming climate and a general distrust of Wall Street has opened a new cultural divide among those who otherwise agree we must mitigate climate risk: anti-market critics such as Naomi Klein target capitalism itself as a root cause of climate change while climate-savvy business leaders believe we can largely continue with business as usual by tinkering around the edges of our economic system. Rand argues that both sides in this emerging cultural war are ill-equipped to provide solutions to the climate crisis, and each is remarkably naïve in their view of capitalism. On one hand, we cannot possibly transition off fossil fuels without the financial might and entrepreneurial talent market forces alone can unlock. On the other, without radical changes to the way markets operate, capitalism will take us right off the climate cliff. Rejecting the old Left/Right ideologies, Rand develops a more pragmatic view capable of delivering practical solutions to this critical problem. A renewed capitalism harnessed to the task is the only way we might replace fossil fuels fast enough to mitigate severe climate risk. If we leave our dogma at the door, Rand argues, we might just build an economy that survives the century." [ki, \$10]

Rifkin, J. (2019) *The Green New Deal: Why the Fossil Fuel Civilization Will Collapse by 2028, and the Bold Economic Plan to Save Life on Earth*. St. Martin's. "A new vision for America's future is quickly gaining momentum. Facing a global emergency, a younger generation is spearheading a national conversation around a Green New Deal and setting the agenda for a bold political movement with the potential to revolutionize society. Millennials, the largest voting bloc in the country, are now leading on the issue of climate change. While the Green New Deal has become a lightning rod in the political sphere, there is a parallel movement emerging within the business community that will shake the very foundation of the global economy in coming years. Key sectors of the economy are fast-decoupling from fossil fuels in favor of ever cheaper solar and wind energies and the new business opportunities and employment that accompany them. New studies are sounding the alarm that trillions of dollars in stranded fossil fuel assets could create a carbon bubble likely to burst by 2028, causing the collapse of the fossil fuel civilization. The marketplace is speaking, and governments will need to adapt if they are to survive and prosper. In *The Green New Deal*, New York Times bestselling author and renowned economic theorist Jeremy Rifkin delivers the political narrative and economic plan for the Green New Deal that we

need at this critical moment in history. The concurrence of a stranded fossil fuel assets bubble and a green political vision opens up the possibility of a massive shift to a post-carbon ecological era, in time to prevent a temperature rise that will tip us over the edge into runaway climate change. With twenty-five years of experience implementing Green New Deal–style transitions for both the European Union and the People’s Republic of China, Rifkin offers his vision for how to transform the global economy and save life on Earth.” [ki, \$15]

Ritchey, T. (2011). *Wicked problems—social messes: Decision support modelling with morphological analysis* (Vol. 17). Springer Science & Business Media. “This is the first dedicated book to be published on computer-aided General Morphological Analysis (GMA) as a non-quantified modelling method. It presents the history and theory of GMA and describes how it is used to develop interactive, non-quantified inference models. Eleven case studies are presented out of more than 100 projects carried out since 1995, illustrating how GMA has been employed for structuring complex policy and planning issues, developing scenario and strategy laboratories, and analysing organisational and stakeholder structures. Also discussed are the concepts of “wicked problems” and “social messes”, their characteristics and treatment, and problems concerning the facilitation of morphological analysis workshops.” [oc-ki]

Rogers, Everett M. (2003) *Diffusion of Innovations*, fifth edition. New York: Free Press. “In this renowned book, Everett M. Rogers, professor and chair of the Department of Communication & Journalism at the University of New Mexico, explains how new ideas spread via communication channels over time. Such innovations are initially perceived as uncertain and even risky. To overcome this uncertainty, most people seek out others like themselves who have already adopted the new idea. Thus the diffusion process consists of a few individuals who first adopt an innovation, then spread the word among their circle of acquaintances—a process which typically takes months or years. But there are exceptions: use of the Internet in the 1990s, for example, may have spread more rapidly than any other innovation in the history of humankind. Furthermore, the Internet is changing the very nature of diffusion by decreasing the importance of physical distance between people. The fifth edition addresses the spread of the Internet, and how it has transformed the way human beings communicate and adopt new ideas.” [oc-Ko]

Rosenthal, D. B. (1989). *Science education*, 73(5), 581-589. “Science policy studies and the social studies of science are two ways to approach science-technology-society (STS) education. This paper applies the two perspectives to STS education and explores the implications of the two approaches for the domain of STS education and the relationship to science education.” [request?]

