language and imagery to articulate his new definition of design: "If we understand that design leads to the manifestation of human intention, and if what we make with our hands is to be sacred and honor the earth that gives us life, then the things we make must not only rise from the ground but return to it, soil to soil, water to water, so everything that is received from the earth can be freely given back without causing harm to any living system" (McDonough, 1993, 3). Design – the making of things with our hands – goes beyond being pragmatic and becomes a sacred activity through which we either honor or dishonor the source that gives us life.

For readers to whom the spiritual dimensions of this framing are not persuasive, McDonough offers another level of imaginative transformation centered on "the concept of design itself as the first signal of human intention" (1993, 3). Through this concept, "design, ecology, ethics and the making of things" become inextricably intertwined. In this model, the things we make are representations and signals of "our longings and intentions." Our designs, in other words, communicate and announce our intentions even if we do not speak a word. The products of design express principles or ideas in visible form. They epitomize and embody and, in the process, speak volumes about our intentions even when we have not explicitly articulated those intentions. In this framework, artifacts, systems, and structures "speak." McDonough calls our attention to what we are essentially saying when we design and operate systems in a certain way: "Our culture has adopted a design stratagem that essentially says if brute force or massive amounts of energy don't work, you're not using enough of it" (1993, 3–4).

McDonough further develops the idea of products or designs as "speaking" about our aspirations and intentions by using the concept of "idiom," which carries meaning in both design and communication contexts. In place of the "industrial idiom of design" which we can associate with the concept of development, he proposes the idea – based on "natural design" – that "waste equals food," in other words, that all wastes produced serve as food for other systems. "All materials given to us by nature are constantly returned to the earth without even the concept of waste as we understand it. Everything is cycled constantly with all waste equaling food for other living systems" (1993, 4). This new model serves as an incentive to creativity, and evokes, and is compatible with, a very different ethical framework than the "idiom of industrial design."

In the domain of engineering design, especially engineering design sponsored in the context of capitalist organizations, the equivalent of McDonough's model may lie in the emerging concept of "doing well by doing good," that is, approaching business with the aim of balancing the financial bottom line with the bottom line of ethics and social concerns (Finkel, 2002, 2). The "doing well by doing good" approach leads researchers at Northwestern and the Wharton School of Business to address subjects in which ethics and issues of social responsibility "become a central focus of management thinking in general" (2002, 5). "Balancing the relationships between financial success and a progressive social agenda can prove extremely complicated for business" (2002, 5), but it can also be a great source of individual and collective empowerment, especially for engineers whose own professional history is rooted in an emphasis on "doing good."

7 Conclusion

We have argued in this chapter that disrupting the discourse of inevitability will require us to recognize and confront the sources of its robustness. To put it simply, we must find a way to connect with public discourse on a large scale and to develop accessible and persuasive narratives in which the individual engineer can make a difference. Developing an accessible discourse that will help people reinterpret their own experience is an essential step in this process. Another is to help both the community of engineering professionals and those outside it recognize that we have choices about the forms of discourse in which we engage, and that those choices matter. One key element in realizing these goals will be for STS scholars to engage with public discourse and offer accessible and persuasive narratives of design as a process imbued with ethical considerations.

The point of this chapter is not to make a claim about the nature of technological development. It is to focus on the impact of our way of speaking about the process of the introduction of technology in society. It is our argument that the mode of discourse in relation to technology, as well as elsewhere, is centrally relevant to how we perceive the thing itself. This is not a new thesis in its theoretical dimension, (see, for example, Heidegger, 1977) but one which has often been ignored in the dominant focus on the object (technology) itself. STS has done an admirable job of looking at the dual influence, i.e., feedback loop, between technologies and society, but in that very feedback loop has implicitly expressed a notion of inevitable progression. To give true voice to ethical concerns, however, it is important not to see technological development simply as a chain of developments, of which any human actors become simply another link, but instead as an opportunity for the expression of creative and original impulses (upsurges in Being). If we can focus the discourse of technology on this dimension, then the opportunity for ethical discourse and reflection arises for the central actors in the process. The how, why, and wherefore of technological innovation will be subject to interrogation without a predetermined answer based on a narrow conception of progress, for example, increased efficiency. The outcome of that process will be seen as the STS community already accepts: indeterminate.

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