Survival: A Chernobyl Guide to the Future [2019]), and Adam Higginbotham (*Midnight in Chernobyl: The Untold Story of the World's Greatest Nuclear Disaster* [2019]). Not the German-made series *Dark*, a sci-fi thriller premiering in 2017 about a number of small-town generations warped by the moral transgressions that are inseparable from a local nuclear power station's construction and its radioactive waste depot in a crypt turned time-travel tunnel.

In contrast to *Dark*, which overwhelms with tangled timelines (1953, 1986, 2019, and beyond—and before) and insinuates that Chernobyls lurk anywhere, *Chernobyl* beckons with a simpler plot and a palatable Soviet flavor. Lyudmilla Ignatenko, the pregnant wife of the dying liquidator Vasily Ignatenko (her story is borrowed from Alexievich), becomes a quintessential romance heroine retrofitted for really existing socialism. To reunite with her husband, she navigates the loveless corridors of Soviet institutions, sneaking past their emotion-deprived human pillars. Yet Lyudmilla's original account in Alexievich is less black and white; her journey to her husband's ward is paved with the kindness of strangers and friends: "You poor, poor thing," she hears often, and her reunion with Vasily is not strictly accomplished by the twosome. The original story touchingly details her dogged dedication to cooking for *all six* wardmates—no obligatory Soviet heroism, but a desperate reach for agency, normalcy, and humanity (Alexievich, *Chernobyl Prayer*, 12).

Televisual mass culture has long played a role in shaping memories, fracturing or merging them, and galvanizing them for political aims. Just a decade ago, optimism about its potential was ascendant. Disaster-film scholars prophesied a future for the genre's "new responsibilities": involvement instead of seduction, empathy instead of entertainment, and awareness instead of escapism (see, for instance, Stephen Keane, *Disaster Movies: The Cinema of Catastrophe* [2006], 107). Memory scholars ventured that screen fictions bring private ordeals into the public consciousness, upending the traditional modes of historical knowledge production, forging "unexpected alliances across chasms of difference," and kindling new forms of self-awareness and solidarity (Alison Landsberg, *Prosthetic Memory: The Transformation of American Remembrance in the Age of Mass Culture* [2004], 3). Such enthusiasm has since grown quieter. Will fiction shame in the age of grift cause it to rise—or to fall definitively?

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Since it aired, starting in May 2019, HBO's *Chernobyl* series has been subjected to a lot of scrutiny regarding its accuracy. There's much to be critical of. The "fear of the bullet" atmosphere it invokes is more appropriate for the Stalin era than the Gorbachev; its depiction of accident hazards is often dramatically exaggerated (there was never any risk of a multiple-megaton explosion); and while high levels of radiation exposure can indeed produce some nasty effects (including "sunburns" and blistering), it doesn't make people so radioactive that, once cleaned and decontaminated, they can "contagiously" spread radiation to those around them (much less have that radiation be selectively absorbed by a fetus, to save the mother).

This is just to name a few of the basic factual "howlers," ignoring a lot of the more subtle technical errors, and not to even get into whether the "blame Dyatlov" line of argumentation (not coincidentally, the same approach taken by the Soviet Union itself!) is a poor way to think about the cause(s) of the accident.

Some of these errors are in service of the plot. The "radioactive fireman" narrative thread that moves through each episode is clearly a key way to humanize the accident, and is taken wholesale from the prologue to Svetlana Alexievich's *Voices from Chernobyl* (2005). Alexievich's collection of oral history interviews has much value, but some of the descriptions in it are highly misleading: at best they reflect what people were told, or remembered, but, as historians well know, there can be a gap between perceptions and reality. One could, in a very charitable mode, read the "radioactive fireman" narrative as being a reflection of a subjective experience, but that isn't really how it is shown. Nobody who lacked a sufficient understanding of how radioactivity works would be expected to think that the show was not trying to indicate that the mother had not in fact had a fatal dose of radiation on account of her post-accident time spent with her husband, "but the baby absorbed it instead." (Birth defects and spontaneous abortions are indeed well-documented side-effects of radioactive exposures, though it is not because they selectively absorb radioactivity to "save the mother," but because developing and rapidly growing cells are particularly vulnerable to the cellular and genetic damage caused by ionizing radiation. They can also occur naturally as well, which is why it is difficult to attribute causality in individual cases, as opposed to epidemiological studies that look at "excess" occurrences from the norm. But once his clothing was stripped from him, and he was washed, her fireman husband would not have been sufficiently radioactive to give his wife any kind of significant dose.)