Savoie, D.J. (2015) *What is Government Good at? A Canadian Answer*. McGill-Queen’s University Press. “Recent decades have shown the public's support for government plummet alongside political leaders’ credibility. This downward spiral calls for an exploration of what has gone wrong. The questions, “What is government good at?” and “What is government not good at?” are critical ones - and their answers should be the basis for good public policy and public administration. In *What Is Government Good At?*, Donald Savoie argues that politicians and public servants are good at generating and avoiding blame, playing to a segment of the population to win the next election, embracing and defending the status quo, adding management layers and staff, keeping ministers out of trouble, responding to demands from the prime minister and his office, and managing a complex, prime minister-centred organization. Conversely, they are not as good at defining the broader public interest, providing and recognizing evidence-based policy advice, managing human and financial resources with efficiency and frugality, innovating and reforming itself, being accountable to Parliament and to citizens, dealing with non-performers, paying

sufficient attention to service delivery, and implementing and evaluating the impact of policies and programs. With wide implications for representative democracy, *What Is Government Good At?* is a persuasive analysis of an approach to government that has opened the door to those with the resources to influence policy and decision-making while leaving average citizens on the outside looking in." [oc-ki]

- Savoie, D. J. (2013). *Whatever happened to the music teacher? How government decides and why.* McGill-Queen's Press-MQUP. "Thirty years ago, Anglo-American politicians set out to make the public sector look like the private sector. These reforms continue today, ultimately seeking to empower elected officials to shape policies and pushing public servants to manage operations in the same manner as their private-sector counterparts. In *Whatever Happened to the Music Teacher?*, Donald Savoie provides a nuanced account of how the Canadian federal government makes decisions. Savoie argues that the traditional role of public servants advising governments on policy has been turned on its head, and that evidence-based policy making is no longer valued as it once was. Policy making has become a matter of opinion, Google searches, focus groups, and public opinion surveys, where a well-connected lobbyist can provide any answers politicians wish to hear. As a result, public servants have lost their way and are uncertain about how they should assess management performance, how they should generate policy advice, how they should work with their political leaders, and how they should speak truth to political power - even within their own departments. Savoie demonstrates how recent management reforms in government have caused a steep rise in the overhead cost of government, as well as how the notion that public administration could be made to operate like the private sector has been misguided and costly to taxpayers. Abandoning "textbook" discussions of government and public service, *Whatever Happened to the Music Teacher?* is a realistic portrayal of how policy decisions are made and how actors and institutions interact with one another and exposes the complexities, contradictions present in Canadian politics and governance." [oc-ko]
- Scott, J. C. (1998). *Seeing like a state: How certain schemes to improve the human condition have failed.* Yale University Press. "Hailed as "a magisterial critique of top-down social planning" by the New York Times, this essential work analyzes disasters from Russia to Tanzania to uncover why states so often fail—sometimes catastrophically—in grand efforts to engineer their society or their environment, and uncovers the conditions common to all such planning disasters." [oc-ki]
- Sen, G. (1984). *The military origins of industrialisation and international trade rivalry.* London: Pinter. As I recall, Sen looked at paper, textile, steel, and shipbuilding – all related to government and military power. Governments of 17th and 18th century Europe had to fund these industries to supply their armies with uniforms, weapons, and ships. Initial rivalry was not so much in pursuit of markets, but in pursuit of supplies. [oc-p,k]
- Smardon, Bruce. 2014. *Asleep at the Switch: The Political Economy of Federal Research and Development Policy since 1960.* Kingston: McGill-Queen's. [This was a text for POE234] "Since 1960, Canadian industry has lagged behind other advanced capitalist economies in its level of commitment to research and development. *Asleep at the Switch* explains the reasons for this underperformance, despite a series of federal measures to spur technological innovation in Canada. Bruce Smardon argues that the underlying issue in Canada's longstanding failure to innovate is structural and can be traced to the rapid diffusion of American Fordist practices into the manufacturing sector of the early twentieth century. Under the influence of Fordism, Canadian industry came to depend heavily on outside sources of new technology, particularly from the United States. Though this initially brought in substantial foreign capital and led to rapid economic development, the resulting branch-plant industrial structure led to the

