

RESEARCH ARTICLE

Nuclear weapons, extinction, and the Anthropocene: Reappraising Jonathan Schell

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Abstract

In the Anthropocene, International Relations must confront the possibility of anthropogenic extinction. Recent, insightful attempts to advance new vocabularies of planet politics tend to demote the profound historical and intellectual links between our current predicament and the nuclear age. In contrast, we argue that it is vital to revisit the nuclear-environment nexus of the Cold War to trace genealogies of today's intricate constellation of security problems. We do so by reappraising the work of Jonathan Schell (1943–2014), author of *The Fate of the Earth* (1982), who came to regard extinction as a defining feature of the nuclear age. We show how a deep engagement with nuclear weapons led Schell to an understanding of the Earth as a complex, delicate ecology and fed into a sophisticated, Arendtian theory of extinction. Despite its limitations and tensions, we argue that Schell's work remains deeply relevant for rethinking human–Earth relations and confronting the Anthropocene.

Keywords: Anthropocene; Extinction; Nuclear Weapons; Jonathan Schell; Hannah Arendt; Ecology

Introduction

In the academic discipline of International Relations (IR), the arrival of the Anthropocene has, for all its apocalyptic undertones, been welcomed as an opportunity to explore new concepts of politics and security, while confronting or transcending the conceptual, political, and ethical boundaries of the discipline.¹ Popularised by Nobel Prize winner Paul Crutzen in 2000, the Anthropocene is a term that denotes a new geologic epoch named after the significant geological traces left by human activity. Beyond its meaning in geology, the term has increasingly come to signify how human disturbances have come to threaten the livability of the planet. Geologists have yet to formally agree on the genesis of the Anthropocene, but increasingly they mention the postwar period of feverish atmospheric nuclear testing as a prime candidate.² Given the

¹See, for example, Anthony Burke, Stefanie Fishel, Audra Mitchell, Simon Dalby, and Daniel J. Levine, 'Planet politics: A manifesto from the end of IR', *Millennium: Journal of International Studies*, 44:3 (2016), pp. 499–523; Cameron Harrington, 'The ends of the world: International Relations and the Anthropocene', *Millennium: Journal of International Studies*, 44:3 (2016), pp. 478–98; Simon Dalby, 'Anthropocene formations: Environmental security, geopolitics and disaster', *Theory, Culture and Society*, 34:2–3 (2017), pp. 233–52; Madelaine Fagan, 'Security in the Anthropocene: Environment, ecology, escape', *European Journal of International Relations*, 23:2 (2017), pp. 292–314; Scott Hamilton, 'I am uncertain, but We are not: A new subjectivity of the Anthropocene', *Review of International Studies*, 45:4 (2019), pp. 607–26.

²Colin N. Waters, James P. M. Syvitski, Agnieszka Gałuszka, Gary J. Hancock, Jan Zalasiewicz, Alejandro Cearreta, Jacques Grinevald, Catherine Jeandel, J. R. McNeill, Colin Summerhayes, and Anthony Barnosky, 'Can nuclear weapons fallout mark the beginning of the Anthropocene Epoch?', *Bulletin of the Atomic Scientists*, 71:3 (2016), pp. 46–57; Jan Zalasiewicz, Colin N. Waters, Mark Williams, Anthony D. Barnosky, Alejandro Cearreta, Paul Crutzen, Erle Ellis, Michael A. Ellis, Ian J. Fairchild, Jacques Grinevald, Peter K. Haff, Irka Hajdas, Reinhold Leinfelder, John McNeill, Eric O. Odada, Clément

centrality of nuclear weapons to the advent of the Anthropocene, IR theory would appear well placed to theorise questions of security and survival in this new age. Yet, nuclear weapons research within IR has had little to say about the Anthropocene. As a field of study, strategic studies has been dominated by analyses of nuclear weaponry in a framework of political bargaining and deterrence that rarely transcend narrow conceptions of sovereignty and national security. At the same time, recent attempts in IR to theorise extinction and formulate new vocabularies of planet politics – predicated on the need for a new interdisciplinarity and an openness to a diversity of traditions and perspectives – largely abstain from closely examining the historical legacy of the nuclear age. Despite their many merits, these scholarly efforts tend to reproduce a particular historical understanding of the development of IR and security studies, which prevents us from grasping practical and intellectual commonalities and connections across a break marked by the end of the Cold War.³ The profound connections between nuclear weaponry and the Anthropocene have not received the attention they deserve in IR.

In this article, we seek pursue one way of rectifying this deficit: by revisiting Jonathan Schell's (1943–2014) work on nuclear weapons, ecological collapse, and extinction. Schell's bestselling, yet in IR largely ignored, *The Fate of the Earth* (1982) highlighted the effects nuclear war would have on nature and laid the ground for his later preoccupation with the Anthropocene and the threat of climate change.⁴ Although the book is typically remembered as an inspiration for activists during the nuclear freeze movement of the 1980s, Schell's focus on nuclear weaponry and the militarisation of the planet offers an opportunity to reconnect the study of nuclear weapons in IR to central themes accompanying our arrival in the Anthropocene, including the idea that humans have become geological agents, questions about the scope and limits of human prowess and technology, and a newfound existentialism rooted in the extinction of species, human, and non-human. Such themes played a central role in Schell's preoccupation with the ecological or what he referred to as the 'secondary effects' of nuclear war on nature and the planet. These effects, he claimed, had turned the prospect of a possible extinction of the human species from speculative construct into real and concrete possibility.

It is worth revisiting Schell's political thought for at least three reasons. First, Schell's *The Fate of the Earth* was among the first books to draw on and popularise insights from Earth System science to describe the catastrophic interactions between nuclear weapons technology, the global climate, and the ecosphere – an accomplishment that in and of itself should have earned Schell a more prominent place in intellectual engagements with planet politics in IR. Second, Schell did not simply detail the environmental impact of nuclear war but used that insight to offer a broader analysis of technological modernity, one that crucially preempts current engagements with the Anthropocene. Over the course of his career, Schell increasingly came to see nuclear weapons as but the most extreme symptom of a way of life that was reckless, unsustainable, and without respect for human life, including that of future generations, and the life of other species. To him, it was vital to recognise that all technologies have 'secondary effects', that they invite *hubris* through the way they come to inhabit our sense of normalcy and, finally, that decisive change must involve a decentring of humans and a reckoning with human power and responsibility. Finally, Schell's claim that the human condition in the nuclear age is best captured by the predicament of extinction precedes and is directly relevant for current debates about the Anthropocene, in which extinction figures prominently. Building creatively on Hannah Arendt's idea of natality, Schell offers an early account of extinction as qualitatively different from mass death. While this contribution has been largely overlooked in current scholarship

Poirier, Daniel Richter, Will Steffen, Colin Summerhayes, James P. M. Syvitski, Davor Vidas, Michael Wagemich, Scott L. Wing, Alexander P. Wolfe, Zhisheng An, and Naomi Oreskes, 'When did the Anthropocene begin? A mid-twentieth century boundary level is stratigraphically optimal', *Quaternary International*, 383 (5 October 2015), pp. 196–203.

³Burke et al., 'Planet politics'; Audra Mitchell, 'Is IR going extinct?', *European Journal of International Relations*, 23:1 (2017), pp. 3–25.

⁴Jonathan Schell, *The Fate of the Earth* (New York: Knopf, 1982).

concerned with the question of extinction in the context of climate change or the Anthropocene, Schell's framing of extinction, including its limits, carries important lessons for contemporary scholarly engagements with these questions. Over the course of his writings, Schell moved back and forth, not always comfortably, between an anthropocentric view of extinction as human survival and a more ecocentric perspective that conceptualised extinction beyond the human. This tension in his work is both illuminating and productive. It highlights the historicity of thinking about extinction as a concept related, first, to nuclear war and later to climate change. It also offers a warning to contemporary scholarship on the Anthropocene, which at times appears intent on quickly moving beyond anthropocentrism, that questions of human power and responsibility remain highly intricate.

