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Review Of "Taking Action, Saving Lives: Our Duties To Protect Environmental And Public Health" By K. Shrader-Frechette

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New York: Oxford University Press, 2007. Pp. 299. $29.95 (cloth).

Taking Action, Saving Lives is about pollution and the ethical responsibility to combat it. Drawing on an exhaustively documented description of the harm that pollution causes in human lives and the mechanisms of its causation, Kristin Shrader-Frechette concludes, first, that we are dealing here with major violations of human rights and, second, that we all bear prima facie responsibilities for redressing them. She then explores some of the ways in which positively assuming these responsibilities can lead to appropriate action. Special attention is paid to the responsibilities that scientists incur in light of the harm caused by pollution. This reflects the author's many well-known writings on risk assessment and the ethics of scientific research, as well as her extensive experience serving on major scientific and regulatory commissions, and it gives the book its distinctiveness and authority. In this review I will discuss only this matter. Shrader-Frechett's argument is not marred by the temptations of reducing ethics to science and ignoring the potential relevance of science to ethical deliberation. Consequently, in addition to offering a substantive contribution to applied ethics, the book is a rich case study of how "flawed science often leads to flawed ethics" (5).

The author's first conclusion, drawn in chapter 1—harm caused by pollution involves not only profound and often irreversible environmental damage but also human rights violations that exceed any tolerable threshold (123)—is based on the facts she assembles about pollution and the harm that it causes and risks. Included are facts about cancer and air and water pollution, threats to children, minorities, and poor people; pollution causes deaths or injuries, many of which "are easily preventable, inequitably distributed, victimize children most or result from ignoring citizens' rights to know and to consent" (7). This conclusion is not new. Shrader-Frechette's extensive documentation from mainstream scientific and medical literature and government and expert reports of the facts, however, combined with her able refutation of objections (31–38), make it difficult to deny or ignore and push it to the forefront of our attention.

The second conclusion—those who cause or who are complicit in the harm caused by pollution have responsibilities to redress it—follows from the first, conjoined with "the responsibility argument": "To the degree that citizens have participated in, or derived benefits from, social institutions that have helped cause life-threatening or rights-threatening . . . injustice, they have prima facie duties either to stop their participation in these institutions or to compensate for it by helping to reform them" (118). Elaborating this argument with nuance in chapter 4, Shrader-Frechette makes clear that people are responsible to different degrees for the human rights abuses connected with pollution and for taking action to remediate them (127). Governments and corporations, for example, may have the greatest responsibilities; even so, Shrader-Frechette maintains that scientists and their institutions and organizations have special ones. These derive from several sources. First, the industrial practices that produce pollution typically require making use of scientific knowledge. Second, it is well known that industrial practices and technoscientific innovations may occasion

risks, including of harm caused by pollution. Scientists, more than any other group, have the training, knowledge, and research skills needed to understand them. But relatively little effort has been put into investigating risks and ways to mitigate and avoid them; the priority of scientific research instead has been to gain knowledge that can inform technoscientific innovations. Third, scientists have sometimes loaned their authority to various ways of avoiding facing the problems of pollution (and of, e.g., side-effects of nuclear and pharmaceutical innovations), participating in the mechanisms of denial and minimization of risks that protect corporations from having to accord with regulations that, although intended to reduce harmful effects of production, are considered too expensive to implement. The third source becomes ever more salient with the increasing identification today of science with "private-interest science," in which research is funded by commercial interests, supplemented by government-sponsored research shaped by the priority to produce applications that will have reasonably short-term economic benefits (Sheldon Krimsky, *Science in the Private Interest* [Lanham, MD: Rowman & Littlefield, 2003]).

The first two sources of their special responsibilities point to the causal role of scientists in bringing about and maintaining the harmful effects of pollution, and the third to outright rejection by significant parts of the scientific profession to assume the responsibility (duty) to contribute to redress them. The third also underlies that engaging in private-interest science leads to insensitivity to public harm and to holding "private-interest ethics" (6) and that these impede discerning the morally significant facts of our age for, in private-interest science, facts that have moral significance are described in ways that disguise that they have it, or they are not described at all. In addition, the author contends, not only does private-interest science underlie these ethical failures (and others discussed below), but it also often incorporates "flawed science," and it is because the science is flawed that it enables these ethical failures.