prioritization of business interests over transformative and innovative industrial strategies. This situation was exacerbated in the early 1960s by the Glassco framework, which assumed that the best way for the federal state to foster domestic technological capacity was to fund private sector research and collaborative strategies with private capital. Remarkably, and with few results, federal programs and measures continued to emphasize a market-oriented approach. Asleep at the Switch details the ongoing attempts by the federal government to increase the level of innovation in Canadian industry but shows why these efforts have failed to alter the pattern of technological dependency.” [oc-ki,ko]

Snow, C. P. (1960, 2013). *Science and government*. Harvard University Press. “Science and Government is a gripping account of one of the great scientific rivalries of the twentieth century. The antagonists are Sir Henry Tizard, a chemist from Imperial College, and Frederick Lindemann (Lord Cherwell), a physicist from the University of Oxford. The scientist-turned-novelist Charles Percy Snow tells a story of hatred and ambition at the top of British science, exposing how vital decisions were made in secret and sometimes with little regard to truth or the prevailing scientific consensus. Tizard, an adviser to a Labor government, believed the air war against Nazi Germany would be won by investing in the new science of radar. Lindemann favored bombing the homes of German citizens. Each man produced data to support his case, but in the end, what mattered was politics. When Labor was in power, Tizard’s view prevailed. When the Conservatives returned, Lindemann, who was Winston Churchill’s personal adviser, became untouchable. Snow’s 1959 “Two Cultures” Rede Lecture propelled him to worldwide fame. *Science and Government*, originally the 1960 Godkin Lectures at Harvard, has been largely forgotten. Today the space occupied by scientists and politicians is much more contested than it was in Snow’s time, but there remains no better guide to it than Snow’s dramatic narrative.” [oc-ki] see also F.R. Leavis (1962) and Tallis et al (2011).

Snow, C. P. (1959). [The rede lecture. The two cultures](#), 1-51. Cambridge University Press. “...I believe the intellectual life of the whole of western society is increasingly being split into two polar groups. When I say the intellectual life, I mean to include also a large part of our practical life, because I should be the last person to suggest the two can at the deepest level be distinguished. I shall come back to the practical life a little later. Two polar groups: at one pole we have the literary intellectuals... at the other scientists, and as the most representative, the physical scientists. Between the two a gulf of mutual incomprehension—sometimes (particularly among the young) hostility and dislike, but most of all lack of understanding. They have a curious distorted image of each other...” liff from kindle: “The notion that our society, its education system and its intellectual life, is characterised by a split between two cultures – the arts or humanities on one hand and the sciences on the other – has a long history. But it was C. P. Snow's Rede lecture of 1959 that brought it to prominence and began a public debate that is still raging in the media today. This fiftieth anniversary printing of *The Two Cultures* and its successor piece, *A Second Look* (in which Snow responded to the controversy four years later) features an introduction by Stefan Collini, charting the history and context of the debate, its implications and its afterlife. The importance of science and technology in policy run largely by non-scientists, the future for education and research, and the problem of fragmentation threatening hopes for a common culture are just some of the subjects discussed.” [ok-ki]

Snow, R. E. (1987). Core concepts for science and technology literacy. *Bulletin of Science, Technology, & Society*, 7, 720-729. <http://files.eric.ed.gov/fulltext/ED309996.pdf#page=160> . Snow makes ten claims about science: related to observation, experiment, and theory (S1-S4); related to sociological factors (S5-S8); related to values (S9-S10). These ten propositions suggest limits to

science: at best, scientific knowledge is uncertain; results are revised through a sociological process mainly by colleagues with similar scientific interests; and values play a variety of essential roles in every stage of scientific research. Snow then turns to technology, and similarly suggests ten propositions about technology systems: the historical view (T1-T6) and the current situation (T7-T10). Turning to values, he points to the unavoidable values content of any scientific claim. The value maps are complex but illustrate the different content of science and technology.