There are some errors that are not really in the service of the plot. The "megaton" explosion threatened

is not accurate in the slightest, nor is the description of the effects of a three- or four-megaton blast (it is exaggerated by a significant factor). Why do this? To heighten tension, sure. For "good television." But what is the cost of "good television"? In a *New York Times* review published on June 2, 2019, science writer Henry Fountain wrote that the errors don't "really matter," because they are in the service of getting the "basic truth right." Whether this is accurate depends on whether you think they've gotten the "basic truth" correct, and on the cost of errors done in the name of a greater good.

But this is not really meant to be a fact-checking piece; many of those are easy to find. I'm more interested in how *Chernobyl* was watched, because watched it was: according to HBO, over 50 percent of HBO subscribers watched the series (over eight million viewers), topping even *Game of Thrones* in terms of market penetration, according to Travis Clark's June 13, 2019, article on *Business Insider*. That's impressive for *any* series, much less one about a nuclear disaster in Ukraine that happened over thirty years ago—the sort of thing that conventional wisdom typically says is not what people want to spend their entertainment time watching.

Why did they watch it? Without wanting to speculate (was it the advertising campaign, the acting, the production values, the lackluster nature of said last season of *Game of Thrones*?), let's just operationally say that *Chernobyl* "worked as television," whatever its relationship with history and technical accuracy. What did it "do" for its watchers? Entirely nonsystematically, I tried to ferret this out from friends and colleagues (none of whom study nuclear topics) as they told me what it was they found interesting about the series. The general gist was along these lines: they knew *nothing* about Chernobyl except that it was a terrible nuclear accident, and the series "brought to life" the people involved and explained the technical aspects in language they could make sense of. Which is to say, it appears to have opened the "black box" of the Chernobyl accident in a way that was accessible, which is no easy thing.

Most books on Chernobyl from the 1990s and early 2000s are densely technical and require significant intellectual investment. Even the more accessible ones, which tell a more human story (like Serhii Plokhy's 2018 book *Chernobyl: The History of a Nuclear Catastrophe*) still require quite a mental investment for people unfamiliar with Soviet history, with its labyrinthine bureaucracies, and with how nuclear reactors work. How many histories of Chernobyl start with a complex diagram of an RBMK reactor and an attempt to explain what a positive void coefficient is? How many require wading through descriptions of the overlapping responsibilities of opaque agencies like Minenergo and Sredmash? The show made viewers feel empowered to understand a complex political-technical disaster, even if in some respects it oversimplified that very complexity.

The very popularity of *Chernobyl* has understandably led to a strong online presence of people wanting to ask, or talk, about it. Over the last few months, I've seen many questions related to the series on Reddit, Stack Exchange, Quora, and other online discussion or question-answering websites. Often these are about dissecting some of the technical assertions: the kinds of questions one might ask if one knows a bit about the technical aspects and is suspicious of the show's depiction (the aforementioned "radioactive fireman" scenario evoked most of these, as did the "megaton" fear, both of which stand out as extremely dubious if you have a little understanding of the underlying technical aspects). Some of them were asking for clarification ("What does a reading 12,000 Roentgen mean?" asked one person to the physics board at Stack Exchange); one was pushing back against the idea that all Russians hated the series.

Some of these online outpourings were simply laudatory. There are several Reddit forums ("subreddits") devoted to the show, many of which are dominated by Chernobyl "memes," mostly making fun of Dyatlov's authoritarian attitude ("RBMK Reactors Can't Explode, Change My Mind," reads one that riffs off of another popular "Change My Mind" meme), or his "3.6 [Roentgen]—not great, not terrible" quote. These seem likely to be the product of young people (teenagers, college students), people who were not alive at the time of the accident (and in full disclosure, I was five when it happened, and have no memory of it whatsoever myself). They are historically removed from it, its fears, and its consequences, and perhaps that is what enables its easy translation into humor.