The article proceeds in three steps. First, we provide a brief introduction to Schell and locate his writings in a broader intellectual and historical context. We suggest that core features of his work can be usefully read against the backdrop of political realism and anti-nuclear thought during the 1950s and 1960s, with which he shared many affinities. These include his identification of the blind spots and normative commitments of strategic studies as well as the existentialist perspective that became central for Schell's engagement with both nuclear weapons and ecology. Second, we demonstrate how Schell's interest in the secondary effects of nuclear weapons use and their effects on Earth systems moved beyond earlier engagements with nuclear weapons and propelled him towards a global ecological vision that foreshadowed the arrival of humankind as a geological agent. Finally, we discuss Schell's conceptualisation of extinction, advanced under the harrowing epithet 'second death', and extend the fundamental challenge that Schell's Arendtian view of extinction posed to his readers: to confront the self-imposed peril of nuclear weapons and its implications for security politics in the Anthropocene.

Jonathan Schell, the nuclear condition, and the fate of the Earth

At the age of 39, Jonathan Schell published what many today still consider his seminal work, *The Fate of the Earth*, a 1982 non-fiction bestseller, which at the time was outsold only by Jane Fonda's high-in-demand aerobics workout instructions book (these were the 1980s, after all). In the book, which was first published in instalments in *The New Yorker*, the magazine Schell wrote for from 1967 to 1987 under the editorial leadership and guidance of William Shawn, Schell drew on recent developments in Earth System science to paint a dystopian but scientifically informed picture of life on Earth after nuclear war.

In order to establish the gravity and relevance of the nuclear condition, Schell opened *The Fate of the Earth* with an elaborate discussion of human–Earth relations. Based on the assumption that a future nuclear war would involve a large proportion of the Soviet arsenal deployed against military installations, industry, and cities, Schell stressed that the most fundamental issue arising from thermonuclear war was not the 'the direct slaughter of hundreds of millions of people by the local effects' but 'the habitability of the earth'.⁵ After nuclear war, the world would become inhabitable to the human species, a place fit only for 'insects and grass'.⁶ Raising awareness about the ecological effects of nuclear war was a formidable challenge in the early 1980s. Nuclear weapons technology was omnipresent as a currency of power in the deepening superpower struggle, but the actual weapons were out of sight and therefore in some sense out of mind. This 'double life' of nuclear weapons – a quality inherent in the doctrine of deterrence and the paradoxical notion of mass producing a weapon in order not to use it – meant that while this weaponry had come to 'threaten everything, it physically touched nothing, and thus left people free not to think about it if they so chose'.⁷ In the early 1980s, this luxury, Schell insisted, could no longer be afforded. *The Fate of the Earth* was his wake-up call to society. Tapping into a growing

⁵Schell, *The Fate of the Earth*, p. 21.

⁶Ibid., p. 1.

⁷Ibid., p. 150.

discontent with and apprehension about the policies of the first Reagan administration, the book brought specialised scientific knowledge about the ecological effects of nuclear war into the homes of ordinary people and helped to reinvigorate the nuclear disarmament movement at a time when the nuclear freeze campaign was gathering momentum in Congress and among the wider population.⁸ The book even prompted a coordinated response from the Reagan White House – a testament to its political standing at the time.⁹

When Schell wrote *The Fate of the Earth*, he already was the acclaimed author of three books, all of which also first appeared in the *New Yorker*. The first two, *The Village of Ben Suc* (1967) and *The Military Half: An Account of Destruction in Quang Ngai and Quang Tin* (1968), were devastating critiques of US military strategy in the Vietnam War and established Schell's reputation as a journalist and sharp observer of American foreign policy. His third book, *The Time of Illusion* (1976), covered the Watergate scandal and was a scathing assessment of the Nixon presidency. Here, Schell for the first time turned his attention to the issue of nuclear weapons. He critically reviewed the assumptions of deterrence theory and argued that the ideology of deterrence had turned the Vietnam War into a symbolic war and contributed, dangerously, to the undermining of the constitutional checks and balances on the exercise of presidential power. Nixon's commitment to a policy of 'limited war' in Vietnam credibly demonstrated American resolve towards the Soviet Union, yet also underpinned the continuation of what Schell perceived as senseless violence. At the same time, the waging of limited war required domestic resolve, which in the face of mounting anti-war protests 'could succeed only if the president was empowered to take sole charge of the nation's image'.¹⁰

In *The Fate of the Earth*, as well as in later books such as *The Abolition* (1984), *The Gift of Time: The Case for Abolishing Nuclear Weapons Now* (1998), and *The Seventh Decade: The New Shape of Nuclear Danger* (2007), nuclear weapons emerged as Schell's core concern. Especially in the early 1980s when he was a leading contributor to politically charged debates, Schell naturally attracted the attention of IR scholars. Often, they saw him as promoting a simplistic 'either/or' attitude to nuclear weapons. In the eyes of *The Harvard Nuclear Study Group* his work on the abolition of nuclear weapons was dangerous and naïve, because '[l]iving with nuclear weapons is our only hope'.¹¹ In a similar vein, Joseph S. Nye had little time for Schell's discussion of extinction. To argue that uncertainty about scale of destruction implied an obligation to treat the possibility of extinction as a certainty constituted 'a verbal sleight-of-hand' that led to 'a dubious moral judgment of equivalence'.¹² In truth, Schell's arguments were a lot more nuanced than these assessments implied. For instance, Schell agreed with many scholars of nuclear strategy that deterrence had likely contributed to keeping the superpowers in check, yet he questioned the long-term validity and wisdom of a policy predicated on total destruction on a scale that could render planet Earth unfit for human life. Moreover, he realised all too well that a world state or some other form of supranational control over nuclear weapons – the institutional 'go to' option for many who shared Schell's sentiments – was highly unrealistic at a time when Cold War tensions were on the rise again.¹³ Instead, Schell sought to convince politicians and the general public that deterrence and abolition were not mutually exclusive practices, a position

⁸Angela Santese, 'Ronald Reagan, the nuclear weapons freeze campaign and the nuclear scare of the 1980s', *The International History Review*, 39:3 (2017), pp. 496–520.

⁹William Knoblauch, *Nuclear Freeze in a Cold War: The Reagan Administration, Cultural Activism, and the End of the Arms Race* (Amherst: University of Massachusetts Press, 2017), pp. 24, 26.

¹⁰Jonathan Schell, 'The time of illusion' [1975], in Schell, *The Jonathan Schell Reader* (New York: Nation Books, 2004), pp. 249–307 (p. 289).

¹¹The Harvard Nuclear Study Group, *Living with Nuclear Weapons* (Cambridge, MA: Harvard University Press, 1983), pp. 233, 255.

¹²Joseph S. Nye Jr, *Nuclear Ethics* (New York: Free Press, 1986), p. 63.

¹³See also Alexander Zaitchik, 'Jonathan Schell's warning from the brink', *The New Republic* (22 May 2020), available at: {<https://newrepublic.com/article/157779/jonathan-schells-warning-brink-fate-earth-book-review>} accessed 13 January 2021.

he worked out in considerable detail in *The Abolition*, the immediate successor to *The Fate of the Earth*. Here, Schell makes the case that deterrence can continue to operate even in the absence of nuclear weapons, because states would still possess the scientific knowledge on how to produce them. For Schell, abolition did not equal a naïve, romantic retreat to a pre-nuclear age (which he considered impossible), but it would represent a step back from the brink of push-button warfare and total destruction at a time when other, more radical solutions such as a world state appeared beyond political reach.¹⁴

Although Schell remained an outsider to IR debates on nuclear weapons during the 1980s, there are deep affinities between Schell's work and that of a diverse group of political theorists and IR scholars in the postwar US. Hannah Arendt, in particular, was a direct inspiration for Schell in confronting the nuclear condition, but there are also overlaps between his work and the themes that preoccupied notable realists in IR, such as John H. Herz, Hans J. Morgenthau, and Reinhold Niebuhr. Among the themes that united these thinkers were the problem of evil in light of the Holocaust, the role of instrumental reason and technology in modern life and politics and recurrent signs of democratic crisis.¹⁵ In scrutinising the human condition and the nature of modern politics, their ample warnings – against exuberance, *hubris*, and reliance on technical rationality – reflected a suspicion of equating enlightenment with progress. Their suspicion did not, however, prevent them from articulating alternative, progressive views of politics that continued to put ideals of individual freedom, diversity, and development centre stage. At times, this was reflected in notions of common security that transgressed the anarchical nature of the international politics but given the absolute materiality of nuclear weapons and a bipolar international order, such ideas were typically served with a healthy dose of 'realism without illusions'.¹⁶