Solomon, B., & Penney, C. E. (2019). Canadian defence industrial base. Chapter 21 in Keith Hartley and Jean Belin, eds, *The Economics of the Global Defence Industry*. Routledge. [maybe ask Ugurhan for this chapter?]

Solomon, J. (1988a). Science technology and society courses: Tools for thinking about social issues. *International Journal of Science Education*, 10(4), 379-387. "It is argued that the study of Science, Technology and Society (STS) has emerged as a discipline with a discernible history and development. Although this has been slightly different in different countries it now seems to confer upon STS the elements of a structure in its own right, as well as a rationale. This article attempts to clarify those aspects of science, of technology, and of social decision-making, which are necessary for this kind of study to be both coherent and to fulfill the aspirations of the curriculum developers. These aspects are delineated clearly enough to be used as tools to evaluate either a course in STS, or the relative success of the students engaged in its study. In the final part of the paper these evaluative tools are used to reflect on the results of some 16-17 year old British students who have completed an STS course. It is shown that their skills of social understanding and empathy are far greater than their knowledge about scientific explanation or about the social nature of technology." This seems to reflect the British experience of the decades following the 'two cultures' debate.

Solomon, J. (1988b). The dilemma of science, technology and society education. *Development and dilemmas in science education*, 266-281. <http://files.eric.ed.gov/fulltext/ED309081.pdf#page=281> [Pdf is whole book] Note that this is mainly for British UG students. First part of the chapter traces the influences for the introduction of STS courses, including seven possible approaches to teaching STS at tertiary (post-secondary) level. External pressures of politics and educational theory influence curriculum development [e.g. the two cultures debate and back-lash]. There's some confusion about what the STS courses are expected to achieve [Solomon, 1988a, empathy vs scientific understanding, reflecting teaching by arts about sciences?]. The second part of the chapter concerns student reception of knowledge, classroom strategies, and impact on perceptions of science and society.

Srnicek, N. (2017) *Platform Capitalism*. Polity. "What unites Google and Facebook, Apple and Microsoft, Siemens and GE, Uber and Airbnb? Across a wide range of sectors, these firms are transforming themselves into platforms: businesses that provide the hardware and software foundation for others to operate on. This transformation signals a major shift in how capitalist firms operate and how they interact with the rest of the economy: the emergence of 'platform capitalism'. This book critically examines these new business forms, tracing their genesis from the long downturn of the 1970s to the boom and bust of the 1990s and the aftershocks of the 2008 crisis. It shows how the fundamental foundations of the economy are rapidly being carved up among a small number of monopolistic platforms, and how the platform introduces new tendencies within capitalism that pose significant challenges to any vision of a post-capitalist future. This

book will be essential reading for anyone who wants to understand how the most powerful tech companies of our time are transforming the global economy." [oc-ki]

