Reviews

The heart of matter

Carlo Rovelli, *85 Seconds to Midnight: A physicist's argument against rearmament,* Allen Lane, 2026, 112 pages, paperback ISBN 9781837315574, £9.99

Carlo Rovelli's *85 Seconds to Midnight* recounts a short history of nuclear weapons, but it is not the account of a historian, nor a veteran of arms control, but rather the view of a working physicist who examines the tragic consequences of scientific innovation outpacing political wisdom. Its subject is ostensibly the bomb, but its deeper concern is the human mind—in particular, our susceptibility to fear, misunderstanding and the seductive belief that the acquisition of ever greater destructive capabilities will somehow bestow commensurate gains in our security.

Rovelli announces his thesis almost immediately: *"Humanity has only one real enemy: our own irrationality."* (p. vii) Physics is at the centre of this story, but Rovelli does not delve into the science behind the bomb, rather, he explores how a cascade of revolutionary discoveries provided irrational humanity with an unprecedented capability for self destruction. Nuclear fission, discovered incidentally through Enrico Fermi's experiments in the 1930s, opened a trap door to the extraordinary reservoir of energy locked within the atomic nucleus. Rovelli calls it *"A great gift for humanity"*, but also recognizes it as *"A poisoned gift"*. (pp. 4-5)

For a physicist, this is uncomfortable territory. We are trained to regard discovery as intrinsically valuable. Nature presents herself as a puzzle and our task is simply to decipher her code. Yet the history of nuclear physics aptly demonstrates that the distinction between discovering what *can* be done, and accepting responsibility for what *is* ultimately done, cannot easily be maintained. Knowledge forever changes the range of human possibilities, sometimes catastrophically, and once made manifest, every new technology quickly slips beyond the reach of the very scientists that swept aside nature's cryptic veil.

Rovelli is not the first physicist to feel this burden. In December 1945, only months after Hiroshima and Nagasaki, Einstein compared the plight of atomic physicists with that of Alfred Nobel. The physicists involved in creating the bomb, he said, were *"harassed by a similar feeling of responsibility, not to say guilt"*. He insisted that scientists must be relentless in their efforts to warn both the public and their governments about the dangers inherent in scientific discovery. Rovelli's chapter "The Bad

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Conscience of Physicists" carries forward this burden to the present day, in which our continued inquiry into the heart of matter remains forever cast beneath the shadow of an ever present risk of nuclear annihilation.

Indeed, this struggle in physicists minds certainly predates the bomb, and is reflected in Einstein's conviction that the primary task for humanity must be to abolish war itself. In August 1914, Einstein wrote to his friend Paul Ehrenfest at the outbreak of the First World War: *"Europe, in her insanity, has started something unbelievable"*. The shock outbreak of total war transformed Einstein from a scientist with pacifist sympathies into what his biographers have described as a "conscious citizen of the world", for whom opposition to war became a lifelong concern second only to his devotion to physics.

That long historical thread matters because Rovelli's argument is not simply that *nuclear* weapons are uniquely troubling. It is that physicists repeatedly find themselves confronting a tension between the international, universal character of science, and the nationalist structures within which scientific knowledge is put to use. The most persuasive part of Rovelli's book is the pattern he identifies in the misguided history that gave birth to the bomb. In particular, the first alarm was sounded largely by European émigré physicists, many of them refugees from fascism and antisemitic persecution, whose experience made the prospect of a Nazi atomic bomb particularly terrifying. Their persistent fear that Nazi Germany would develop an atomic weapon during the war led the US government to launch the Manhattan Project, one of the largest scientific-industrial enterprises ever attempted, mobilising hundreds of thousands of people and resources on a scale unprecedented in the history of physics up to that time. Yet, Rovelli argues, Germany had not committed itself seriously to building such a weapon! The Americans were, in effect, racing an opponent who was not running the same race. In 1955, Einstein wrote:

> *"Had I known that that fear was not justified, I, no more than Szilard, would have participated in opening this Pandora's box."*

That episode leads Rovelli to one of the book's central claims: *"It is baseless fear that triggers our worst aggression."* (p. 26) Rovelli's account of the unfolding history of the nuclear age thus identifies a *positive feedback loop* that threatens our continued survival:

> *Fear produces armament → Armament frightens the adversary → The adversary arms in response → That response confirms the original fear.*

Although each individual step may appear rational locally, the system as a whole soon becomes increasingly unstable and catastrophically dangerous.

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Rovelli writes *"We hurt ourselves for fear that our enemies will hurt us."* (p. 27). But when the gambit is made with thousands of nuclear weapons, this hurt will be measured in hundreds of millions of lives and the collapse of civilization itself.

The same pattern structures Rovelli's somewhat controversial account of Hiroshima and Nagasaki. He rejects the idea that the bombs were simply instruments for ending the war and sees their use instead as an *"immense demonstration of power."* (p. 34) Readers may reasonably dispute certain elements of his historical interpretation throughout the book, but Rovelli writes as an advocate, not as a detached historian surveying every competing explanation. Nevertheless his systems argument is hard to dismiss: whatever American leaders may have intended, the Soviet response to American nuclear superiority was to quickly acquire the same weapons. Security for one side is nothing but insecurity for the other.