Schell shared this broad orientation, and as his interests became centred more exclusively on nuclear weapons, he certainly agreed that a blind faith in science and rationality was unwarranted. If his thinking reflected broad sentiments of postwar intellectuals in IR and political theory, his work on the specific issue of nuclear weapons technology displayed an even stronger continuity with anti-nuclear critique emerging in the central decade of the thermonuclear revolution (c. 1952–63), a loose body of thought that was dominated by figures outside or on the margins of these disciplines like Günther Anders, Lewis Mumford, and C. Wright Mills.¹⁷ Schell shared these authors' sense of urgency in wrestling nuclear weapons technology from domains of secrecy and expertise and making it subject to wider democratic debate and moral reflection – a struggle Schell was highly familiar with given the active and long-time involvement of both his mother and sister in the anti-nuclear movement. He observed the common estrangement with

¹⁴Schell's position assumed that nuclear knowledge could not be uninvented. For a different perspective, see Mike Bourne, 'Invention and un invention in nuclear weapons politics', *Critical Studies on Security*, 4:1 (2016), pp. 6–23. A more recent approach to nuclear disarmament that takes inspiration from Schell is Harold A. Feiveson, Alexander Glaser, Zia Mian, and Frank N. von Hippel, *Unmaking the Bomb: A Fissile Material Approach to Nuclear Disarmament and Nonproliferation* (Cambridge, MA: MIT Press, 2014).

¹⁵See especially Michael C. Williams, 'In the beginning: The International Relations enlightenment and the ends of International Relations theory', *European Journal of International Relations*, 19:3 (2013), pp. 647–65 (pp. 649–50) and Ira Katznelson, *Desolation and Enlightenment: Political Knowledge after Total War, Totalitarianism, and the Holocaust* (New York: Columbia University Press, 2003). See also Duncan Bell (ed.), *Political Thought and International Relations: Variations on a Realist Theme* (Oxford: Oxford University Press, 2008); William E. Scheuerman, *The Realist Case for Global Reform* (Cambridge: Polity Press, 2011); Daniel J. Levine, *Recovering International Relations: The Promise of Sustainable Critique* (Oxford: Oxford University Press, 2012).

¹⁶Mark Philp, 'Realism without illusions', *Political Theory*, 40:5 (2012), pp. 629–49. For studies of the place of nuclear weapons in realist thought, see Campbell Craig, *Glimmer of a New Leviathan: Total War in the Realism of Niebuhr, Morgenthau, and Waltz* (New York: Columbia University, 2003); Daniel Deudney, *Bounding Power: Republican Security Theory from the Polis to the Global Village* (Princeton, NJ: Princeton University Press, 2007).

¹⁷Rens van Munster and Casper Sylvest, *Nuclear Realism: Global Political Thought during the Thermonuclear Revolution* (Abingdon: Routledge, 2016).

and democratic deficit in scrutinising the dangers of nuclear weapons and criticised the fantastic, unrealistic, and preposterous qualities of both official doctrine and (some) strategic theory.

In strategic theory there was, according to Schell, 'sometimes an unfortunate tendency to mistake pure ratiocination for reality, and to pretend to a knowledge of the future that it is not given to human beings to have'.¹⁸ Indeed, for Schell, the acceptance of uncertainty about the cascading effects of a nuclear exchange was an important counterargument against 'the theoretically sophisticated but often humanly deficient world of nuclear strategic theory', which despite its confidence in deterrence and the gradual escalation of nuclear war appeared to overlook 'that the outbreak of nuclear hostilities in itself assumes the collapse of every usual restraint of reason and humanity'.¹⁹ Such thinking divorced the realm of action from the realm of morality, which in turn made 'the extinction of man all too "thinkable"'.²⁰ These types of arguments were prominent in anti-nuclear thought decades before Schell wrote *The Fate of the Earth*. The German philosopher of technology Günther Anders had argued that 'the nothing but tacticians' were the ones deserving of being called 'unrealistic',²¹ while the celebrated public intellectual Lewis Mumford castigated strategic theory for fabricating a 'death trap' and treating human beings as 'inanimate objects' and 'physical targets'.²² The renegade sociologist C. Wright Mills possibly expressed this argument most forcefully in his popular *The Causes of World War Three* (1958), which was a ruthless dissection of what he termed 'crackpot realism'.²³

Schell used the imagination of a grim post-nuclear war world as the vehicle for his critique, arguing that 'it may be only by descending into this hell in imagination now that we can hope to escape descending into it in reality at some later time'.²⁴ After all, the future could no longer be taken for granted, 'now it must be achieved'.²⁵ Such use of the imagination was another continuity with Schell's anti-nuclear predecessors.²⁶ The scope of the threat, Lewis Mumford wrote decades earlier, made it necessary to set forth 'prognostic anxieties',²⁷ while Anders called for the use of 'prognostic hermeneutics'²⁸ in order to accelerate reflection on nuclear weapons. The similarities between Schell and Anders on these matters are particularly striking. Both saw themselves as historians of the future and both sought to install in their contemporaries a 'courage to fear', as Anders called it.²⁹ Schell most explicitly argued for such an approach in the outline of a speech he wrote for the 1984 Democratic presidential candidate, Walter Mondale, for whom he briefly worked as a speechwriter. In the draft, he concedes that 'fear alone is no policy', but he also argues that 'facing up to the peril can be the beginning of a policy. In fact, it is the only beginning'.³⁰ In describing the peril, Schell was concerned with detail and extrapolating claims based

¹⁸Schell, *The Fate of the Earth*, p. 22.

¹⁹Ibid., p. 32.

²⁰Ibid., p. 195.

²¹Günther Anders, 'Commandments in the Atomic Age', in Anders, *Burning Conscience: The Case of the Hiroshima Pilot, Claude Eatherly Told in his Letters to Günther Anders* (London: Weidenfeld and Nicholson, 1961), pp. 11–20 (pp. 15, 17).

²²Lewis Mumford, *The Human Way Out* (Wallingford, PA: Pendle Hill, 2006 [orig. pub. 1958]), pp. 18–19.

²³C. Wright Mills, *The Causes of World War Three* (New York: Simon and Schuster, 1958).

²⁴Schell, *The Fate of the Earth*, p. 5.

²⁵Ibid., p. 174.

²⁶van Munster and Sylvest, *Nuclear Realism*, ch. 5; Rens van Munster and Casper Sylvest, 'The thermonuclear revolution and the politics of imagination: Realist radicalism in political theory and IR', *International Relations*, 32:3 (2018), pp. 255–74.

²⁷Lewis Mumford, 'The human way out', *Manas*, 14:48 (1961), pp. 1–4 (p. 1).

²⁸Günther Anders, *Die Antiquiertheit des Menschen 2: Über die Zerstörung des Lebens im Zeitalter der dritten industriellen Revolution* (3rd edn, Munich: Beck, 1980), pp. 424–6, 429.

²⁹Anders, who was critical of a brand of future studies that lacked imagination and sought to predict and anticipate the future, described this as a demand for historians 'turned forwards'. Anders, *Die Antiquiertheit des Menschen 2*, pp. 424–6, 429. In *The Fate of the Earth*, Schell pointed out that '[u]sually, people wait for things to occur before trying to describe them. (Futurology has never been a very respectable field of inquiry.) But since we cannot afford under any circumstances to let a holocaust occur, we are forced in this one case to become historians of the future – to chronicle and commit to memory an event that we have never experienced and must never experience' (p. 21).