- Sternberg, R. J., & Davidson, J. E. (1995). *The nature of insight*. The MIT Press. (for Dunbar, ch. 18)
"Brings together diverse perspectives on the nature and origins of insightful thinking and examines the history of theory and research on the topic. Contributors draw on aspects of experimental psychology, cognitive science, and social history to look at creative puzzle-solving, the mental processes behind new inventions, and the thinking of some of the most insightful people in history, and consider metaphors such as evolution and investment as bases for understanding insight" [na-e]
- Stone, J. C. (2020). [Defence Procurement Offsets and Their Economic Value in Canada](#). The Forum (CDAI blog) (Vol. 2019). "The government makes the argument in its Industrial and technical benefits (ITB) policy that the policy will leverage the significant investments in defence to support the long-term sustainability and growth of Canada's defence industry the growth of bidders' Canadian operations as well as their suppliers in Canada, including SMBs in all regions of the country; enhancement of innovation through research and development (R&D) in Canada; increase the export potential of Canadian-based firms; and promotes skills development and training to advance employment opportunities for Canadians".
- Stone, J. C., & Solomon, B (2005). [Canadian defence policy and spending](#). *Defence and Peace Economics*, 16(3), 145-169. Abstract: "This survey article deals with defence policy, spending and the industrial base in Canada since the Second World War. In particular, the macroeconomic realities underpinning defence expenditure patterns as well as the unique microeconomic conditions affecting the Canadian defence industrial base are highlighted."
- Stone, J.C. and Solomon, B. (2019) *The Political Economy of Defence*. In Juneau, T., P. Lagassé, S. Vucetic (2019) *Canadian Defence Policy in theory and practice*. Palgrave-MacMillan. Especially loc. 3503 defence procurement market. This is a good source for time series data on defence expenditure and composition of defence budget, personnel, capital, and O&M. See figure 9.6 on defence procurement roles of cabinet committees. "This chapter has discussed the political economy of defence by examining the interplay between the fiscal and economic environment that constrains defence spending, domestic politics, and how these relationships influence military procurement and the defence industrial base. Canada is not unique in trying to balance these competing demands. Although always nationally specific, the challenges facing all democratically elected governments in balancing the multiple demands in creating military capabilities for their national security is far more complex and politically sensitive than most people believe." [oc-ki]
- Standing, G. (2014). *The Precariat-The new dangerous class*. *Amalgam*, 6(6-7), 115-119. "This book presents the Precariat – an emerging class, comprising the rapidly growing number of people facing lives of insecurity, moving in and out of jobs that give little meaning to their lives. Guy Standing argues that this class is producing instabilities in society. Although it would be wrong to characterise members of the Precariat as victims, many are frustrated and angry. The Precariat is dangerous because it is internally divided, leading to the villainisation of migrants and other vulnerable groups. Lacking agency, its members may be susceptible to the siren calls of political extremism. To prevent a 'politics of inferno', Guy Standing argues for a 'politics of paradise', in which redistribution and income security are reconfigured in a new kind of Good Society, and in which the fears and aspirations of the Precariat are made central to a progressive strategy." [oc-ki]

- Tallis, R., R. Kimball, F. Furedi, R. Whelan (2011) *From Two Cultures to No Culture: C. P. Snow's Two Cultures Lecture Fifty Years On*. Civitas. "In 1959 C.P. Snow delivered the annual Rede Lecture in Cambridge under the title of 'The Two Cultures and the Scientific Revolution'. Snow warned of a gap that had opened up between scientists and the 'literary intellectuals' that made it almost impossible for the two groups to communicate. Snow complained that literary intellectuals were not only ignorant of science but contemptuous of it, as if scientific knowledge were unnecessary for a good education. Snow believed that improvements in the teaching of science were required in order to address the world's greatest problems, and that both the USA and the USSR were ahead of Britain in that respect. Snow spoke with the authority of a man with a foot in both camps, as a trained research scientist and a successful novelist, and his lecture provoked worldwide coverage. However, in 1962 it received an extraordinary response from the influential literary critic F.R. Leavis, who delivered an attack on Snow of unprecedented ferocity. The Snow/Leavis controversy has provoked debate ever since between the supporters of both men's positions as to the real purpose of education. Should science or the humanities be given precedence? Should education aim at the moral formation of the individual or address the world's practical problems? This volume contains two of the most articulate expositions of each point of view, by Roger Kimball and Raymond Tallis. Frank Furedi considers the implications of Snow's lecture for the current education debate, while Robert Whelan argues that the choice is no longer between two cultures but between an education system based on academic rigour and no culture at all." see also Leavis, 1962; Snow, 1959. [oc-ki]
- Turner, Chris, (2013). *The War on Science: Muzzled Scientists and Wilful Blindness in Stephen Harpers Canada*. Toronto: Greystone Books. "A passionate and meticulously researched argument against the Harper government's war on science. In this arresting and passionately argued indictment, award-winning journalist Chris Turner contends that Stephen Harper's attack on basic science, science communication, environmental regulations, and the environmental NGO community is the most vicious assault ever waged by a Canadian government on the fundamental principles of the Enlightenment. From the closure of Arctic research stations as oil drilling begins in the High Arctic to slashed research budgets in agriculture, dramatic changes to the nation's fisheries policy, and the muzzling of government scientists, Harper's government has effectively dismantled Canada's long-standing scientific tradition. Drawing on interviews with scientists whose work has been halted by budget cuts and their colleagues in an NGO community increasingly treated as an enemy of the state, *The War on Science* paints a vivid and damning portrait of a government that has abandoned environmental stewardship and severed a nation." [ki \$15]
- Urquhart, Ian (2018) *Costly Fix: Power, Politics, and Nature in the Tar Sands*. University of Toronto Press. "Costly Fix examines the post-1995 Alberta tar sands boom, detailing how the state inflated the profitability of the tar sands and turned a blind eye to environmental issues. It considers the position of First Nations, the character and strength of environmental critiques, and the difficulties that environmental groups and First Nations have had in establishing a countermovement to market fundamentalism. The final chapter discusses how Alberta's new NDP government, in its first couple of years, has addressed the legacies they have inherited from the previous Progressive Conservative government on climate change, royalties, and the blight of tailings ponds in the boreal forest. Throughout the book, Urquhart demonstrates that too many actors have done too little to prevent Alberta's boreal forest from becoming a landscape sacrificed for unsustainable economic growth. [ki, \$18]

