BOOK REVIEWS

Sharon Weinberger, *The Imagineers of War: The Untold Story of DARPA, the Pentagon Agency that Changed the World* (New York: Alfred A. Knopf, 2017), 475.

Reviewed by Sajid Aziz, Consultant, Islamabad Policy Research Institute, Pakistan.

The Imagineers of War is the story of the Defense Advanced Research Projects Agency (DARPA). Created in 1958 in response to the Soviet Union's launch of Sputnik, the first man-made satellite, DARPA would pioneer research in various fields ranging from space exploration to counterinsurgency. The symbiosis of politics and science would bequeath to future generations such productive legacies as seismology and the Internet, and disastrous ones such as lethal chemical weapons and data-mining aimed at finding collective patterns of human behaviour by scrutinising their personal data.

Going through a tremendous body of declassified documents and conducting many interviews with DARPA officials, Sharon Weinberger deals with these issues in meticulous detail. This is Weinberger's third book. Her previous two were *A Nuclear Family Vacation* (2008); and *Imaginary Weapons: A Journey through the Pentagon's Scientific Underworld* (2006).

This latest one is a thorough account of a Pentagon agency that radically shifted the shape of future wars through its work in stealth technology, precision weapons and drones. The book also gives new insight into how politics drive science and technology, and vice versa. Moreover, this tome discusses each significant technological advancement in the broad context of the Cold War rivalry between the United States of America and the former Soviet Union.

The launch of Sputnik, writes Weinberger, 'sparked a national hysteria' (p.8) in the US. It was helped by a media 'narrative that artfully wove Hollywood, science fiction and good old-fashioned fear-mongering'

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(p.35). It was wrongfully assumed by the US administration that the satellite enabled the former Soviet Union to develop Intercontinental Ballistic Missiles (ICBMs) capable of targeting and reaching the US mainland. This 'threat' gave birth to such maverick ideas as creating 'an Astrome-like defensive shield made up of high-energy electrons trapped in the Earth's magnetic field just above the atmosphere,' which could only be materialised by exploding nuclear weapons in the Earth's magnetosphere (pp.41-2). The experiment, fortunately, flunked. This was followed by a no less bizarre project called *Argus*, to build an interplanetary spaceship, powered by hundreds and thousands of nuclear explosions. An outrageous vision made completely redundant by the 1958 agreement between the Cold War warriors to halt atmospheric tests (pp.49-50).

Bowing to popular pressure, President Dwight D. Eisenhower created a new research agency called the Advanced Research Projects Agency in 1958 (renamed the Defense Advanced Research Projects Agency in 1972). Though ARPA was originally created to work on space technology, it soon dabbled in other areas - the most important of which was *Project Agile* to cure the 'disease of insurgency' in Indo-China. The project played with 'innovative' ideas: corralling South Vietnamese populations into 'strategic hamlets' so as to better control the populace from communist reach; throwing ten million gallons of Agent Orange, a lethal chemical weapon, to deny Viet Cong forest cover; toying with the idea of creating a behemoth mechanical elephant, called Cybernetic Anthropomorphous Machine, to be operated by a man, which would go to the jungles and get equipment to soldiers (p.204). Rather than ending the insurgency, these projects turned Indo-China into a quicksand for the US.

To defeat the Viet Cong insurgents, the project also experimented with drone technology. It launched two drone projects: *Nite Panther* and *Nite Gazalle*, the former was fitted with a camera and electronics and used for reconnaissance purposes; and the latter was an armed version. Prone to crash, none of them were used in Vietnam (pp.198-200), but they are the predecessors to the modern Predator drone fitted with Hellfire missiles, used to deadly effect by the US in Pakistan, Middle East and Afghanistan (p.6).

In the early 1960s, ARPA started working on two important missions: *Project Defender* and *Vela*. The former was aimed at developing defence missile systems to protect the US from Soviet ICBMs. Work on Nike Zeus, the country's first anti-ballistic missile, was left half-way when the scientists explained the impracticality of this notion of having a reliable defence system, capable of intercepting Soviet missiles (p.87).