Einstein was wrestling with essentially the same problem in the immediate post-war years. In 1946, he wrote a sentence that could serve as an epigraph to Rovelli's book:

> *"Science has brought forth this danger, but the real problem is in the minds and hearts of men."*

The deepest subject of *85 Seconds to Midnight* is not nuclear physics but human psychology: fear, tribalism, misperception, and our extraordinary ability to see our own preparations for violence as defensive while interpreting the same behaviour in an adversary as aggression. Einstein, in his extraordinary clarity and insight, exposed the fatal contradiction at the heart of our belligerent world order; *"We must (finally) realize we cannot simultaneously plan for war and for peace."*

The resulting doctrine of deterrence is where Rovelli's argument becomes particularly resonant for a scientist. Put simply, deterrence asks us to believe that an extraordinarily complex system can remain dependable indefinitely. Sensors must work. Communications must survive. Intelligence must be interpreted correctly. Leaders must remain rational under extreme pressure. False alarms must be recognised. And this reliability must persist not just for a single experiment, but day after day, year after year, indeed generation after generation.

Rovelli reminds us that it has not always done so. During the Cuban Missile Crisis, Soviet submarine officer Vasily Arkhipov refused to approve the use of a nuclear torpedo. Rovelli aptly writes: *"The world had been saved by his lack of discipline."* (p. 47) Stanislav Petrov later declined to treat a Soviet warning of incoming American missiles as genuine. Other computer and communications errors have since produced equally terrifying false alarms.

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We must therefore distinguish two propositions that are often treated as synonymous: nuclear deterrence has prevented nuclear war, and nuclear war has not yet occurred.

Perhaps deterrence deserves much of the credit. But Rovelli reminds us to pay heed to that wily companion that physicists know so well: *chance*. A system that has not yet failed is not necessarily a safe system!

That thought also troubled Einstein. In the post-war period he argued that *"our defense is not in armaments, nor in science"* and warned that when humanity possesses the means of suicide, increasing the destructive power of the weapon only increases the probability of disaster. He also recognised the psychological symmetry Rovelli emphasises: American secrecy generated Soviet distrust, Soviet secrecy generated American distrust, and *"so long will we walk together to certain doom."*

Yet neither Einstein nor Rovelli is finally a fatalist. Rovelli devotes an entire chapter to "Voices of Reason". Russell and Einstein urged humanity to *"learn to think in a new way"* (p. 51), and the Pugwash movement subsequently created channels of dialogue across the Cold War divide. Arms-control agreements followed. Thousands of nuclear weapons were dismantled. Rovelli observes: *"Sometimes human beings, even politicians, behave reasonably."* (p. 53)

That sentence is crucial because otherwise the book's main argument could collapse into a well of despair. Human beings created the nuclear danger, but recognizing that danger, human beings have since negotiated rationally to reduce that danger and systematically stepped away from the prospect of catastrophic confrontation. History, therefore, contains evidence of two competing dynamics: escalation driven by fear, but also cooperation driven by recognition of a common danger.

The culmination of the latter tradition came in the Russell–Einstein Manifesto of 1955, one of Einstein's final public acts. Its appeal is famously simple:

"Remember your humanity, and forget the rest."

Nearly three quarters of a century later, Rovelli asks us to *"learn to see enemies as human beings who frighten us because they are afraid of us."* (p. 92)

Rovelli therefore belongs to a recognisable tradition within modern physics. Einstein, Russell, Bohr, Rotblat and the scientists who went on to Pugwash all confronted the uncomfortable fact that science feeds power but not wisdom. The physicist's responsibility, in this tradition, is not to claim privileged political insight simply because one understands the equations. It is to recognise when scientific knowledge has transformed the conditions under which ordinary politics operates—and to speak up when those consequences are being ignored.

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Rovelli asks us to recognise our enemy's fear as the mirror image of our own: to see beyond the local logic of nation, alliance and immediate advantage to the stability of the system as a whole. Physics gave us the bomb, but physics cannot tell us how to live with it. That problem belongs to all of us. How we deal with it collectively will determine the fate of each and every one of us.

David Ellwood

Trotsky retold

Josh Ireland, *The Death of Trotsky: The true story of the plot to kill Stalin's greatest enemy*, John Murray, 2026, 384 pages, hardback ISBN 9781399827294, £25

Josh Ireland is the author of *The Traitors* (2017) and *Churchill and Son* (2021), both chosen as Book of the Year respectively by *The Observer* and *Daily Telegraph*. He has also been ghost-writer for many 'celebs', an industry that goes back to classical Athens where such writers-for-hire were much in demand in the law courts as both plaintiffs and defendants had to appear and orate in person, many incapable of writing their own speeches. He can also be seen discussing this latest work on YouTube.

Ireland's book has received many glowing reviews, for instance by Ian Thomson in the *TLS*, and Piers Brenton in the *Literary Review* – both available online. Very different is the scorchingly hostile one by Niall Mulholland on the *Socialist Week* website.

In terms of subject, Ireland is breaking no new ground. At least half a dozen other such books feature in online lists, along with the account of Isaac Deutscher in *The Prophet Outcast*, the third volume in his massive Trotsky trilogy. Of particular value are the first-hand account by Victor Serge and Natalia Sedova and the ones by Bertrand Patenaude and Boris Bazhanov. Moreover, Ireland has new rivals, Keith Melton and Nigel West, in their version also announced for publication in 2026..

Ireland's lapel-grabbing title is somewhat misleading. He has actually served up a potted biography of Trotsky from life to death. Much, not all, of it may fairly count as background and context (for alleged faults in this, he is mercilessly pilloried by Mulholland). But, can there be anybody who needs to be told at such length why Stalin wanted Trotsky dead?

Talking of which, I have often wondered why Stalin drove Trotsky into exile instead of having him bumped off at home as he probably did with Kirov? I here rely on Khrushchev's version, which remains much disputed. Perhaps Stalin wanted to humiliate and terrorise Trotsky by driving him from place to place to end up in permanent fear in Mexico City?

Ireland's book is made up of six parts, [illegible]ded into a total of thirty-