³⁰Jonathan Schell Papers, 'Walter Mondale Campaign 1984', box 76, fol. 8, MssCol 24254, New York Public Library.

on the best available scientific evidence, whereas Anders in his own idiosyncratic fashion often deliberately sought to drive home his points through amplification or shock. Still, the overlap in vocabulary and methods of analysis were clear not only to Schell's contemporaries,³¹ but also to Anders himself, who backed accusations made by a German magazine that Schell had plagiarised him. 'The name of the pearl within the shell', he claimed, 'is not Schell, but Anders.'³²

Although Schell was unequivocally cleared of any wrongdoing by a court of law, the case serves to underscore the family resemblances that exist between Schell's ideas and those prevalent in anti-nuclear circles in the late 1950s and early 1960s. Like them, he viewed the implications of nuclear weapons in the broader context of technological modernity and conceived his role as a 'historian of the future' as an exercise in humility and modesty, one that differed fundamentally from the overconfident predictions and policy prescriptions that characterised much strategic theory. And like them, he also sought to broaden the scope of nuclear critique – thematically, spatially, as well as temporally – through the imagination of total nuclear destruction. Yet, in doing so Schell also moved beyond such earlier accounts in a variety of ways. Most importantly, Schell gradually developed a global environmental vision in which planet Earth and its ecological systems were portrayed as frail and vulnerable. While some of his forerunners, including most notably Lewis Mumford, had stressed the environmental footprint of nuclear weapons in the context of radioactive fallout, Schell went a step further. To him, the human capacity to fatally disrupt the geophysical systems that make possible organic life required that the human condition in the nuclear age ultimately was examined as a profoundly ecological question.

Nuclear weapons, humankind, and Earth

A holistic planetary perspective, then, was at the heart of Schell's critique of nuclear weapons. His prodigious interest in the latest science was instrumental in the development of a global ecological vision that, while rooted in a concern with the environmental effects of nuclear weapons, extended far beyond concerns of military security and resource depletion. Over the years, Schell increasingly extended this critique to affect a 'rescue of the abused environment of the earth (victim of human violence done to other living creatures)' more generally,³³ and he increasingly came to see nuclear weapons and other total threats such as climate change through the same prism. Indeed, up until his untimely death in 2014, Schell had been working on a book on climate change, a work that he characterised to his German publisher as a 'second Fate of the Earth'.³⁴

Given these overlapping concerns, Schell's ideas about ecological survival in the nuclear age would appear a compelling starting point for (re)thinking security in the Anthropocene. Yet, Schell hardly figures (if at all) in current IR attempts to reorient our thinking towards planet politics or the Anthropocene.³⁵ Why is this the case? A good deal of the answer to this question can be found in the sociology of IR and security studies as academic (sub)disciplines. As the authors of a recent manifesto for planet politics convincingly argue, both the 'institutional and disciplinary frameworks' of IR as well as 'the way we think and are trained' play a role in restricting our

³¹See, for example, the critique of these two 'nuclear prophets', in Richard Routley, 'Metaphysical fallout from the nuclear predicament', *Philosophy and Social Criticism*, 10:3–4 (1984), pp. 19–34.

³²Jonathan Schell Papers, 'Guenther Anders court papers, 1982 (2/2)', box 53, fol. 9, MssCol 24254, New York Public Library. Anders added insult to injury by adding that he had been unable to finish Schell's book. The controversy was meted out in some detail in the German and American press. See Jonathan Schell Papers, 'Anders – Court Papers, 1982–1983', box 54, fol. 4, MssCol 24254, New York Public Library.

³³Jonathan Schell, *The Unconquerable World: Power, Nonviolence, and the Will of the People* (London: Allen Lane 2003), p. 355.

³⁴Jonathan Schell Papers, 'Personal Correspondence, 2011–2012', box 116, fol. 78, MssCol 24254, New York Public Library.

³⁵See the literature referenced in fn. 1.

vision.³⁶ A key aspect of this problem is about what counts as theory who counts as theorists. If attempts to narrate the intellectual history of IR and security studies place emphasis on the development of paradigms we teach and the emergence of institutional structures that are now so important, it is hardly surprising that someone like Schell, who worked from the margins of universities and think tanks, receives less attention.³⁷ In short, there is a risk of IR scholars becoming 'prisoners' of their own vocation, the implications of which can be deeply troubling: we are unable to confront planetary crises.³⁸

Still, the problem runs deeper. It also concerns how theorists today narrate the past in engaging the present and the future. Current work on security in the Anthropocene is at risk of reproducing a narrative that prevents us from seeing the breadth and intensity of connections between the Cold War and our current predicament. For instance, the manifesto on 'planet politics' compellingly argues for a global and transdisciplinary research agenda, but its language of historical rupture discourages deeper engagements with the past. 'Cold-war era concepts' like nuclear winter and omnicide are seen to 'gesture towards harms massive in their scale and moral horror' yet they are faulted for being 'asymptotic' because they 'do not contemplate the comprehensive negation that a mass extinction event entails'.³⁹ Narrating the past in this manner is, arguably, common. For example, in security studies the influential notion of a move from a narrow to a wider concept of security – begun during the 1980s and coming to full fruition from the 1990s – tends to consign nuclear weapons to military security and views the gradual emergence of environmental security as a separate development.⁴⁰ In contrast, recent historical scholarship has highlighted the imbrication of nuclear technologies and climate science in understandings of security. Military investments in Earth Science, research into weaponising nature, the proto-environmental concerns of anti-nuclear movements, and the cultural spinoff of space travel and metaphors of globality all fed into new understandings of the global environment as a (fragile) referent of security.⁴¹ On these accounts, the Cold War was anything but bereft of sustained, deep reflection on human impacts on the planet.

For many, including Schell, it was precisely the existence of nuclear weapons that made planetary survival unavoidable as both a theoretical and practical concern. Approached from his perspective, nuclear weapons, climate change, and the challenges presented by our entry into the Anthropocene do not belong to different eras or separate realms. Schell already articulated the close connections between nuclear weapons and ecology in *The Fate of the Earth*. Although the book is sometimes concerned with the specific consequences of a Soviet attack on the United States – which in turn leads to a dismissal of conventional (and often establishment) arguments – the parts of the book that deal with ecology have a decidedly global and planetary perspective. Schell rejected approaches that failed to examine the extent of the ecological danger or

³⁶Burke et al., 'Planet politics', p. 501.

³⁷One notable exception is the interest Schell has attracted from historians and historically minded scholars in the field. Thus, in 2005 Schell participated in a Yale University seminar on 'The Fire Next Time. The New Shape of Nuclear Danger', moderated by John Lewis Gaddis and with contributions from Daniel Deudney and Campbell Craig, two scholars who have led recent efforts in IR to gauge the implications of the nuclear age for (realist) international relations as theory and practice.

³⁸Burke et al., 'Planet politics', p. 502.

³⁹Ibid., p. 517; see also Mitchell, 'Is IR going extinct?', pp. 7–8.

⁴⁰See, for example, Barry Buzan and Lene Hansen, *The Evolution of International Security Studies* (Cambridge: Cambridge University Press, 2009), esp. pp. 128–9. A similar narrative informs leading textbooks in the field; see, for example, Columbia Peoples and Nick Vaughan-Williams, *Critical Security Studies: An Introduction* (2nd edn, Abingdon: Routledge, 2015), ch. 7; Paul Williams (ed.), *Security Studies: An Introduction* (2nd edn, Abingdon: Routledge, 2013), ch. 21.

⁴¹Robert Poole, *Earthrise: How Man First Saw the Earth* (New Haven, CT: Yale University Press, 2008); Jacob Darwin Hamblin, *Arming Mother Nature: The Birth of Catastrophic Environmentalism* (Oxford: Oxford University Press, 2013); Paul N. Edwards, 'Entangled histories: Climate science and nuclear weapons research', *Bulletin of the Atomic Scientists*, 68:4 (2012), pp. 28–40; Christophe Bonneuil and Jean-Baptiste Fressoz, *The Shock of the Anthropocene: The Earth, History and Us*, trans. D. Fernbach (London: Verso, 2016); Rens van Munster and Casper Sylvest (eds), *The Politics of Globality since 1945: Assembling the Planet* (Abingdon: Routledge, 2016).

mindlessly catered to the demands of the system. For example, he castigated an unnamed civil defence official for the morbid remark that nuclear war could ‘alleviate some of the factors leading to today’s ecological disturbances that are due to current high-population concentrations and heavy industrial production’.⁴² In contrast, Schell’s approach was consciously extrapolated from recent Earth System science, and he moved from the national to the global scale by extending the debate of the primary effects of nuclear weapons – electromagnetic pulse, thermal pulse, blast wave, and local fallout – to their secondary and indirect effects on the environment. This focus served to expand the problem of human survival in both time and space. Against military planners and strategic theorists, who stressed the survivability of nuclear war, Schell highlighted these secondary effects to lay bare the futility of civil defence and other initiatives that should guarantee the continuation of life after a nuclear war: ‘The vulnerability of the environment is the last word in the argument against the usefulness of shelters: there is no hole big enough to hide all of nature.’⁴³