Despite the moratorium on atmospheric tests, the US feared that the former Soviet Union would conduct underground nuclear tests, and there existed no verifiable method to detect them. Scientists found it extremely difficult to distinguish between a natural calamity like earthquake and an underground nuclear explosion. This necessitated ARPA to invest in academic seismology research. Originally invented to detect nuclear tests, seismography would later help in tracking the exact locations of earthquakes, measuring their depths and recording their magnitude on a Richter scale (p.99).

Important political developments and government decisions opened up new avenues of exploration for ARPA. The Cuban Missile Crisis of 1962 stirred a debate in the US about command and control systems of nuclear weapons. This prompted work on man-machine symbiosis and computer networking and how communication systems could remain intact during crises so as to buttress deterrence and avert temptation of war. ARPANET (ARPA Network) did the groundwork for computer networking, revolutionising the communications technology and paving the way for an interconnected world (pp. 123-124).

During the Cold War, there existed a conventional military imbalance between the Warsaw Pact and the North Atlantic Treaty Organization (NATO). In late 1950s, the capitalist bloc feared that the juggernaut of the Red Army would invade Western Europe through the Fulda Gap. Considering the disproportionate destructive potential of nuclear weapons and understanding the need of diversifying its responses to a Soviet ground invasion, the US started work on stealth technology and precision weapons to fight a Soviet ground invasion (pp.217-218). ARPA again would take the lead. Its work in stealth technology would be a precursor to modern US aircrafts like Blackhawk, used by Marine Corps to hunt Osama bin Laden in Abbottabad, Pakistan.

This book is an engaging account about an agency that has played a pivotal role in shaping modern warfare and communication systems. Though impeccably researched, it is not peppered with jargons and written in a lucid manner. Weinberger discusses each important technological feat and 'wizardry' in a proper political context, the scientists who were involved and the decision-making it included. The author also discusses the destructive legacies that DARPA would leave, but only in passing. Dwelling more on the repercussions that DARPA experiments, in counterinsurgency and chemical weapons, would have on the world and the lessons that the US should have learned, would have made this a more fascinating read.

The Imagineers of War shows that the scientific method, despite its successes in ameliorating human lives, is not always a transparent field and at times, involves secrecy to attract minimal public attention on research programmes which would have horrified the general public had they known about them. For example, ARPA once indulged in a notorious project testing Lysergic acid diethylamide (LSD). DARPA, for quite some time, has been working on a project, called *Restoring Active Memory*. It envisages developing neuro-prosthetics, working on neural implants to repair the brain; and it is feared it would be used for military applications in the future.

The comforts and advancements we see in the world are mostly attributed to science, but it has also created the means for humans to annihilate civilisations. Doesn't this call for greater scrutiny when researching sensitive areas like neuroscience?

Yasha Levine, *Surveillance Valley: The Secret Military History of the Internet* (New York: BBS Publications, 2018), 371.

Reviewed by Usama Nizamani, Consultant, Islamabad Policy Research Institute, Pakistan.

The book *Surveillance Valley: The Secret Military History of the Internet* by Yasha Levine, a Russian-born American investigative journalist, serves as an omen which strikes a rather familiar chord with privacy activists' concern about the Internet's pervasive reach. The entire thrust of Levine's work inspires very little confidence in the positive side of the web, and in fact creates an air of paranoia about it.

The central focus of the book remains an investigation into the role of the United States (US) government, federal agencies and its ties with private technology corporations. The recurring emphasis of only a single country's role in using the Internet for military ends is problematic. However, the work despite this inherent shortcoming is aimed at opening a debate about the genesis of the Internet, its evolution and overlapping relationship between different government institutions and Internet giant companies.