- Vega, G., & Brennan, L. (2000). [Isolation and technology: The human disconnect](#). Journal of Organizational Change Management. "Management control over production has often meant control over one means of production: people. There is evidence of the use of social isolation to control human behavior throughout recorded history. Traces the development of social isolation through the multiple lenses of management, economics, psychology, sociology, engineering technology, social psychology, and communication science and presents a taxonomy of perspectives for discussion. The taxonomy is further elucidated through the assignment and distribution of 13 organizational factors for both the objective state and subjective feelings of social isolation as linked to advances in telecommuting and other off-site "open collar" work."
- Victor, Peter A. (2019) *Managing Without Growth: Slower by Design, Not Disaster*. Elgar. "Ten years after the publication of the first edition of this influential book, the evidence is even stronger that human economies are overwhelming the regenerative capacity of the planet. This book explains why long-term economic growth is infeasible, and why, especially in advanced economies, it is also undesirable. Simulations based on real data show that managing without growth is a better alternative. The book tells how the recent idea of economic growth emerged from the idea of progress, itself only a few hundred years old. Many reasons for questioning growth are given based on an extensive review of the data as well as on conceptual and methodological considerations. The experience of growth in several countries is documented, compared and found wanting. Possibilities for managing without growth in high income economies are simulated with a new, comprehensive systems model with many novel features. Three 50 year scenarios are compared: a base case, an ambitious greenhouse gas reduction scenario, and a sustainable prosperity scenario with broader environmental objectives, reduced income inequality, shorter working hours and the cessation of economic growth. The book closes with a review of policies to make this scenario a reality. This updated book is a valuable resource for a broad academic audience, including students and researchers in economics, environmental studies, environmental science, business studies, and geography, as well as social justice groups and NGOs concerned with the environment, inequality and employment." [na-e, \$73]
- Wainwright, J., & Mann, G. (2018). *Climate Leviathan: A political theory of our planetary future*. Verso Books. Despite the science and the summits, leading capitalist states have not achieved anything close to an adequate level of carbon mitigation. There is now simply no way to prevent the planet breaching the threshold of two degrees Celsius set by the Intergovernmental Panel on Climate Change. What are the likely political and economic outcomes of this? Where is the overheating world heading? To further the struggle for climate justice, we need to have some idea how the existing global order is likely to adjust to a rapidly changing environment. *Climate Leviathan* provides a radical way of thinking about the intensifying challenges to the global order. Drawing on a wide range of political thought, Joel Wainwright and Geoff Mann argue that rapid climate change will transform the world's political economy and the fundamental political arrangements most people take for granted. The result will be a capitalist planetary sovereignty, a terrifying eventuality that makes the construction of viable, radical alternatives truly imperative." [ki-\$10]
- Wallace-Wells, D. (2020). *The uninhabitable earth: Life after warming*. Tim Duggan Books. "It is worse, much worse, than you think. If your anxiety about global warming is dominated by fears of sea-level rise, you are barely scratching the surface of what terrors are possible—food shortages, refugee emergencies, climate wars and economic devastation. An "epoch-defining book" (The Guardian) and "this generation's Silent Spring" (The Washington Post), *The Uninhabitable Earth*