Offered with a dose of sarcasm, this conclusion hinted at the important fact that human survival could not be seen in isolation from the environment or nature upon which existence depended. Schell pointed to three secondary effects of nuclear weapons that taken together constituted nothing less than a ‘powerful direct blow to the ecosphere’.⁴⁴ The first was worldwide fallout. In explosions of over one hundred kilotonnes, parts of the fallout rise into the troposphere and stratosphere, circulating around the world and contaminating surfaces all over the globe. Second, Schell pointed out that in a nuclear exchange, millions of tonnes of dust are released into the stratosphere with a possible effect on global temperatures. Finally, echoing broader concerns in the 1980s with the emission of CFC gas, he argued that a nuclear war would partially destroy the ozone layer.⁴⁵ In developing this analysis, Schell began from a conception of nuclear weapons as unique due to their implications for ‘the support systems of life at every level’ and the interdependent nature of these systems that together formed a single whole. With a collapse in ecology, social collapse and individual deaths would follow. Schell conceptualised this ‘holism’ both at a spiritual and a material level. ‘The compound mystery’ of the Earth mirrored the mystery of human life. Glimpses of self-regulating mechanisms of Earth systems that Schell captured in the phrase ‘the metabolism of the earth’ were seen to ‘give substance’ to a view of the Earth as a ‘single organism’, ‘a systematic whole’ that in general tended to confirm ‘the fear that any large man-made perturbation of terrestrial nature could lead to a catastrophic breakdown’.⁴⁶

The popularity of *The Fate of the Earth* may well have been influential in creating the momentum and popular political interest in nuclear winter during the following year. The nuclear winter thesis was first presented by the scientist Carl Sagan, a convert to the cause of nuclear disarmament, in collaboration with four colleagues (a collective abbreviated TTAPS). Based on extensive computer modeling, TTAPS predicted that the cold, darkness, and fallout of a nuclear war involving as ‘little’ as one hundred megatonnes – a realistic scenario given the combined nuclear arsenals of the superpowers at the time – could have far-reaching consequences on the global climate. At such a threshold, they warned, ‘the possibility of the extinction of *Homo Sapiens* cannot be excluded’.⁴⁷ Schell immediately understood the importance of the nuclear winter thesis for the

⁴²Schell, *The Fate of the Earth*, p. 7.

⁴³Ibid., p. 61.

⁴⁴Ibid., p. 19.

⁴⁵Ibid., p. 20.

⁴⁶Ibid., pp. 73, 92. The concept of metabolism also plays a prominent role in Günther Anders’s discussion of the nuclear condition. See Rens van Munster and Casper Sylvest, ‘Appetite for destruction: Günther Anders and the metabolism of nuclear techno-politics’, *Journal of International Political Theory*, 15:3 (2019), pp. 332–48.

⁴⁷Paul Ehrlich, John Harte, Mark A. Harwell, Peter H. Raven, Carl Sagan, George M. Woodwell, Joseph Berry, Edward S. Ayensu, Anne H. Ehrlich, Thomas Eisner, Stephen J. Gould, Herbert D. Grover, Rafael Herrera, Robert M. May, Ernst Mayr, Christopher P. McKay, Harold A. Mooney, Norman Myers, David Pimentel, and John M. Teal, ‘Long-term biological consequences of nuclear war’, *Science*, 222:4630 (1983), pp. 1293–300 (p. 1299).

cause of nuclear disarmament and he devoted several pages to the theory and its importance in his next book, *The Abolition* (1984). In its conception of the Earth as an organism or single whole as well as its terminological linkage of nuclear weapons and the environment, the nuclear winter thesis aligned well with Schell's own approach. Both Schell and Sagan hoped that insights from Earth System science would prove that Cold War nuclear strategies were dangerous and self-defeating in the face of human extinction, but ensuing debates conducted in journals such as *Nature* and *Foreign Affairs* proved disappointing in this respect and mainly served to cast doubt on the scientific validity of the argument.⁴⁸ Critics generally agreed that global human misery, mass death, and starvation would occur, but concluded that such effects would stop short of human extinction.⁴⁹

Unlike Sagan and his critics, however, Schell refused to frame extinction in terms of a statistical numbers game, and he considered the exact likelihood of human extinction less important than its possibility and thinkability. A discussion of and speculation about the climatic consequences of nuclear war should be allowed even on the basis of uncertain knowledge. After all, it was not possible to run extinction experiments with the only world we have.⁵⁰ He also wanted to avoid the familiar but disturbing tendency to turn scientific uncertainty into an excuse for inaction.⁵¹ Given the necessarily incomplete information and uncertain conclusions from the science community, for citizens the significance of the nuclear winter thesis lay not in the details or in a particular estimate, but rather in 'a broad sense of the power of a nuclear holocaust to throw the ecosphere as a whole into catastrophic disorder'.⁵² Most fundamentally, as we will see, Schell objected to the view that extinction was best thought of as mass death in extremis, a position that was shared by both TTAPS and their critics. Schell was adamant that extinction was not to be viewed as a difference of degree in death, that is, the death of all human beings;⁵³ to him, extinction was of a different order entirely.

The Fate of the Earth drew on a conception 'of the earth as a single system, or organism', one that 'only recently had proceeded from poetic metaphor to actual scientific investigation',⁵⁴ and creatively deployed this model to highlight the disturbing effects of human activity on the ecosystem. To be sure, nuclear war for Schell remained an unequalled threat given 'its unique combination of immensity and suddenness', but he insisted on a broader outlook that encompassed "'constructive" economic applications of technology', jeopardising the environment:

The nuclear peril is usually seen in isolation from the threats to other forms of life and their ecosystems, but in fact should be seen as the very center of the ecological crisis – as the cloud-covered Everest of which the more immediate, visible kinds of harm to the environment are the mere foothills.⁵⁵

⁴⁸Although some of these critics, including most prominently Edward Teller, had political grounds for their rejection of the nuclear winter thesis, they were right to point out that the results of Sagan's computer models were shrouded in uncertainty. While Sagan was vulnerable to charges of fearmongering and exploiting the risk of human extinction for political purposes, current scientific work upholds the validity of the nuclear winter thesis, although researchers continue to disagree about the threshold. For a discussion of the nuclear winter thesis and its reception, see Paul Rubinson, 'The global effects of nuclear winter: Science and anti-nuclear protest in the United States and Soviet Union during the 1980s', *Cold War History*, 14:1 (2014), pp. 47–69. For a review of the current state of the art in nuclear winter research, see Alexandra Witze, 'How a small nuclear war would transform the planet', *Nature*, 579 (March 2020), pp. 485–7.

⁴⁹Starley L. Thompson and Stephen H. Schneider, 'Nuclear winter reappraised', *Foreign Affairs*, 64:5 (1986), pp. 981–1005.

⁵⁰Schell, *The Fate of the Earth*, p. 76.

⁵¹Hence, 'although, scientifically speaking, there is all the difference in the world between the mere possibility that a holocaust will bring about extinction and the certainty of it, morally they are the same, and we have no choice but to address the issue of nuclear weapons as though we knew for a certainty that their use would put an end to our species'. *Ibid.*, p. 95.

⁵²Jonathan Schell, *The Abolition* (New York: Knopf, 1984), p. 21, emphasis added.

⁵³Schell, *The Fate of the Earth*, p. 115.

⁵⁴*Ibid.*, p. 93.

⁵⁵*Ibid.*, pp. 110–11.

