

summary—it draws out the main themes that run through the book, showing how excellence became the symbolic hallmark for the ERC in its struggle for autonomy from the EU commission, and for scientific credibility. The book is a detailed account of the establishment and institutionalization of the ERC, and as such it is an important resource for researchers interested in understanding and explaining the struggles, dynamics and structures involved in European research funding, and the organization of scientific knowledge production. The author explicitly draws on his insight gained from working within the ERC, which naturally raises the question of whether it would be possible for someone without his insider knowledge to write such a detailed account. However, his closeness to the institutions and processes discussed may also hinder a more critical and distanced analysis in which the ERC is placed in the wider context of EU research policies and viewed in the light of the past decade's changes in higher education and research in Europe. The book is structured as

a chronological narrative, and offers only a scanty conceptual framework to account for the processes and institutions involved. It certainly provides the reader with a thick empirical account, but I wondered whether a more elaborate theoretical conceptualization would have made it easier to engage more explicitly with parallel debates in fields like EU studies, research policy, and the sociology of science, thus highlighting the implications of the creation of the ERC and clarifying the book's theoretical contribution.

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Drone: Remote control warfare

By Hugh Gusterson. The MIT Press, Cambridge, Mass., Hardcover, \$21.95, 216 pp., ISBN:9780262034678

According to some estimates, former President Barack Obama signed off on 473 separate drone strikes between January 2009 and December 2015, with a death toll of approximately 2,500 'combatants' and more than 100 civilians. Under Donald Trump, strikes have continued unabated, and will likely increase as his administration seeks to remove restrictions on the program's reach.

With an ever-changing scope and often secretive operations, writing a timely book that adequately captures the impact, meaning, and policy implications of weaponized drones, and in particular the consequences of their lethal strikes, is a daunting task. Hugh Gusterson's *Drone: Remote Control Warfare* makes a modest, though surprisingly comprehensive stab at the problem at hand. Primarily based on the accounts culled from investigative journalism, memoir, and popular culture, the work lays out key terms of debate, offers some useful conceptual framings to assess the newness and significance of the technology in the context of modern warfare, and explores the perspectives of differently positioned actors associated with drones, including weapons operators, victims, and anti-drone activists.

In absence of ethnographic research (for which Gusterson is known, including his powerful early work,

Nuclear Rites), *Drone* takes up the weaponized drone as a 'sociotechnical ensemble' (p. 92), not just a piece of new military hardware. By this he means, in part, a technology whose meaning changes from context to context, and is informed by the co-production of security influences (i.e. the 'War on Terrorism') and technological development. From this perspective, Gusterson's work expands the ethical implications of lethal drone technology away from standard perspectives that remain hemmed in by what calls 'drone essentialism' (p. 92). The novelty of this approach extends from its successful efforts to peel away the layers of already cemented meaning—both cautionary and celebratory—to understand how social and cultural imperatives, in conjunction with technological design, bring us to our current thinking about drones. Gusterson's conclusions are still largely critical of military drone strikes, yet the reasoning that leads to these conclusions is far from straightforward.

The most straightforward portion of the book is the introductory chapter on the history of the weaponry – 'Drones 101'. The chapter weaves together a description of the technology's rise with a political chronology that details the expansion and ethical 'slippage' that moved the idea of drone strikes from 'assassinations' to justified

'targeted killings' after 9/11. As Gusterson makes clear, the expanded use of weaponized drones depended on a necessary combination of political will with the technological advance in the device's sophistication. Following the historical perspective is a pair of chapters focused on drone operators (whom Gusterson unapologetically calls 'executioners') and their workaday lives. In the chapter titled 'War Remixed', Gusterson explores how drones recast commonplace ontologies of war, including the demarcation of battlefields, the rules of engagement, and the ethics of combat. Gusterson begins by slaying one of the key tenets of 'drone essentialism', that is a dominant focus on how drones can act as a kind of god's eye, a technology that is everywhere and nowhere. He does concede some facts embedded in this idea, such as the reality that, for drone operators, the technology of remote control warfare narrows the battlefield to one mediated entirely by vision (i.e. the screen) where any given attack has 'no sound, smell, taste, or texture' (p. 4). Similarly, he acknowledges the startling similarities between drone operators engaged in real-life warfare and children playing combat-themed video games. Yet, these facile comparisons quickly fall apart when Gusterson takes his reader into the world of drone operators themselves. To widen the discussion, Gusterson introduces the concept of 'remote intimacy', a paradoxical situation whereby the deterritorialized and remote aspects of drone attacks are coupled with a re-envisioning of the battlefield. While weaponized drone technology undeniably respatializes the 'battlefield' (when, for instance, a drone operator in Nevada who works a 9 to 5 job can rain attacks down on victims a world away), surprising factors and conditions conceptually shrink these divides. What is lost at the sensorial level, however, is made up in the employment of metaphorical language. Drone operators recast collateral damage as 'bugsplat' and describe missile impacts antiseptically as 'splashes'. (Interesting, strike victims and eyewitnesses employ their own pesky imagery vis-à-vis the remote technology. Palestinians describe the 'buzz' (*zenana*) of drones, using the same word for a nagging wife; in Pakistan, drones are *machays* or wasps.) However, more troubling than metaphorical language that simultaneously defines the battlefield and eschews it, are various forms of confirmation bias that drone technology (i.e. the focus on grainy camera footage and the computer-mediated on-screen battlefield) facilitates. Technology mediates how operators, in some cases, too easily interpret all gun-wielding young men in

tribal areas as combatants, which leads to the death of innocents so often correlated with drone strikes. Similarly, the ways drone technology combines a warfare with a strong sense of surveillance adds to its lethality—and again to the loss of civilian lives. Most notably is the insidious use of so-called 'double tap' strikes, that is, targeted strikes that are followed up by secondary ones to take out those who come to the aid of those injured in attacks or remove bodies. For drone operators, the assumption is made that all who come to the strike site themselves must be combatants, which is often not the case upon final analysis.

Overall, Gusterson paints a grim picture of an ever-changing and expanding 'sociotechnical assemblage' of drone violence and a scenario where increasingly war-centered political climates and technological sophistication drive even more death from above. In the concluding chapter though, 'Peering over the horizon', Gusterson does entertain two drone futures, if only as heuristics: one dystopian and another guided by a drone arms reduction program. While intriguing, the latter feels overly optimistic given the military, financial, and political incentives of drone technology. Where the crack might be resides in a crisis of morality and ethics, as evidenced by the voices of anti-drone activists, policy makers, and, not least, trauma-inflicted drone combatants that populate the text. At one point, Gusterson mentions that it takes around 170 people to fully execute a drone strike, a powerful statistic that shows the underlying human element of what is often seen as a largely robotic technology. Hearing those voices more clearly, and exploring their lives, may be the key to a more comprehensive—and humane—drone policy. That analysis will have to come in another book, and given Gusterson's skills elsewhere as an ethnographer, one that he would be well-positioned to write. In all, *Drone* is a well-written, sophisticated primer that is equally a powerful academic study and fine example of public scholarship.

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