Obviously not all science is flawed. The efficacy of countless technoscientific innovations speaks to the soundness of the science (often private-interest) that explains how they function in bringing about certain desired outcomes, and technoscientific innovations are needed to address pollution and global warming problems. Moreover, for Shrader-Frechette herself, science is indispensable for describing the facts about pollution in ways that enable their moral significance to become apparent. Nevertheless, she maintains, when it deals with the harm caused by pollution, and generally with risks of technoscientific implementations, private-interest science characteristically is flawed.

What are the alleged flaws? The author provides a long bill of particulars, none present in every instance of private-interest science, which, she documents, occur with such regularity that they cannot be passed off as mere lapses. These include the following:

i. Evidence that would be pertinent to testing a hypothesis is not sought for, and those attempting to procure it confront difficulties, including denied funding and even harassment. Instead, misleading and irrelevant data are collected.
ii. Risks occasioned by pollution, and harm actually caused by it, are denied or minimized in the face of contrary evidence or without adequate sup-

porting data.

iii. Uncertainties are misrepresented as established scientific knowledge. The hypothesis "There are no risks," for example, is said to be supported by "There is scientific evidence that there are no risks," although this is inferred from "There is no scientific evidence that there are risks," when no or insufficient research has been conducted (93).

iv. Statistics are misused. "Undesirable" hypotheses are held to absurdly high standards of proof that often could only be met by engaging in manifestly unethical research (86).

v. Data are falsified, suppressed, or held "confidential" so that they cannot be independently appraised, and fraudulent "scientific" studies are conducted (51–54, 91–92). "Data" may become acceptable if they support preestablished results—the current U.S. government "allows regulators to accept non-refereed, unpublished, small-sample, polluter-funded studies on humans" (89).

vi. Facts (data) become turned into market commodities (67). Scientists assume entrepreneurial roles alongside their research ones, creating conflicts of interest, and scientific standards for appraising what is properly supported by empirical data become effectively replaced by marketplace considerations about, for example, convincing regulators, investors, and the public and avoiding litigation (87–88).

vii. Little support is given by scientists to citizens who raise questions about harm apparently caused by pollution in their neighborhoods. Research on cures to disease is prioritized over that on prevention; technoscientific innovations are favored over treating any harms and risks they may occasion.

To Shrader-Frechette it is obvious that these are all flaws. Fair enough! But in virtue of what are they "flawed science"? Answering this question, and thus making explicit what seems to me to be implicit in her argument, we will see contributes to strengthening her claim that scientists have special responsibilities. Most of the listed items are flaws in virtue of their violating objectivity (in my summary): a hypothesis should become accepted as scientific knowledge only when it has been appropriately tested in the course of empirical research and judged to be well supported by available data in the light of strict cognitive criteria (e.g., empirical adequacy) that do not reflect particular ethical or social values, and only after the claims made by competing hypotheses have been adequately considered in empirical research. (The author uses 'objectivity' in a wider way, essentially to characterize evaluation that is "bias free," so that a hypothesis may be considered objectively held, though uncertain and not accepted scientific knowledge, if supported by the preponderance of evidence.) It does not violate objectivity that some hypotheses, which inform and must inform our activities, are uncertain; but it does if the uncertainty is covered up and a hypothesis is incorrectly portrayed as accepted scientific knowledge, thereby misrepresenting as objective what is actually a reflection of special interests. In private-interest science, violations of objectivity serve commercial interests and often also political and scientists' self-interests.

Shrader-Frechette also maintains that science, which regularly embodies

the listed items, threatens the "open inquiry that is essential to scientific progress and to citizen's rights to know" (90). "Flawed science leads to flawed ethics." More than this, she suggests, the items are "scientific flaws," not only because most of them involve violations of objectivity but also in virtue of the fact that they impede science serving well such values as open inquiry and public health and safety, for which major scientific organizations recognize that scientists have special responsibilities. Private-interest science is not neutral, since its results provide privileged support for and service to particular ethical and social values at the expense of others. (Objectivity does not imply neutrality in this sense.) But it is not this lack of neutrality that Shrader-Frechette sees as partly constitutive of private-interest science being flawed; it is that it serves the "wrong" ethical values (e.g., commercial ones rather than public health and safety). Perhaps I have misunderstood the author on this point. Be that as it may, it seems to me that what really constitutes the flaw is that private-interest science is treated as virtually identical to science, and so it does not accord with a different sense of neutrality, one which applies to scientific results as a whole rather than to each individual result and which—like objectivity—has been widely proclaimed throughout the scientific tradition. In this sense, neutrality includes the view (I summarize): in principle, the results of scientific research, considered as a whole, can inform evenhandedly interests fostered by any of the ethical and social value outlooks that may be rationally held in today's world, rather than some privileged ones at the expense of others—rather than, for example, commercial interests being privileged at the expense of the interests (and human rights) of citizens who suffer harm from pollution.