Schell's diagnosis of the nuclear-environment nexus was more than the product of analogical reasoning. Upscaling his perspective to the planetary level, Schell highlighted the fundamental problem of (Western) modernity as the inability to recognise both its own self-destructiveness and its limited power in understanding and tackling such issues. For Schell, nuclear weapons were the most extreme expression of this self-destructiveness, while deterrence theory symbolised the human hubris in its belief that the threat could be rationally managed and contained. Yet, both were indicative of a broader system in which they were embedded, based on the false assumption that the waste, pollution, and contamination produced by the unrelenting extraction and consumption of resources were little more than the manageable side effects of progress. In 2007, when global warming had emerged as the foremost global threat, Schell reflected on the nature of modern politics and lamented what he considered its extremist character. True to his previous work he pushed the case for wider democratic debate and moral reflection. It was an analysis that demonstrated his existentialist inclinations as well as his sharp eye for the power structures and unexamined, normative commitments that simultaneously produces and blinds us to peril. Schell summed up our predicament in the term *extremism of the centre*:

Consider global warming. It is the product of business as usual, yet it threatens a slow devastation of the only planet we know of that is fit for human habitation. You don't have to do anything 'extreme' or 'fanatical' or 'crazy' to ruin the planet; you only have to go on living the life that is set before all of us. Nuclear arms are in the same category. The idea of abolishing nuclear arms is called 'extreme'. But these weapons themselves have conducted us all to the brink of the utmost extreme – the annihilation of cities, nations, even the species ... The center is extreme in another sense. Almost wherever we look ... we are seeing new concentrations of power – joining political power, money power, military power and media power into huge combines that are proving more and more difficult for ordinary people to fight.⁵⁶

The links between nuclear weapons politics and the politics of environmental destruction ran deep, and over the years Schell's vision would become increasingly ecological. Already in *The Fate of the Earth*, he suggested that the natural corollary of respect for human beings (the first principle of life in a new common world aware of the peril of nuclear destruction) was respect for the Earth (the second principle), which in turn amounted to nothing but 'a full realization of the ecological principle'.⁵⁷ Schell was of course far from the first to promote a catastrophic environmentalist vision of planetary stewardship, an idea that had firm roots in the early Cold War decades. Neo-Malthusian scientists such as Paul Ehrlich had long been promoting the view that planet Earth only had limited carrying capacity and, when stretched beyond its boundaries, would no longer be able to support human survival.⁵⁸ Schell, however, took issue with the narrow rationality that characterised many of these views. A Neo-Malthusian framework clashed with core tenets of Schell's work, including his strong scepticism of the ability of humans to predict and control future events and his theorisation of extinction.

Second death: The condition of extinction

Schell developed his analysis of extinction or 'second death' in direct response to the primary and secondary effects of nuclear war, and he dedicated the entire second part of *The Fate of the Earth* to a discussion of the character and meaning of extinction for modern politics. Over the following decades, he would return to and refine his notion of extinction on several occasions, often in close

⁵⁶Jonathan Schell and Robert S. Boynton, 'People's power versus nuclear power', *Daedalus*, 136:1 (2007), pp. 22–9 (pp. 28–9).

⁵⁷Schell, *The Fate of the Earth*, p. 177.

⁵⁸Paul Ehrlich, *The Population Bomb* (New York: Ballantine Books, 1968).

dialogue with Hannah Arendt's political theory.⁵⁹ Building on her work, Schell set out to conceptualise extinction as a *sui generis* event that transcends the idea of (mass) death. In the final stages of his life, Schell also began to consider the question of extinction more directly in relation to the Anthropocene and its implied notion of humankind as a geological actor, leading him to view extinction from a steadily more ecocentric perspective. Despite recent calls for IR and security studies to initiate a more profound engagement with extinction in the context of the Anthropocene, Schell's contributions have escaped attention.⁶⁰ Yet his work remains highly relevant. Indeed, it is a testimony to the depth and contemporary pertinence of Schell's thinking that two of his essays introduce a recent volume on *Nature and Value* that assembles contributions on the current environmental crisis from prominent scholars and scientists, including Jan Zalasiewicz, the former chair of the Anthropocene Working Group working under the auspices of the International Stratigraphic Commission.⁶¹

Schell's account of extinction is deeply indebted to Hannah Arendt, whose reflections on totalitarianism, total war, and genocide, fundamentally shaped how Schell came to understand the predicament of extinction in the nuclear age. Throughout his career, Schell's relation with Arendt was one of profound admiration and genuine perplexity. He came to regard her work as 'more fruitful than anyone else's' for thinking about the nuclear dilemma, despite the curious fact that Arendt's work – concerned with the major catastrophes of the twentieth century – seemed to deliberately avoid the nuclear issue.⁶² When Schell in the early 1970s, about a decade before the publication of *The Fate of the Earth*, asked Arendt about the conspicuous absence of nuclear war in her work, she answered: 'You do it! You have it in your bones' – summoning, Schell suggests, not just him but his entire generation, 'which does literally have nuclear contamination in its bones, in the form of strontium 90 deposited by fallout from nuclear tests'.⁶³ The peril of nuclear extinction, Schell argued, was a completely new condition, yet one that shared important features with the phenomena of totalitarianism, total war, and genocide in Arendt's analysis. As Arendt had shown, these modern phenomena did not just involve the mass killing of innocent people; more fundamentally, they also erased and destroyed the political foundations

⁵⁹Jonathan Schell, 'The politics of natality', *Social Research*, 69:2 (2002), pp. 461–71; Jonathan Schell, 'In search of a miracle: Hannah Arendt and the atomic bomb', in S. Benhabib (ed.), *Politics in Dark Times: Encounters with Hannah Arendt* (Cambridge: Cambridge University Press, 2010), pp. 247–58.

⁶⁰Harrington, 'The ends of the world'; Mitchell, 'Is IR going extinct?'. This lack of attention to Schell is mirrored in scholarship that has sought to extend Arendt's thought to the analysis of war and nuclear weapons. See, for example, Anne Harrington, 'Power, violence, and nuclear weapons', *Critical Studies on Security*, 4:1 (2016), pp. 91–112; Patricia Owens, *Between War and Politics: International Relations and the Thought of Hannah Arendt* (Oxford: Oxford University Press, 2007); Anthony F. Lang and John Williams (eds), *Hannah Arendt and International Relations: Reading Across the Lines* (New York: Palgrave Macmillan, 2005).

⁶¹Akeel Bilgrami (ed.), *Nature and Value* (New York: Columbia University Press, 2020).

⁶²Schell, 'The politics of natality'; Schell, 'In search of a miracle', p. 247. The fact that both Günther Anders, Arendt's first husband, and her close friend Karl Jaspers had written philosophical works on the implications of the bomb for modern life only added to the mystery. The explanation for this near silence in Arendt's work is still a matter of speculation. Patricia Owens has recently suggested that Arendt's systematic failure to acknowledge the imperial history of the US and the genocide of Native Americans was more than a product of her Eurocentric education. Rather, sidestepping these issues was crucial for Arendt in order to uphold her vision of the US as the promise of post-totalitarian politics. Patricia Owens, 'Racism in the theory canon: Hannah Arendt and "the one great crime in which America was never involved"', *Millennium: Journal of International Studies*, 45:3 (2017), pp. 403–24. The questions raised by American nuclear weapons – ranging from the morality of their use on Hiroshima and Nagasaki, their threat of use in Korea, and their expansive testing in the Pacific to the detrimental effects on the democratic system in which they were invented, produced, and stockpiled – can be seen to pose a similar challenge and may help explain Arendt's lack of sustained engagement with the topic.

⁶³Schell, 'In search of a miracle', p. 248. To be sure, Arendt did write one essay on the bomb ('Europe and the Atom Bomb', 1954) and mentioned the nuclear peril in *On Revolution* and *On Violence*. The subject also loomed large in *The Human Condition* (1958). Yet her published work contains no sustained analysis of the nuclear condition. Her posthumously published manuscript *The Promise of Politics* (2009) contains a range of original, if fragmented, reflections on the topic, but it really was Schell who extended her political theory to an analysis of nuclear weapons and extinction.

upon which the common world of peoples and cultures are built. To Schell, nuclear war, too, threatened the common world and the possibility of new beginnings.

