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BOOK REVIEW

VAN LENTE, D. (Ed.). Prophets of Computing. Visions of Society Transformed by Computing. [ACM Books, Vol. 50.] Association for Computing Machinery, s.l. 2022. xviii, 537 pp. Ill. $80.00. (Paper: $60.00; E-book: $48.00.)

Prophets of Computing: Visions of Society Transformed by Computing (2022) is a rich and rewarding compilation of global computer history essays. Editor Dick van Lente and a diverse group of historians take the reader on a fascinating tour of thirteen different national, political-economic, and cultural environments where the early decades of mainframe, micro, and networked computing were enacted and experienced differently across the world from the 1950s through the 1980s.

Inspired by a session at the annual Society for the History of Technology conference in 2017 – and following a successful pattern set by a previous volume, in the same style, also edited by Van Lente, *The Nuclear Age in Popular Media* (2012) – this baker's dozen of case studies is a remarkable achievement of comparative research and scholarly cooperation (especially considering that the range of primary and secondary source material incorporates nine different languages). This sprawling meta-narrative is united by a shared and consistent grounding in the recent literature of science and technology studies – and by authors who, clearly, actually considered each other's work and finalized their essays in dialogue with each other. As a whole, the volume is a model example of modern computing and information scholarship, of interest to researchers and advanced students alike.

As Van Lente points out in his introduction, this compendium builds upon previous comparative works in computing history, which have concentrated less on narrative and meaning and more on statistics and data. For example, James Cortada's *The Digital Flood* (2012), which, in Lente's analysis, "has been a rich source for the present collection" but is differentiated by viewing computing as primarily a managerial solution to the so-called "crisis of control" in modern, bureaucratic, global capitalism, rather than also a moment of imaginative and inspirational dreaming about future society (p. 19). Indeed, much of the research in *Prophets of Computing* rests on textual analysis of press accounts, government reports, popular advertisements, and even science fiction literature – from the work of classic authors like Poland's Stanislav Lem (*The Book of Robots*, 1961) to the impact of contemporary authors like China's Liu Cixin (*The Three Body Problem*, 2014).

While united in their focus on the "computer imagination", each article pursues a different analytical strategy. Some center on fascinating biographies of key actors who are themselves transnational migrants and brokers – like David Schmudde's profile of Jack Tramiel, the entrepreneur behind the wildly popular Commodore 64 microcomputer. Others focus on the intersections of political philosophy, institutional management, and state power – like Martin Schmitt's comparison of how two parallel banking industries in East and West Germany adopted and

interpreted computing technology while on opposite sides of the Cold War. However, in each of the case studies, the "prophets", whose voices dominate, are those innovating and advocating in the engineering, entrepreneurial, academic, political, or promotional domains in order to bring the new technology of computing into their local contexts. In other words, none of these are stories of consumer reception, end-user experience, or activist repurposing of that technology.

The saga that emerges from the twelve essays bracketed by Van Lente's introduction and conclusion is told in three main acts: (1) the way that nations and markets on either side of the Iron Curtain responded to the promise of computing during the Cold War; (2) the way that countries and cultures outside of the US responded to the growing dominance of America in computer hardware and software markets; and (3) the beginning of the postindustrial period since the 1960s when the growing IT-based services and analysis economy itself helped to change the conditions and consequences for transnational, networked capitalist political-economy. What ties these acts together is the overriding script of twentieth-century post-war modernization. As Van Lente observes: "All major twentieth-century ideologies, perhaps with the exception of Christian democracy, have claimed to be modern, that is, setting out a course toward a social order superior to the current one, as well as to the futures envisioned by rival ideologies" (p. 17).

This modernization project, as the essays in this volume illustrate so well, has always been a transnational and relational one. For example, Ksenia Tatarchenko's chapter on the way that the imagery of computational futures circulated within and between the US and the USSR during the Cold War finds a fascinating point of connection in the lively illustrations of anthropomorphized computers by Russian-born Boris Artzybasheff, which graced the cover of *Time* magazine in both 1950 and 1965 – bracketing a crucial fifteen years when this technology took its first steps into major capitalist businesses and major state bureaucracies in both nations. Tatarchenko traces how "[t]he *Time* illustrations traveled back to the socialist country he had left behind to be integrated into Soviet discourses about the promises of these new computing machines" (p. 49). Another surprising connection revealed by the authors is the network of influence not across the geopolitical US/USSR affiliations of the Cold War, but culturally and regionally across East Asia. Chapters focusing on the development of computer modernization narratives in China (by Gianluigi Negro and Wang Hongzhe), Japan (by Hirofumi Utsumi and Yoshinobu Takazakura), and South Korea (by Dongwon Jo) note the ways these imaginaries borrowed from and influenced each other, despite very different market and policy environments – such as the concept of "Computopia", popularized in a 1969 Japanese book but taking root in both Korea and China, "suggesting that computers would bring about a radiant future" (p. 399).

In the end, though, Van Lente seems to suggest that the diversity of local variations on the development and deployment of information technology for state, business, and personal purposes never really outweighed the universal (and somewhat paradoxical) utopian/dystopian narrative of computers as both a fount of automated economic progress and a force of dehumanizing alienation. One explanation, Van Lente argues, is that: "'Modernization,' and its equivalent

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'development,' were key terms, worldwide, of political discourse during the early postwar decades" (p. 461). As Van Lente notes, this was,

> a flexible ideology that served various powerful interests: of geopolitical ambitions, of electronics firms competing for markets, of researchers competing for government funds and prestigious jobs, of military officers lobbying for investments in the latest missiles and guidance systems, of managers in all kinds of companies who wanted to get rid of as many workers as possible, and of politicians who wanted to project a modern, savvy image of themselves and of their nation (p. 463).

This shared modernization project, Van Lente writes, resulted in "a measure of technological determinism, working on a global scale" (p. 471) in terms of how computers were envisioned and employed, despite local cultural and historical differences. But while this is a familiar story – substitute "the automobile" for "the computer" in global comparative analysis and the technological determinism thesis works just as well – it is also a somewhat dissatisfying conclusion. Perhaps a theoretical perspective from economic, political, or cultural geographers might help make sense of the computing origin stories told by these historians. After all, this was the time period when Saskia Sassen (1994) pointed to rising global cities, Peter Dicken (1992) mapped out developing nodes of foreign direct investment and free trade, and Manuel Castells (1996) theorized transnationally networked "spaces and places of flows" existing everywhere and nowhere all at once. Any study of how computing was developed, deployed, and imagined in different sites around the globe in the postwar period needs to reckon with the fact that the very space and time parameters of global political economy, society, and culture were simultaneously in flux during this period – an environment of unprecedented "time-space compression", in the words of David Harvey (1990), in large part due to the capabilities (and limitations) of that computer technology itself.

What the apparent technological determinism dimension of these stories really reveals, Van Lente concludes, is that, in case after case around the world, "computing, embedded in existing power relations, reinforced existing inequalities" (p. 472). That, I think, is the most promising direction for further analysis building on this work – especially given the next round of global computing, perched at the precipice of generative AI systems, which treat all of the world's digitized cultural production as their private, autonomous machine-learning data set, while simultaneously demanding constant human reinforcement training from some of the most contingent, devalued, and invisible IT workers on the planet. The findings offered by this rich and well-documented historical volume offer much for scholars looking to integrate today's diverse local stories of computational promise and peril into a new coherent global narrative.

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