The book begins with a less known revelation about the inception of the Internet. In retrospect, the Internet began with the US' engagement in Vietnam. The scale of this engagement and plethora of data generated through intelligence required a centralised solution which would help in efficient retraction of information (p.29). The answer to this crisis was found with Advanced Research Projects Agency (ARPA), now known as the Defense Advanced Research Projects Agency (DARPA), which came up with the ARPANET (p.59). The ARPA Network connected different military commands across the US for command, control and communication-related purposes (p.61). Most importantly, it enabled pooling-in and locating intelligence for counterinsurgency operations in South Vietnam against the Viet Cong. Intelligence became the additional *raison d'être* for ARPA's brainchild 'the Internet'(p.65).

Levine then steers readers to the philosophical outlook of geeks coupled with research institutes and government agencies that

collaborated to develop the Internet, the alleged dark side of then closed-Internet's use in collecting and compiling data of private citizens for the US' fight against its Cold War adversary, the former Soviet Union.(pp.87-97) This concern foreshadows another paranoia about the existential threat that communism posed to the US' political order of democracy, and its security at home. The federal government had little appetite to run the risk of overthrow and political chaos by the former Soviet Union. The book progresses with discussion about the adoption of Internet at college campuses, its popularisation and subsequent commercialisation (pp.116-138). During this and throughout the book, the author describes the role of individuals in contributing to the development of the Internet, technology corporations and those associated with the government.

The book stimulates concerns about the big-data model of information technology giants and how they rely on mining vast amounts of data for studying patterns and predicting behaviours of people and events. This vast outreach, coupled with billions of Internet users, raises legitimate alarms about the protection of public data for predicting individual and collective behaviour. This stands as a relevant question for government agencies and corporations to place safeguards against inappropriate use of individual data by government, private corporations and third-party entities. This holds true particularly in the backdrop of revelations about the role of Cambridge Analytica (a British political consulting company) which harvested over 80 million Facebook user profiles for political advertisement campaigns, and Facebook's decision to sell advertisements to Russia-based companies (like the Internet Research Agency) involved in propagating fake news and staging political mobilisation in the US during the 2016 presidential elections.

While concluding the book, Levine raises pertinent questions, such as the importance of close collaboration between non-profit Internet rights organisations (like the Electronic Frontier Foundation) with the government, and inefficacy of privacy and encryption tools such as *Signal* and *Tor* (pp. 251-258) Levine alleges benign consultation on legislation with law enforcement agencies as a sign of collusion between EFF and the government (p.227). With this, the author is at odds with digital rights' activists, and at times sounds like a conspiracy theorist. The book also

fails at giving convincing answers to why a military organisation should shy away from deploying exclusive military-purpose software that are useful in ensuring anonymous and encrypted communication. Or why law enforcement agencies should act short of penetrating anonymous browsing softwares such as *Tor*, *Signal* and other anonymous tools to apprehend actors engaged in serious crimes and security issues, such as terrorism, drugs, weapons and human trafficking, and child pornography (p. 224). And in another place, it struggles at establishing the existing relationship between the *Tor* browser (which was a result of military research and development) with the US' security establishment (p. 203).

Despite, these shortcomings, the book makes a compelling case about the elusiveness of absolute privacy and security of Internet users. The debate raises legitimate questions about Internet privacy and use of anonymity tools out of the genuine desire, rather than use technology for malicious ends, such as use in terrorism, trafficking, child pornography, illegal sale of weapons and accessories, etc. The questions flagged in the book deserve the attention of Internet users, privacy advocates, corporations, governments and international multilateral fora.

Stephen Chan, *Plural International Relations in a Divided World* (Cambridge: Polity, 2017), 223.

Reviewed by Muhammad Nawaz Khan, Research Officer, Islamabad Policy Research Institute, Pakistan.

The book *Plural International Relations in a Divided World* by Stephen Chan is an attempt to analyse the historical and philosophical causes of disagreements, differences and dissonance between states under the Westphalian order of the modern nation-state system. The author argues that despite dissent, the plural international system has never been more under threat as it is today. In fact, new paradigms and theories in international relations have initiated a debate whether these relations are a domain of the Western 'conceptualization and intellectual formation or alternative world views from the different parts of the world,' (p. 72). Chan argues that different realities based on historical, political, security and cultural specifications offer thought-provoking schools of thought like Amitav Acharya and Barry Buzan's work on *Non-Western International Relations Theory: Perspectives on and Beyond Asia*.