Nuclear war negates the principle of natality or the possibility of becoming, a condition that is central to Arendt's theory of human action. For Arendt, action has several features, among them a quality of unpredictability connected to the exercise of freedom and to politics as the coming together of humans whose concerted actions can bring about new beginnings. Freedom resides in action – the ability to create something new, to act in concert, and to lend it meaning.⁶⁴ Politics requires freedom, since without it no concerted action and no new beginnings would be possible. Whenever the freedom or possibility to create something new is threatened, as is the case with totalitarian rule or genocide, renewal of the world becomes impossible. Extrapolating from her insights, Schell conceptualises extinction not as mass death but as the destruction of the possibility of birth or natality. By disrupting the planetary ecosystems upon which organic life depends, nuclear war negates natality not just on the collective group level, but also on the level of the human species itself. In the nuclear age, the principle of natality takes on a new character, since the very existence and possibility of birth of future generations now depends on the restraint of earlier ones.⁶⁵ This leads Schell to the key paradoxical insight that while extinction in some sense belongs to a future outside human history, 'in another sense extinction saturates our existence and never stops happening'.⁶⁶ Since the invention of nuclear weaponry, the human species have no choice but to live with the possibility of self-extinction, a fundamentally new predicament for human existence, present and future.

Schell was not the first to conceptualise nuclear extinction in such existential terms. In the early 1960s, Hans J. Morgenthau, who also took inspiration from Hannah Arendt, came to similar conclusions. In 1961, he argued that nuclear destruction constituted a new type of mass destruction, which shifted prevailing notions of death and immortality. By playing a collective game of ostrich, 'we continue to think and act as though the possibility of nuclear death portended only a quantitative extension of the mass destruction of the past and not a qualitative transformation of the meaning of our existence', Morgenthau argued.⁶⁷ Contemplating the existentialist dimensions of this predicament led Morgenthau to focus on the institutions and organisation of world politics: 'Any attempt ... at assimilating nuclear power to the purposes and instrumentalities of the nation-state is negated by the enormity of nuclear destructiveness', he argued in 1964.⁶⁸ Though tragically out of reach, the solution to the nuclear condition was a world state.

Schell's thinking on second death differed in important respects. First, he was less preoccupied with institutions, though he did argue for the abolition of nuclear weapons through a reconceptualisation of deterrence. Second, Schell's thought about extinction developed through metaphors of ecology and in close connection with recent Earth System science. This led him to challenge anthropocentrism and to consider the full gamut of human–nature relations. It was a journey that took him beyond notions of a common human world and placed the Earth centre stage. In this process, Schell also encountered the limits of his Arendtian framework. Arendt's focus on meaning and world-making prevented a full reconceptualisation of the relations between humans and their environment. Even though she noted the paradoxical fact that humans, as 'earth-bound creatures' whose survival depends on their earthly environments, nonetheless appear willing to wager the destruction of 'all organic life on earth', she left it there, and her central concepts

⁶⁴Hannah Arendt, *The Human Condition* (Chicago: Chicago University Press, 1958).

⁶⁵Schell, *The Fate of the Earth*, p. 171.

⁶⁶*Ibid.*, p. 147.

⁶⁷Hans J. Morgenthau, 'Death in the nuclear age', *Commentary* (1 September 1961), available at: <https://www.commentarymagazine.com/articles/hans-morgenthau/death-in-the-nuclear-age/> accessed 2 October 2020.

⁶⁸Hans J. Morgenthau, 'Four paradoxes of nuclear strategy', *American Political Science Review*, 58:1 (1964), pp. 23–35 (p. 35).

remain closely tied to human experience.⁶⁹ For Schell, however, the lesson from Earth System science was clear: the survival of the human species had to be seen in a broader ecological framework. Scientific insights into the secondary effects of nuclear war clearly demonstrated, as Arendt had alluded to, that the survival of the human species now depended on the survival of other species and the functioning of Earth systems.

Although the human species retained a central place in Schell's thinking, he devoted increasing attention to non-human extinction. One philosopher has recently found Schell's prevarication between anthropocentric and ecocentric conceptions in *The Fate of the Earth* 'utterly puzzling', arguing that its focus on human extinction in nuclear war ignores the silent killing of other species that are part parcel of everyday human existence. While this critique is in part anachronistic, Schell's Arendtian approach to extinction, which places questions of meaning and value centre stage, does carry a human bias, which at times led him to treat extinction 'as a wholly and exclusively human affair'.⁷⁰ Yet, *The Fate of the Earth* also ventures beyond the fate of humans in its discussion of the broader ecological consequences of nuclear war, and Schell's later writings are certainly more explicitly ecocentric in orientation. His notion of the 'extremism of the centre' is particularly instructive in this respect, since it links the risk of sudden, dramatic nuclear destruction to the everyday, small business-as-usual decisions that threaten non-human species with extinction. For Schell, the Anthropocene basically meant that the technological capacity to destroy the human species as well as 'an unknown proportion of other forms of life on earth' amounted to what scientists termed 'the sixth great extinction of life on Earth'. Today, he argued in 2011, we are no longer only able to exterminate the human world, but also the natural order.⁷¹

Schell also took issue with the anthropocentrism that is present in much of current theorising about the Anthropocene. He worried that the recognition of humans as a dominant geological force, as implied in the concept of the Anthropocene, would spill over into the unwarranted and hubristic conclusion that humans would eventually also be capable of finding a way out of their self-made predicament. That notion was dangerous and sustained the lack of decisive political action and general public lethargy about the loss of biodiversity, melting ice caps, rising sea levels, as well as other events that 'have begun to mutilate, crowd out, devour, deplete, degrade, disfigure, dismantle and destroy the natural order'.⁷² Equally important, for Schell, that notion served to conceal the central fact that the predicament of extinction cannot be transcended. Humans simply do not possess enough knowledge about Earth systems to design their way out of the Anthropocene. We are not very good at 'Earth-building', he argued.⁷³ Instead, Schell approached the Anthropocene not so much as an age but rather as the 'point of origin of something more radical', a kind of 'regime change for life [on] Earth'. The inescapability of this predicament urged caution about the future: 'To exist – that is the new utopia. In this sense, a new existentialism has been born.'⁷⁴

To Schell, the human ability to murder the future thus constitutes the quintessential touchstone for human action and politics in both the nuclear age (which has not ended) and the Anthropocene. While his thinking on extinction became more explicitly ecocentric late in his life, his ecocentrism reserved a place for the distinctiveness of human life. It was from this

⁶⁹Arendt, *Human Condition*, p. 3. See also the discussion in Oliver Belcher and Jeremy J. Schmidt, 'Being earthbound: Arendt, process and alienation in the Anthropocene', *EPD: Society and Space* (2020), available at: {DOI: 10.1177/0263775820953855}.

⁷⁰Arne Johan Vetlesen, 'Post-Hiroshima reflections on extinction', *Thesis Eleven*, 129:1 (2015), pp. 89–102 (p. 98).

⁷¹Jonathan Schell Papers, 'Untitled Manuscripts and Notes, 2011', box 86, fol. 8., MssCol 24254, New York Public Library. This paper has recently been published: Jonathan Schell, 'Nature and value', in A. Bilgrami (ed.), *Nature and Value* (New York: Columbia University Press, 2020), pp. 1–12 (p. 1).

⁷²Jonathan Schell Papers, 'Untitled Manuscripts and Notes, 2011'. See also Schell, 'Nature and value', p. 1.

⁷³Jonathan Schell Papers, 'Untitled Manuscripts and Notes, 2011'. See also Schell, 'Nature and value', p. 7. See also Jonathan Schell, 'The human shadow', in Bilgrami (ed.), *Nature and Value*, pp. 13–24 (p. 19).