is both a travelogue of the near future and a meditation on how that future will look to those living through it—the ways that warming promises to transform global politics, the meaning of technology and nature in the modern world, the sustainability of capitalism and the trajectory of human progress. The Uninhabitable Earth is also an impassioned call to action. For just as the world was brought to the brink of catastrophe within the span of a lifetime, the responsibility to avoid it now belongs to a single generation—today's." [oc-ki]

Waterstone, Marvin (1992). *Risk and Society: The Interaction of Science, Technology and Public Policy* Vol. 6. Springer Science & Business Media. "Life in the last quarter of the twentieth century presents a baffling array of complex issues. The benefits of technology are arrayed against the risks and hazards of those same technological marvels (frequently, though not always, arising as side effects or by-products). This confrontation poses very difficult choices for individuals as well as for those charged with making public policy. Some of the most challenging of these issues result because of the ability of technological innovation and deployment to outpace the capacity of institutions to assess and evaluate implications. In many areas, the rate of technological advance has now far outstripped the capabilities of institutional monitoring and control. While there are many instances in which technological advance occurs without adverse consequences (and in fact, yields tremendous benefits), frequently the advent of a major innovation brings a wide array of unforeseen and (to some) undesirable effects. This problem is exacerbated as the interval between the initial development of a technology and its deployment is shortened, since the opportunity for cautious appraisal is decreased." [Ki, \$168]

Weimer, D. L., & Vining, A. R. (2017). *Policy analysis: Concepts and practice*. Taylor & Francis.

Weiss, L. (2014) *America Inc.? Innovation and Enterprise in the National Security State*. Ithaca, NY: Cornell University Press. "For more than half a century, the United States has led the world in developing major technologies that drive the modern economy and underpin its prosperity. Linda Weiss attributes the U.S. capacity for transformative innovation to the strength of its national security state, a complex of agencies, programs, and hybrid arrangements that has developed around the institution of permanent defense preparedness and the pursuit of technological supremacy. In *America Inc.?* she examines how that complex emerged and how it has evolved in response to changing geopolitical threats and domestic political constraints, from the Cold War period to the post-9/11 era. Weiss focuses on state-funded venture capital funds, new forms of technology procurement by defense and security-related agencies, and innovation in robotics, nanotechnology, and renewable energy since the 1980s. Weiss argues that the national security state has been the crucible for breakthrough innovations, a catalyst for entrepreneurship and the formation of new firms, and a collaborative network coordinator for private-sector initiatives. Her book appraises persistent myths about the military-commercial relationship at the core of the National Security State. Weiss also discusses the implications for understanding U.S. capitalism, the American state, and the future of American primacy as financialized corporations curtail investment in manufacturing and innovation."

Williams, Trevor I. (2003) *A history of invention, from stone axes to silicon chips*. London: Time Warner. [used for HIE289] "Profiles the history of invention from the first crude stone ax head to the latest achievements in biotechnology, including a biographical dictionary of the individuals responsible for these discoveries." [na-e]

Wilson, E. O. (1999). *Consilience: The unity of knowledge* (Vol. 31). Vintage. "One of our greatest living scientists--and the winner of two Pulitzer Prizes for *On Human Nature* and *The Ants*--gives us a work of visionary importance that may be the crowning achievement of his career. In *Consilience* (a word that originally meant "jumping together"), Edward O. Wilson renews the Enlightenment's

search for a unified theory of knowledge in disciplines that range from physics to biology, the social sciences and the humanities. Using the natural sciences as his model, Wilson forges dramatic links between fields. He explores the chemistry of the mind and the genetic bases of culture. He postulates the biological principles underlying works of art from cave-drawings to Lolita. Presenting the latest findings in prose of wonderful clarity and oratorical eloquence, and synthesizing it into a dazzling whole, *Consilience* is science in the path-clearing traditions of Newton, Einstein, and Richard Feynman. " [oc-ki] [Book Review](#)