Consequently, modern nation-states are pursuing different paradigms of Western, post-colonial, post-secular and South Asian approaches which are making the international system and relations more complex, especially when it comes to tackling threats posed by non-state actors (NSAs) like the Islamic State of Iraq and Syria (ISIS) and Al-Qaeda to the Westphalian order.

The volume is divided into three thematic parts. The first part (with four chapters) traces the Westphalian system and its influence on theory, the clash with other regional visions of governance, sometimes leading to violence and ultimately to global solidarity. The second part (with three chapters) discusses the Muslim states and NSAs and their approaches to the modern-state order. The third and final part reconciles the debate in the chapter titled *The End of Universalism: Towards a Settlement of Worldly Conditionality*. Chan explains that the new states which joined the Westphalian order during the Twentieth Century had strong reservations and placed preconditions before entry, but did not put severe

constrains on the *status quo*. The reason, according to Chan, being that this model of governance provides legitimacy and guidance to states in directing their international relations within that system. However, in the Twenty-first Century, the Westphalian order is under severe danger due to Islamic radicals whose ideology and motivations, developed states have, thus far, failed to understand, let alone combat successfully.

Chan maintains that in the wake of 9/11, the methodology of fighting a conventional war has become complex due to disparate enemies like Al-Qaeda and the Islamic State of Iraq and Syria (ISIS), having no permanent geographical bases, no measurable army and unclear interests. These NSAs have no respect for the sovereignty of other states, and behave beyond the rational expectations and calculations of the international system. These actors are causing misunderstandings and uncertainties amongst the strategists, political scientists and policymakers, so much so that civilised mechanisms for cooperation, conciliation, negotiations, resolutions and concessions within and between states (so crucial in the previous Century) are becoming ineffective.

Chan exemplifies that even during the Cold War era, actors like the former Soviet Union and China having values, armies and strategic interests were 'recognisable'. Despite their ideological disagreement with the West, there was relative respect for the concept of sovereignty, which meant negotiating space and accommodating each other.

One, however, is forced to disagree with the author since the ground realities of the Twenty-first Century present a different picture with states using dual yardsticks when it comes to valuing and respecting each other's sovereignty, not unalike NSAs. The only difference is that countries like the United States and those in Europe, violate the sovereignty of other states in the name of humanitarian intervention or false allegations such as having weapons of mass destruction as in the case of Libya and Iraq; and also in the case of drone strikes in terrorism-ridden states, like Pakistan.

Overall, the volume presents an analytical investigation in simple and persuasive language. Its strength lies in the diverse case studies discussed by Stephen Chan to highlight the complex nature of international relations in an increasingly divided world. He highlights the Soviet Union's quest for maintaining balance of power against the Western powers; the US adopting realism and power projection as a

central ingredient of its foreign policy; China's quest of bilateralism and three-world theory under the nation-state system; Turkey and Egypt's respective pursuits of modernism and secularism; independence of the subcontinent following non-Western philosophical principles like 'peaceful powerlessness through non-violent resistance' and, later on, the non-alignment movement, along with, contemporary philosophy of regionalism and Islamic variants of a world order like Sunni and Shia under the leadership of Saudi Arabia and Iran. The book is thought-provoking as one is forced to review states' contradictions in their own philosophical pursuits to IR, e.g., India's peaceful powerlessness approach to IR contradicts its own ideology of regionalism as evident in its aspiration of becoming a regional hegemon by acquiring modern weapons.

In the end, though Chan predicts that the future of the world and international relations remain uncertain; he also sees a new form of 'worldliness' emerging. One can only hope that as relations between nation-states become more complex, it is the lives of people and political/academic thought processes that become more enriched and enlightened.