The listed items are partly constitutive of "flawed science" because they involve discord with objectivity and/or neutrality. Thus, they are violations of the fundamental values that legitimate the authority accorded to qualified spokespersons of science, and so they negate presuppositions of the authority that private-interest scientists assume they can count on when they dismiss critics as bearers of "anti-science" and special-interest biases. Hence follows Shrader-Frechette's indictment of private-interest science and her recommendation that ordinary citizens demand a role in directing, monitoring, and evaluating scientific projects. It is the special responsibility of scientists, research and teaching institutions, and scientific organizations to act to correct flawed science and thus remove a source of flawed ethics. When they do not assume this responsibility, there can be no sound objection, based on the "autonomy" of science, to citizens demanding these roles.

When addressing pollution, therefore, the responsibilities of scientists have two sources: first, responding to human rights abuses and, second, living up to the values that ground claims to special scientific authority in matters of empirically based knowledge. On this matter, the commitments of ethics and sound science are one; the motivation for scientists to respond to the harm caused by pollution involves concern both for human rights and for the integrity of science—thus confirming that explicit reflection of why the items on her list are "scientific flaws" strengthens the author's conclusion. What this two-sourced responsibility means concretely, Shrader-Frechette clarifies, needs to be concretized in countless complementary ways by individual scientists and organizations.

She gives several examples, treating the proposals of the American Public Health Association in greatest detail.

In general, assuming the responsibility requires taking an ethical stance in the face of uncertainty. We know that pollution has caused considerable harm, although in many situations we don't know the specifics well, and we know from the historical record that technoscientific innovations involve risks to human and environmental well-being. But what we know is dwarfed by the uncertainties that remain. We can (and should) engage in research on these matters, but often we have to act now and, even with research, we may only be able to reduce the uncertainty—and regulations have to be developed under these conditions. Funders and participants in private-interest science often say that we should regulate only on the basis of science, that is, only regulate when positive evidence is at hand that harm is being caused (100). The author correctly shows how this stance secretes the flawed ethical viewpoint that we do not have the duty to investigate the harm caused by our actions and that ranks the value of technoscientific progress (and its benefits) over the defense of human rights. Instead of it, she recommends adopting the Precautionary Principle, that is, to delay implementation of technoscientific innovations (including the use of potential polluting agents) pending appropriate research being conducted on potential long-term environmental and social risks, including threats to human rights. While what constitutes "appropriate research" is something to be negotiated among parties with stakes in the outcomes, I found particularly interesting her reference to the research (tracking over the long term links between health problems and pollution sites) that would have been funded had the National Health Tracking Act been passed by the U.S. Congress (197–98).

The book is lucidly written. It is intended for and accessible to a wide audience, including students and thoughtful members of the general public, and it covers with depth and insight important themes that I have been unable to discuss in this review. Throughout, Shrader-Frechette's analysis is informed not only by her wide-ranging knowledge of relevant scientific material but also by her close familiarity with ethical theory. It is enlivened by a sense of indignation, compassion, and urgency and by a poignant hopefulness that derives from a sensitive portrayal of people who, in the face of powerful obstacles, have organized to deal with local pollution problems.

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Wood, Allen W. *Kantian Ethics.*
Cambridge: Cambridge University Press, 2008. Pp. 342. $80.00 (cloth); $25.99 (paper).

In this book, Allen W. Wood's main aim is not to interpret Kant's ethical writings but rather to develop on their basis "the most defensible theory possible" (ix). It is hard to imagine a philosopher interested in Kantian ethics who would not learn from Wood's efforts. Perhaps no contemporary Kantian ethicist possesses his combination of sensitivity to Kant's concerns and acumen at illustrating their