Soviet Ukraine: Half-Life of a Nuclear Disaster

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ON APRIL 26, 1986, one of the reactors at the Chernobyl nuclear power plant in Ukraine exploded, scattering highly radioactive materials into the surroundings. As the fire ignited by the explosion in the reactor core burned, more radioactive effluent was expelled and swept by the winds from the Ukraine and neighboring Belarus, to much of Europe.

In fact, the disaster came to international attention partly as a result of radioactive rain falling in far-away Sweden, only two days after the explosion. To date, thousands of square kilometers in Ukraine and Belarus remain closed off because of high radiation doses that would accrue to inhabitants.

This was all inconceivable to nuclear experts. In 1983, a Soviet nuclear specialist wrote in the Bulletin of the International Atomic Energy Agency: “a serious loss of coolant accident is practically impossible… the safety of nuclear power plants in the Soviet Union is assured by a very wide spectrum of measures…” The irreconcilability of experience and professional expert testimony has been a signature motif of the Chernobyl disaster.

Kate Brown’s Manual for Survival: A Chernobyl Guide to the Future lays bare the toll of the 1986 Chernobyl disaster from the perspective of the people who experienced it. Brown’s book is distinguished from other works on Chernobyl by years of archival and on-the-ground field research, as well as extensive first-hand oral history. It is the confluence of the right person for the subject approaching it at the right time.

Brown is a renowned historian and professor of Science, Technology and Society at the Massachusetts Institute of Technology. Her first major publication, A Biography of No Place, won the American Historical Association prize for the best book in International European History.

She has deep knowledge of the local culture and has had significant previous engagement on the effects of low-level radiation, especially found in Plutopia, another prize-winning book. Plutopia recounts the effects of radiation on the communities and environment around two plutonium plants.

Her timing was good too: archives from the former Soviet Union were opening up their records of Chernobyl, and some of the survivors of the disaster were still available to recount their experience.

Her human subjects are portrayed with empathy and warmth even when she disagrees with them, the landscape is vividly described, and the historical background always engaging and pertinent.

Mystery and Official Denials

Manual for Survival is partly structured as a mystery: why do official accounts of this major disaster only record an absurdly small number of deaths and relatively minor long-term ill-effects?

For decades, the Soviet state and many international bodies offered figures that ranged from 31 to

54 short-term fatalities and a few thousand thyroid cancers. Brown investigates how these numbers came about and provides a fuller picture of the devastating consequences of the accident, many of which continue to unfold today.

Her heroines — factory workers, doctors, some scientists and activists — are all, in their own ways, carrying out a science for the people, often at odds with officialdom. They don't start off trying to carry out such science, but are driven to it by virtue of living and working in contaminated regions and endeavoring to make sense of their own experience and observations.

As elsewhere, citizens in Belarus and Ukraine had to take matters into their own hands and learn to measure radiation doses and mitigate contamination. Brown's portraits bring to life what cold numbers never can. One is reminded of psychologist Robert Jay Lifton's pithy observation: "statistics don't bleed."

The official denial of the consequences of the Chernobyl disaster follows a familiar playbook. The atomic bombings of Hiroshima and Nagasaki were followed by a blackout of information about the resulting deaths and, especially, the impact of radiation exposure.

Similarly, the adverse health effects of atomic bomb tests and accidents at nuclear facilities were kept secret and any revelations treated as a public relations problem rather than as an opportunity to address the public health disaster that it actually was.

Surprisingly, the United States, far from using Chernobyl in anti-Soviet rhetoric, accepted the Soviet claims of minimal disruption of the ecology and ill-effects on humans. This strange congruence between the Cold War rivals, Brown argues, was due to their mutual interest in preserving the legitimacy of nuclear power as a safe energy source.

Timing also played a part. During the 1990s, when Chernobyl's impacts were being debated, many Western countries, including the United States, were being sued by their citizens for exposing them to radiation from atomic weapon tests.

Minimizing the Toll

Manual for Survival documents the various devices used to minimize the health toll from Chernobyl. One was to allow only a very small number of conditions, specifically cancers, thyroid cancer in particular, as the only admissible signatures of harmful radiation. A second was to use unwarranted extrapolations from earlier studies (e.g. the Hiroshima Lifespan Study) to Chernobyl.

A third was to low-ball the radiation dose people were exposed to, and then argue that any observed health effects could not be due to such small doses. A fourth was to define safe levels by fiat and declare that exposures below these levels could not cause health impacts.

A chapter called "The Butterfly Effect" explores the history of how official bodies like the World Health Organization (WHO) and the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) dealt with the explosion of cases of thyroid cancer in the region. It is a good example of the way Brown integrates biographical narrative, history and political analysis.

The chapter details the hard work and uphill struggles in which scientists like Valentina Drozd from the Institute of Radiation Medicine in Minsk and Keith Baverstock from the WHO's European office were involved. They ultimately uncovered the "unexpectedly early and large spike in cancers in children from the most contaminated regions." (251)

Brown goes on to document the hostile response of officialdom, particularly how the upper echelons

of the WHO, UNSCEAR and the International Atomic Energy Agency tried to suppress this knowledge.

She crisply summarizes the playbook they employed: “classify data, limit questions, stonewall investigations, block funding for research, sponsor rival studies, relate dangers to ‘natural’ risks, draw up study protocols designed to find nothing but catastrophic effects, extrapolate and estimate to produce numbers that hide uncertainties and guesswork, privately slander and threaten dissenting scientists, and cast doubt on known facts so that scientists must pursue expensive and duplicative investigations to prove what is clearly evident.” (256)

The resulting charts in UNSCEAR documents, Brown says, “felt like meditation…I too wanted to believe in the charts, to dissolve into them and make those sick kids in the contaminated regions go away.” (262)

Proliferating Disasters

Manual for Survival also records one role that scientists sometimes play in undermining struggles for environmental justice: abusing their status as experts by denying negative health consequences of “low” levels of radiation, they delegitimize and undermine the lived experience of the affected population.

This role is by no means specific to radiation debates, as scientists have been deployed by corporations and governments to discredit popular environmental and public health movements.

Brown’s questioning of the legitimacy of the technocratic whitewashing of the real impact of Chernobyl has unsurprisingly been criticized. Some reviewers have attacked her by counterposing her claims with those made by the kinds of “experts” whose work stands exposed by the history Brown uncovers.

Underlying these attacks, and the associated debate over the health impacts of low-level radiation, is the future of the nuclear industry with billions of dollars at stake. Brown is open about her stance on these subjects and has argued for her point of view vigorously yet rigorously, without pretending to be observing from the proverbial disinterested academic ivory tower.

Finally, Brown’s book is opportune. The subtitle, “A Chernobyl Guide to the Future,” suggests that this is not history for history’s sake but a message for us now when nuclear power is being aggressively promoted as a solution to climate change.

By bringing home the lessons of Chernobyl, Brown gives a glimpse of a possible future if nuclear power is pursued. If we absorb this history, the seductions of nuclear power will no longer have a hold on us. We thus have in our hands history as redemption — the unacknowledged victims of Chernobyl finally have a voice.

Like Hamlet’s father, their ghosts flicker through these pages demanding acknowledgment and redress for the injustice done them. And we have history as prophecy, what Chernobyl portends for the future if we pursue nuclear power — a proliferation of nuclear ecological disasters.

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