

# ON WHY TECHNOSCIENCE AND DEMOCRACY ARE COMPATIBLE AND MUTUALLY SUPPORTING PRACTICES: HABERMAS RESPONDS TO HICKMAN

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## Introduction

Pick up any major U.S. newspaper from late 2002 and it will feature stories on vaccinations, airlines, oil, the travails of the Chavez government in Venezuela, the ongoing conflict in Afghanistan, the conflict between Israel and the Palestinians, and the possible U.S. wars with Iraq and North Korea.

These items in the news deal, in some way, with technology, or democracy, or both. Technology and democracy seem to be abiding concerns. How do we fight disease? How do we move ourselves and our goods around the planet? What goods do we produce, value, need, or desire? How shall we, or even can we, govern ourselves? And, what if anything is the relationship between these two things? Do our tools set us free, or are we building our own prison? Can we have more technology *and* more democracy?

This is my question: "What is the relationship between technology and democracy?" The traditional answers can generally be grouped into three: First, there is no connection. Tools and techniques are value free, and the interesting question is how people will decide to use them. Second, technology will set us free. Here we find a sort of naive optimism that as technological capacity expands, human beings will lead lives of greater freedom and ease. And, third, which in some ways is a negative variant of the second, technology is a growing monster of our own making that will increasingly determine the course and content of our lives and sap what remains of our humanity.

All of these positions are still around. The second position, naive cheerleading for technology has died down in the high-tech information sector, but still has a place in the rah-rah enthusiasm for "high-tech" weapons in the U.S. military. Many critics adopt the third position and see unremitting evil and danger in every scientific or technological advance. And the value-free position, which sometimes is used to cover for the optimist's view, is perhaps the dominant one in popular discourse.

Of late, alternative positions have been developed that see technology as neither value-free nor value-determining.<sup>1</sup> Two of these positions, which also give a central place to a theory of democracy, are American Pragmatism<sup>2</sup> (as exemplified by Hickman) and Critical Theory<sup>3</sup> (as exemplified by Habermas). Authors working in each of these traditions examine the assumptions and consequences of scientific and technological change, and explore the nature and possibilities of democracy in light of science and technology (S&T).

Further, philosophers working in each of these traditions have criticized the other for failing to adequately account for the internal relations between S&T and democracy. Among the critiques that pragmatists have made of critical theory is that it is too abstract and too theoretical, and thus fails to offer resources that might help advance democracy. A second critique offered by the pragmatists is that critical theorists take an unremittingly negative line on technology, and thus fail to identify the ways in which S&T are consistent with democracy. Hickman's argument against Habermas is a version of this first critique.

Critical theorists have argued that pragmatism fails to achieve a critical perspective on science and technology, and most often functions as an apologetics for the status quo. In this, critical theorists accuse pragmatists of a naively hopeful attitude toward technology. Thus, pragmatism fails to advance the cause of democracy.

In what follows, I focus on the critique made by Hickman (a Pragmatist) of Habermas (a Critical Theorist) for making a strong split between technological and communicative practices, and hence democracy. In his 2001 book, *Philosophical Tools for Technological Culture*, Larry Hickman criticizes Jürgen Habermas' account of the relations between the technosciences and democracy. Hickman's book is an extended argument supporting the idea that technoscience and democracy are compatible and mutually supporting practices. According to Hickman, if we understand the technosciences and democracy as fundamentally different, and perhaps even incompatible human practices, then we will (1) understand neither technoscience nor democracy, and (2) this failure in understanding will hinder our efforts to improve both technoscience and democracy. Hickman argues that Habermas makes precisely this mistake. That is, Hickman claims that Habermas misunderstands the relations between technoscience and democracy, and articulates a theory that separates these two spheres of our lives in a way that hinders both our understanding and our attempts at reform. In this essay I argue that Hickman's account of Habermas is mistaken. Contrary to what Hickman maintains about Habermas' position, I will show that for Habermas the technosciences are not clearly separable from democracy. This will take place in three parts. First, I present Hickman's critique of Habermas. Second, I offer a critical account of Habermas' view of the relations between the technosciences and democracy by examining his response to positivism. Implicit in his critique of a positivist position is an argument that technoscience itself requires democracy. Third, I will explore Habermas' account of the "ideal speech situation" in order to present his explicit argument that because science is a social practice it is consistent with, and indeed requires, democracy.

### Hickman on Habermas

In *Philosophical Tools for Technological Culture*, Larry Hickman characterizes Habermas' position on science and technology as deeply ambivalent. He argues that Habermas' critique of technoscience<sup>4</sup> is disabled by the split Habermas makes between technoscience on the one hand and communicative and emancipatory practices on the other (167-168).