The most interesting responses I've seen are in reaction to articles that dispute key aspects of the show. These seem to generally come in two forms. The first is a denial that the show, as entertainment, has any real responsibility to the truth. It's "just a show," and, as one Reddit user asserted, people shouldn't try to understand a complex historical/technical event from a piece of entertainment. Of course, we know that most people *do* learn about such things from media products, and that media products have had outsized influences on popular discourse on nuclear issues in particular (on this, see Spencer R. Weart's 2012 book *The Rise of Nuclear Fear*). Films like *On the Beach*, *Dr. Strangelove*, *The China Syndrome*, and *The Day After* have had profound impacts on how we process the "real" risk of nuclear technologies.

Occasionally there is a more thoughtful response, one that takes to heart the core message that *Chernobyl* is trying to convey about the importance of living in a society based on truth and not falsehood. For example, one Reddit user, after reading a "debunking" article,

wrote: "It's strange that I want to cling to the fictional version because I am so attached to it. Ironically, that's the counter-point to the whole series. As incredible and entertaining as the series is, you have to maintain your cynical search for the truth. It's a good lesson from the show that even applies to the show itself" (NickMoore30, July 1, 2019, comment on "Chernobyl HBO TV Series: What Really Happened and What Never Did!" from Reddit's r/TVChernobyl subreddit).

As someone who has consulted for Hollywood shows before (I was the historical consultant for the WGN America show *Manhattan*, which is an alternate history of the Manhattan Project), I understand a bit of the tension between scholarly accuracy and the needs of entertainment. Shows that push for pure historical veracity not only don't reach it (because that's hard to do even with a book-length monograph, as any historian knows), but tend to lack the narrative whole that good cinema requires. Historical narratives and cinematic narratives are rarely a perfect mesh—and when we find our historical narratives feeling too much like a cinematic one, it's usually a warning sign that we're missing a lot of nuance.

But there are better and worse mistakes, especially if the underlying subject has real-world consequences. Nobody probably cares much that the writer of *Chernobyl* combined many secondary scientists into a single character for the purpose of the narrative arc of the plot—that isn't really a fundamental error, even if it is historically inaccurate (and, a historian of science like myself might note, contributes to a common popular understanding of how scientific knowledge is produced). But mischaracterizing the effects of radiation itself is a pretty fundamental problem, because most people already have a poor understanding of the technical aspects, and this does impact a much wider world than Chernobyl alone: it affects how people perceive nuclear power broadly, it affects how people respond to potential risks and hazards, and it could have severe consequences if there were some kind of radiological incident in the future (e.g., increasing panic in ways that could be counterproductive to safety and recovery).

As to the argument that a small lie can tell a bigger truth, I'm not sure that quite applies to the technical issues: the bigger truth isn't aided by this kind of error, and ultimately, the effects of the Chernobyl accident were bad enough to not require exaggeration. The historical issues strike me (perhaps wrongly) as less crucial here. Most Americans already have a cartoonish understanding of the Soviet Union, and so in this respect *Chernobyl* was playing to the expectations of the audience. Toning down some of the impressions might have had a positive effect (that there are fears other than the bullet that motivate people to do bad things is an important point to make), but the long-term effect of such errors strikes me as likely less worrisome.

We might ask ourselves: Do the lessons that the American public learned from the *Chernobyl* series outweigh the inaccuracies? I think it's too early to tell—it would be interesting to see whether there was any correlation between having seen the series and knowledge of nuclear issues, and scientific misconceptions. If I were to be optimistic, I would say that at least *Chernobyl* put the accident on the public radar again, and showed that one can make popular television that attempts (however effectively) to be a historical account of a complicated political-technical event. For those of us who think that nuclear issues need more representation in popular media, that's a good thing.

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