⁷⁴Schell, 'Nature and value', pp. 3, 6; Schell, 'The human shadow', p. 15.

perspective that he sought to challenge existing practices, including destruction and the failure to recognise other forms of being. Current scholarship on the Anthropocene and extinction shares similar reservations about human frameworks or perspectives that prevent us from fully appreciating and valuing non-human forms of existence.⁷⁵ While Schell would agree with the larger objective, he would, we suspect, take issue with the tendency in some of this literature to valorise all kinds of being equally in an effort to decentre human life. In Schell's work, there remained a residue of anthropocentric thinking and to him the unprecedented combination of sheer human destructive power and the status of human beings as 'the Earth's chief valuer' inescapably created 'an abyss of inequality' that separates humans 'from the rest of creation'.⁷⁶ In itself this disparity is, of course, a frightening prospect at a time of ongoing human-led destruction, but ignoring it also risks obscuring the practice of valuing ourselves as humans in relation to nature and other forms of life and the heavy responsibility such valuing involves. For Schell, hubris and tragedy lay in waiting. Unchecked, it 'would be as fatal to ourselves as other species'.⁷⁷

Whether it is justifiable to proceed on the assumption that valuing is foremost a human capacity is of course questionable, as Schell recognises. Yet, and this is crucial for Schell, the premise that humans are the 'principle seat of valuation' also enables critical reflection and self-critique. The ability to weigh and ascribe different values to the world sets humans apart from forms of life and invests them with a responsibility to 'find a broader criterion of valuing that is not anthropocentric in [the] pejorative sense' of something being useful, that is, to us humans.⁷⁸ To Schell, this was a conundrum that could not be escaped, yet one that called for deeper reflection about human–Earth relations and an expansion of the conventional horizons of space, time, community, and agency. Ultimately, such reflections can contribute to a further decentring of the human, whether by installing sober lessons about humility, prudence, and the limits of a narrow technological rationality or political capacities for self-determination, or through the promotion of an expansive ethic of what Robin Eckersley refers to as a hyper-reflexive responsibility to self and others, including non-humans, and which enables more ecocentric valuations of the world as expressed in ideas about interspecies entanglement and companionship.⁷⁹ As planetary and human history are now joined at the hip, Schell's ethical injunction for us all is to remember that in a world without humans 'the procession of geological ages would resume', but that there 'would no longer be anyone around to give them names'.⁸⁰

Conclusion

The Vietnam War and the heightened nuclear tensions during the early 1980s, as well as scientific advances in Earth System science put the question of anthropogenic extinction at the centre of Jonathan Schell's political imagination. In this article, we have argued that a reappraisal of his work in IR is overdue. Initial assessments that Schell was an atomic escapist no longer serve. Such claims may not only have unfairly limited his uptake in the discipline of IR; they also unduly restrict the scope and depth of the questions prompted by Schell's critique. In short, Schell castigated deterrence theory as too narrow, dangerous, and shortsighted. He acknowledged that deterrence raised the stakes of great power war and had likely contributed to the latter's demise in the nuclear age, but he also stressed that it obscured the normative commitment to avoid war. Schell's approach to nuclear weapons was not dissimilar to that of prominent realists of the mid-twentieth century, and his persistent critique of the mindsets that developed around this weapons

⁷⁵See, for example, Timothy LeCain, 'Against the Anthropocene', *International Journal for History, Culture and Modernity*, 3:1 (2015), pp. 1–28 (p. 14); Mitchell, 'Is IR going extinct?', pp. 10–11.

⁷⁶Schell, 'Nature and value', p. 8.

⁷⁷Ibid., p. 9.

⁷⁸Ibid., p. 10.

⁷⁹Robyn Eckersley, 'Geopolitical democracy in the Anthropocene', *Political Studies*, 65:4 (2017), pp. 983–99.

⁸⁰Schell, 'Nature and value', p. 5.

technology had much in common with anti-nuclear thinkers of the 1950s. Like them, he questioned the status quo and strived to see beyond the politics of management and small steps. Moreover, he took issue with the underlying political and strategic arrangements that threatened extinction. How can ‘realism’ be the designated label to a form of thinking that fails to ‘recognize the chief reality of the age, the pit into which our species threaten to jump’, he asked.⁸¹

Nearly four decades later we are in a better position to see how Schell in his thinking about the nuclear predicament began to confront questions that now appear inescapable. He teased out intimate connections – historical, political, ethical – between nuclear weapons and planetary environmental degradation and, in doing so, developed an intellectual framework that revolved around the concept of extinction, an Arendtian understanding of beginnings in politics, and an early effort to formulate a global or planetary ecological vision based on the frailty and vulnerability of the Earth as a system of interdependent spheres. Moreover, the centrality of nuclear weapons in his thinking offers a fresh alternative to the growing body of work that stresses the centrality of fossil-fuelled capitalism and the extractive industries for our entry into the Anthropocene. While obviously important, Schell’s focus on nuclear weapons offers a different and equally important perspective, one in which the militarisation of the planet takes centre stage. It complements our analytical focus on the means of mass production to include the means of mass destruction, while his diagnosis of the ‘extremism of the centre’, in which he consciously connects the question of nuclear weapons to that of climate change, offers an original account of how they are connected.

Even though Schell’s insightful theorisation of extinction in crucial respects anticipates ongoing attempts within IR and security studies to confront total, planetary threats, this does not mean, of course, that his contributions can be unproblematically transplanted to our time. *The Fate of the Earth* was conceived at a time when the nuclear peril overshadowed other concerns. Although Schell was quick to recognise the ecological, even climatic impact, of this technology, nuclear weapons were his main focus. As a result, he was not always consistent in his characterisation of human–nature relations. Sometimes he stuck to an anthropocentric understanding of nuclear extinction, which has certain limitations in comparison with current post-human or more-than-human advances in the environmental humanities. Most notably, perhaps, the Arendtian foundation – relying as it does on speech and language – is vulnerable to a charge of human bias in its approach to global ecological problems.⁸² Still, Schell gradually extended his view to also include non-human extinction(s) and justified his focus on human beings as the Earth’s ‘chief valuer’ in the hope it would induce a sense of humility and inform a more prudent, sustainable approach to nature and other species.

Still, outside IR, Schell is increasingly appreciated for his attempt to confront such issues empirically and theoretically.⁸³ Undoubtedly, part of the attraction was that his philosophical and existential ruminations of life on the brink were accompanied by a persistent call for action. An inspiration to the 1980s ‘nuclear freeze’ movement, Schell’s work continue to speak directly to prominent political interventions of recent years that revolve around the nuclear-environment nexus, including The Humanitarian Initiative, The Treaty on the Prohibition of Nuclear Weapons, and the increasingly despondent proclamations of the Science and Security Board of

⁸¹Schell, *The Fate of the Earth*, p. 161.

⁸²Routley, ‘Metaphysical fallout from the nuclear predicament’; Vetlesen, ‘Post-Hiroshima reflections’. But see also Michael Marder, ‘Natality, event, revolution: The political phenomenology of Hannah Arendt’, *Journal of the British Society for Phenomenology*, 44:3 (2013), pp. 302–20.

⁸³Apart from Schell’s prominent inclusion in a volume of prominent scholars and practitioners analysing the notion of nature and the place of humans within it (Bilgrami, *Nature and Value*), this is also evidenced by the establishment of The Jonathan Schell Memorial Lecture Series on the Fate of the Earth (Type Media Centre), where prominent scholars and practitioners explore the nuclear-environment nexus. See: {<https://typemediacenter.org/jonathan-schell/>} accessed 2 October 2020. See also Zaitchik, ‘Jonathan Schell’s warning from the brink’.

The Bulletin of Atomic Scientists.⁸⁴ For Schell, such initiatives and movements can help to expose and disrupt ‘the extremism of the centre’, but given accelerating climate change, extensive nuclear weapons modernisation programmes and the crises surrounding international cooperation in both fields, he was well aware that it would take more to affect lasting change. Like Arendt, he believed that nothing short of a miracle would be needed to break the current impasse. Yet, he never ceased to insist on the possibility of such a miracle in the context of nuclear weapons and he pointed to the nonviolent revolutions in Eastern Europe during the end of the Cold War for evidence that new beginnings, while rare, are possible.⁸⁵ As the Anthropocene marks a new geological threshold characterised by the human impact on our planet, Schell’s work remains an important resource for rethinking the fate of the Earth.

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⁸⁴Science and Security Board of *The Bulletin of Atomic Scientists*, ‘Closer Than Ever: It is 100 Seconds to Midnight’, 2020 Doomsday Clock Statement, available at: {<https://thebulletin.org/doomsday-clock/current-time/>} accessed 22 January 2021.

⁸⁵Schell, ‘In search of a miracle’; Schell, *The Unconquerable World*; Jonathan Schell, ‘The unfinished century’, in J. Schell, *The Jonathan Schell Reader: On the United States at War, the Long Crisis of the American Republic, and the Fate of the Earth* (New York: Nations Books, 2004), pp. 173–211.