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CHIP WAR: THE FIGHT FOR THE WORLD'S MOST CRITICAL TECHNOLOGY BY CHRIS MILLER

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Chris Miller's *Chip War: The Fight for the World's Most Critical Technology* is an enterprising and captivating account of how semiconductors became indispensable to modern economic, technological and military power. Recently, in August 2026, during one of the sessions of Policy Pioneers fellowship by India House organized in collaboration with IIT Delhi (Public Systems Lab), a technology policy fellowship that I am part of, the resource person recommended the cohort to read this amazing book that traces how chips have assumed the strategic and global dominance that it enjoys today. Though published in 2022, half of our cohort had not read the book, thereby compelling me to read and write a review on the same. The book pilots readers to look beyond oil, territory and conventional weaponry when considering global power. Miller's central argument is that microchips now constitute the substratum of the contemporary world. They have the sway over smartphones, automobiles and electrical grids while concurrently steering missiles, processing intelligence and powering artificial intelligence. Consequently, dominance over their design and production has become definitive element of geopolitical influence.

The book starts by unearthing the roots of the semiconductor industry during the Cold War. Through the stories of scientists and entrepreneurs such as William Shockley, Jack Kilby, Robert Noyce and Gordon Moore, Miller explains the invention of the transistor and integrated circuit. Military and space programmes of American government equipped the early semiconductor industry with both capital and customers. Smaller, faster and more reliable chips became essential to its strategy of producing precision guided weapons and advanced communications systems.

The book subsequently explores the global proliferation of production of semiconductors. When American companies transferred labour intensive assembly operations to Asian economies such as Hong Kong, Singapore, South Korea and Taiwan, they became the hub of

semiconductor manufacturing. Incipiently, offshoring reduced manufacturing costs. These investments were usurped by Asian nations to strengthen and advance their own technological competencies. In the 1980s, Japan surfaced as a fierce contender notably in memory chips and this resultant rise and advancement of Japan sowed seeds of apprehension around the clout of the United States in this realm. Regardless, American corporations focused on innovation, design and specialised processors while increasingly counting on global supply chains.

Morris Chang, the founder of the Taiwan Semiconductor Manufacturing Company (TSMC) is a prominent character in the entire narrative. Chang transformed the industry by establishing the "foundry" model, under which TSMC manufactured chips designed by other companies. This arrangement enabled firms to develop innovative chips without constructing enormously expensive fabrication facilities. It also made Taiwan the centre of advanced semiconductor manufacturing. Miller shows that this commercial success led to a significant geopolitical vulnerability: global economy to a large extent now depends on manufacturing situated on an island that China claims as its own.

The later chapters focus on determination of China to achieve self-sufficiency in semiconductor and the American effort to preserve its advantage. The domestic demand for chips in China is enormous but remains dependent upon foreign companies for advanced designs, manufacturing equipment and fabrication process. This foreign dependency is largely seen as a national security weakness by the Chinese authorities. China has invested billions of dollars in domestic semiconductor companies and has also sought foreign expertise and intellectual property. The United States, meanwhile, has employed export controls to restrict Chinese companies, particularly Huawei, from obtaining advanced chips and manufacturing technologies. Miller characterises this contest as a "chip war" whose consequences may shape the international order.

The author's ability to make a highly technical subject matter easily comprehensible to a non-specialist is commendable. Miller explains concepts like photolithography, foundries and Moore's law in a very lucid manner. He creates an engaging narrative by blending personal biography, economic history and technological explanation. Additionally, the book provides compelling evidence that semiconductor supply chains are more than just the results of free markets; they were shaped by military spending, industrial policy, strategic partnerships and deliberate corporate choices.

Even so, the book has certain limitations. Its extensive cast of engineers, executives, companies and technologies can occasionally make the account a little convoluted. Moreover, Miller's analysis is predominantly viewed through the perspective of American strategic interests. Scant attention is paid to the social and environmental costs of semiconductor manufacturing, labour conditions within the supply chain and the viewpoints of developing countries.

India being a consumer of electronics as well as an aspiring semiconductor hub, the book resonates deeply in the Indian context. India's hefty reliance on imported chips endangers its various strategic and critical industries viz. defence, automobiles, energy, digital public infrastructure, telecommunications by enduring geopolitical vagaries and supply shortages and evidently, the recent occurrence of supply shortages affirms this weakness. Therefore, Miller's narrative renders an essential foundation for gauging and assessing India's Semiconductor Mission, production-linked incentives and endeavours to draw in facilities for fabrication, assembly, testing and packaging. The book assumes equal significance with respect to India's foreign policy particularly against the backdrop of India's ties to semiconductor hotspots like Taiwan which enable transfer of technology, knowledge and skills as well as collaborations with strategic and security groupings like the Quad that can help India diversify its supply chains and closely partner with the United States, Japan and Australia. However, India must steer clear of back up dependence on countries. Rather than total self-sufficiency, India must develop a realistic resilient ecosystem which include reinforcing certain segments, strengthening and safeguarding vital and critical infrastructure, and preserving access to a variety of sources.

Despite these confines, I strongly recommend *Chip War*. It is particularly valuable for policy makers, students and scholars of international relations, economics, technology law and national security. General readers will also find it insightful and enlightening. Albeit published in 2022, its analysis remains relevant till today. The book precedes the generative AI compute boom, the race for high end GPUs and AI accelerators, U.S. export control expansions, etc. that have since pushed chips to even greater strategic relevance. The book's most important contribution is its reflection that seemingly invisible components can determine the fortunes of corporations, national economies and military powers. *Chip War* enables readers to understand not merely how semiconductors are manufactured, but why the struggle to control them has become one of the defining great power competitions of the 21st century.