Mikael Hård

The Cultural Assessment of Technology and Science

Extracted from an informal response to Paul Forman's "Postmodernity Thesis" at the conference of the German Society for the History of Medicine, Science, and Technology (DGGMNT), Hannover, September 27, 2009.

My point of departure is the following quotation from Paul Forman's article "The Primacy of Science in Modernity, of Technology in Postmodernity, and of Ideology in the History of Technology"[1]:

> [Leo] Marx's anti-technological bias was consensual among historians of technology generally, but "especially among those who address the cultural history of technology" (p. 64)

Since I myself feel very much committed to a cultural history of technology *and* science,[2] I cannot leave this passage uncommented. Forman's argument in this connection is that historians of technology tend to, as he puts it elsewhere, "keep technology down" (p. 53), and that those of us who have been inspired by Leo Marx or David Nye are especially critical toward our technological civilization.

Although I disagree with much in Forman's essay, I must confess I agree with him on this score. And I must also confess pride in being critical toward technology and science. To explain this pride I turn to Immanuel Kant. With him I ask what our task as historians is. In his *Critique of Judgment* from 1790 Kant differentiates between what he calls *determinate* and *critical* judgment (§ 74). Determinate judgment is what we ordinarily find in mathematics and experimental philosophy; it is a mostly deductive process that will ultimately lead to a firm, secure conclusion. By contrast, the formation of critical judgment is an open-ended process and we usually find it in philosophy and aesthetics, or what we today might call the arts or the humanities. The knowledge that is being produced in the latter disciplines is not necessarily critical in the sense of being negative (as we usually understand the notion of criticism today), but it is always

reflective. The task of philosophy—and thus of history writing—is to develop our reflective abilities, to learn how to employ our sense of judgment in a critical direction.

On the basis of this brief epistemological consideration, I propose that the role of history writing is not to legitimate science or technology, but to provide society with reflective knowledge about these phenomena. Analyzing and discussing the development of technology and science by means of critical judgment is an essential element of what I call the "cultural assessment of technology and science." By mobilizing critical distance to technology and its history, historians ought to contribute to contemporary debates about the role of technology in society. Or, as teachers, it ought to be our task to contribute to transfer reflexive knowledge and a keen sense of judgment to our students.

If it is the case, as Forman claims, that technology has turned into a formative power in what Raymond Williams used to call our dominant culture, it becomes all the more important that historians, in general, and historians of technology, in particular, develop a critical and reflective stance toward it. Today, when we are bombarded by messages that celebrate one gadget or another it is our task as humanists to unravel the kind of hype we find both in the media and in scholarship (James Womack's and his coauthors' analysis of lean production as a "Machine That Changed the World" (1990) here comes to mind). Taking for granted that the task of the humanities is to contribute to our emancipation from what Kant called "self-imposed tutelage," it would appear that our profession *has* to expand our reflective knowledge of the history of technology, thus offering society with an appropriate dose of critical judgment. Of course, this is an ideological stance, and I consider it self-evident that the humanities—be they historians or philosophers—can never be ideologically neutral or disinterested. I do not know if Forman really claims that history of technology ought to turn its back toward all forms of ideology, but if this is the case, I strongly disagree. To be a humanist always means to take an ideological position. To paraphrase Kranzberg's first rule: History writing is neither good nor bad, nor is it neutral.

So far my main message as I move on to address two problematic, indeed paradoxical points in Forman's article.

The first point is about the scope and limits of his historical method, a method I call cultural reductionism and which Forman himself refers to as the "primary importance [of] cultural values" (p. 69). Postmodernity, Forman claims, is guided by "pragmatic-utilitarian, primacy-of-ends" values, values that are compatible with the proposed primacy of technology (p. 72). This claim treats the historical phases of modernity and postmodernity in a far too homogenous manner. Paradoxically, it seems as if the only group in our society that has managed to remain immune toward the cultural values of postmodernity is the history-of-technology profession. Only we, allegedly, have not yet realized the "epochal elevation of the cultural standing" of technology in our age. How, I ask myself, is this possible? If cultural values are of primary importance in society, then it is not convincing to argue, as Forman does, that historians of technology have managed to resist the virus of postmodernity because they have been so heavily involved in a fight for professional autonomy.

I would like to carry this line of thought one step further. Elsewhere in his essay Forman suggests that historians of technology have tended to underestimate the extent to which engineers, especially in the first half of the twentieth century, subscribed to the modern notion of the supremacy of science. Basically, Froman suggests that historians like Ronald Kline and Edwin Layton misconstrued the motives of outspoken engineers in this period who argued they are engaged in "applied science." Instead of realizing that most engineers were in fact deeply convinced of the primacy of science, these historians are said to have argued—without "substantial evidence" (p. 65)—that those engineers were self-interestedly hoping to enhance their social status by presenting their work as "applied science." Referring to Kline's article on the "Public Rhetoric of Scientists and Engineers" (1995), Forman writes that "Kline sought to delegitimate [the rhetoric] in the usual way, namely imputing to those engineers inestimable motives: self-interested considerations of social status, of public image, of professional politics" (p. 64). A cultural reductionist, Forman does not seem able to accept explanations on the level of self-interest. Indeed, he goes as far as to

suggest that Kline and other historians of technology are "attributing self-interested motives and disingenuous discourses to their subjects" where no such motives are to be found. Paradoxically—and this is the second paradox I find in Forman's article—he criticizes historians of technology along these very same lines. We are accused of keeping technology down and having cut off all ties to the history of science for exactly this kind of reason: self-interest and professional politics. To put it mildly, it seems to me that Forman wants it both ways, and I do not believe he can.

My last issue concerns the sources that Forman refers to and the picture he paints of contemporary history of technology. Instead of investigating the many exciting monographs that historians of technology published during the last twenty-five years, he has chosen to read programmatic and historiographic texts. If Forman had chosen to investigate what historians of technology actually do, instead of analyzing what they claim they are doing, then he would have ended up with a rather different view. Take the works of my colleague Thomas J. Misa, for example. Forman cites two of his journal articles and two of his book chapters, all of them dealing with theoretical and historiographic issues. Absent, however, is Misa's Dexter-Prize winning monograph *A Nation of Steel* (1995)—as are, by the way, Jeffrey Meikle's Dexter-Prize winning book *American Plastic* (1995) and all of David Nye's empirical studies. If Forman had included *A Nation of Steel* or *American Plastic*, for example, he would have been able to see that scientific knowledge is very much present in history of technology and that technology is not at all "kept down." These books do not at all "ignore science in writing the history of technology" (p. 59), nor are they "diatribes against technology" (p. 65). Rather, they are solid historical studies that provide readers with critical reflections of the development, meanings, and applications of technology. Or, in my words, they are role-models for the cultural assessment of technology and science.