Wittes, Benjamin. 2015. *The Future of Violence: Robots and Germs, Hackers and Drones—Confronting A New Age of Threat*. New York: Basic Books. "Two legal scholars explore the security and political implications of revolutionary new technologies from drones to 3-D printers, and explain how governments must adapt to our brave new world of dispersed threats. From drone war in the Middle East to digital spying by the National Security Agency, the U.S. government has harnessed the power of cutting-edge technology to awesome effect. But what happens when ordinary people have the same tools at their fingertips? Advances in cyber technology, biotechnology, and robotics mean that more people than ever before have access to potentially dangerous technologies—from drones to computer networks and biological agents—which could be used to attack states and private citizens alike. In *The Future of Violence*, law and security experts Benjamin Wittes and Gabriella Blum detail the myriad possibilities, challenges, and enormous risks present in the modern world, and argue that if our national governments can no longer adequately protect us from harm, they will lose their legitimacy. Consequently, governments, companies, and citizens must rethink their security efforts to protect lives and liberty. In this brave new world where many little brothers are as menacing as any Big Brother, safeguarding our liberty and privacy may require strong domestic and international surveillance and regulatory controls. Maintaining security in this world where anyone can attack anyone requires a global perspective, with more multinational forces and greater action to protect (and protect against) weaker states who do not yet have the capability to police their own people. Drawing on political thinkers from Thomas Hobbes to the Founders and beyond, Wittes and Blum show that, despite recent protestations to the contrary, security and liberty are mutually supportive, and that we must embrace one to ensure the other. *The Future of Violence* is at once an introduction to our emerging world—one in which students can print guns with 3-D printers and scientists' manipulations of viruses can be recreated and unleashed by ordinary people—and an authoritative blueprint for how government must adapt in order to survive and protect us." [oc-ki]

Zolli, A. and Healy, A. (2012) *Resilience: Why Things Bounce Back*. Free Press. "What causes one system to break down and another to rebound? Are we merely subject to the whim of forces beyond our control? Or, in the face of constant disruption, can we build better shock absorbers—for ourselves, our communities, our economies, and for the planet as a whole? Reporting firsthand from the coral reefs of Palau to the back streets of Palestine, Andrew Zolli and Ann Marie Healy relate breakthrough scientific discoveries, pioneering social and ecological innovations, and important new approaches to constructing a more resilient world. Zolli and Healy show how this new concept of resilience is a powerful lens through which we can assess major issues afresh: from business planning to social development, from urban planning to national energy security—circumstances that affect us all. Provocative, optimistic, and eye-opening, *Resilience* sheds light on why some systems, people, and communities fall apart in the face of disruption and, ultimately, how they can learn to bounce back." [oc-ki]

Zuboff, S. (2019). *The age of surveillance capitalism: The fight for a human future at the new frontier of power*. Profile Books. "In this masterwork of original thinking and research, Shoshana Zuboff

provides startling insights into the phenomenon that she has named surveillance capitalism. The stakes could not be higher: a global architecture of behavior modification threatens human nature in the twenty-first century just as industrial capitalism disfigured the natural world in the twentieth. Zuboff vividly brings to life the consequences as surveillance capitalism advances from Silicon Valley into every economic sector. Vast wealth and power are accumulated in ominous new "behavioral futures markets," where predictions about our behavior are bought and sold, and the production of goods and services is subordinated to a new "means of behavioral modification." The threat has shifted from a totalitarian Big Brother state to a ubiquitous digital architecture: a "Big Other" operating in the interests of surveillance capital. Here is the crucible of an unprecedented form of power marked by extreme concentrations of knowledge and free from democratic oversight. Zuboff's comprehensive and moving analysis lays bare the threats to twenty-first century society: a controlled "hive" of total connection that seduces with promises of total certainty for maximum profit--at the expense of democracy, freedom, and our human future. With little resistance from law or society, surveillance capitalism is on the verge of dominating the social order and shaping the digital future--if we let it." [oc-ki]