According to Hickman, Habermas understands technoscience as a sphere of human activity that operates according to its own values. These are not the values found on our communicative and emancipatory practices. These latter activities are characterized by dialogue about ends and the practices of everyday life. These activities allow and further democracy. On the contrary, as Hickman reads Habermas, the technosciences are interested only in control, predictability, and efficiency. In this, they are examples of what Hickman calls "straight-line instrumentalism" and cannot include debate about ends. One characteristic of "straight-line instrumentalism" is that the realm of science and technology is, and should be, left to experts and is thus outside of democratic control. As Hickman notes, Habermas argues that the technosciences, thus understood, will attempt to take over and shape everyday life, to "colonize the lifeworld."<sup>5</sup> Thus, not only will S&T necessarily exist beyond democratic control, they might increasingly threaten democracy in other parts of our lives.

As Hickman characterizes Habermas' account, the technosciences and democracy are fundamentally different activities. In the next two sections, I will argue that this is not Habermas' view. Habermas does offer the view ascribed to him by Hickman of the technosciences, but he does so in order to critique it as too narrow. Thus, Habermas will agree with Hickman's critique of "straight line instrumentalism." In the next section I present one of Habermas' arguments that emancipatory interest arises not only from communicative practice but also from technoscientific practice. I do so by examining his critique of positivism.

### Habermas on Human Interests and the Critique of Positivism

Habermas argues in *Knowledge and Human Interests* that human beings have certain interests in terms of which we organize our experience.<sup>6</sup> We are, Habermas notes, both tool using and language using animals. We must produce tools and techniques in order to survive our confrontations with nature; we must develop the ability to produce and control objects. As social beings, we must also communicate with each other. Habermas argues that from these two interests, the interest in knowledge that allows the control of objects and the interest in knowledge that allows for communication, follows a third interest. This third interest is in answer to the demand to understand the interest-bound nature of all knowledge and demands the self-reflective appropriation of human life. Accordingly, we submit our lives to rational evaluation. By following this demand, we increase our capacity for self-awareness and self-determination (autonomy). In other words, the third interest is an emancipatory interest.

According to Habermas, human beings have three cognitive interests: technical (tool production and manipulation), practical (communication), and emancipatory. These interests unfold in social life through three social media (means of social organization): labor, interaction, and power (relations of dependency and control).<sup>7</sup> Through these media, human cognitive interests give rise to the conditions of three sciences: the empirical-analytic, the historical-hermeneutic, and the critical.<sup>8</sup> Each of these gives rise to a corresponding form of inquiry: natural (or empirico-analytic) science, cultural (or historico-hermeneutic) science, and critical science. The natural sciences are those oriented toward producing technically useful knowledge. Theories in empirico-analytic science aim at predictive knowledge and are supposed to be value free and grounded in facts themselves. That is, "they grasp reality with regard to technical control that, under specified conditions, is possible everywhere and all times."<sup>9</sup> But, the rules by which we evaluate predictions and by which we determine the relevance of facts to our investigation "are first constituted through an a priori organization of our experience."<sup>10</sup>

Habermas critiques positivism for presenting the technosciences as straight-line instrumentalism. He rejects this account of the technosciences as too narrow. Habermas' critique of positivism is important to our present purpose because it helps us understand that, for Habermas, the technosciences are not clearly separable from communicative or emancipatory interests. Taking up the Frankfurt School critique of positivism,<sup>11</sup> Habermas argues that positivist philosophy limits reason's domain to that which can be discovered/created by employing the scientific method. Note, this is also the critique offered by Hickman against Habermas. Positivism fails as an account of the technosciences on its own account (what Habermas calls problems of self-justification) and because it presents a bad view of the nature of the technosciences.

By limiting rationality to technical rationality and declaring all values to be radically subjective (or, at least beyond the realm of rational decidability), positivism is presented with three problems in its self-justification. First, by claiming all knowledge can be accessed through a single scientific method, positivism must assume, as another critical theorist, Karl-Otto Apel, has noted, "objective knowledge is possible without intersubjective understanding through communication being presupposed."<sup>12</sup> Second, by declaring all that is not justifiable by technical rationality to be irrational, positivism marks the realm of practice as beyond rational justification. This means that positivism's commitment in practice to scientific and technological solutions is itself beyond rational justification. As Thomas McCarthy has pointed out, "The cost of abandoning a more comprehensive, substantial concept of reason is an irrational decisionism in the domain of practice."<sup>13</sup> Finally, positivism can question and explain neither the social preconditions of its own existence, nor its own internal social relations.<sup>14</sup>

Habermas' critique of positivism is not intended to be an argument against natural science as such. Rather he hopes to (1) show that technical rationality (instrumental reason) contains and generates values, (2) open up space for discussion of the cultural and critical sciences, and (3) explore the relations between the natural, cultural and critical sciences.<sup>15</sup>

He writes, in part, out of the belief that technical knowledge (empirical-analytical science), narrowly understood, cannot answer questions about goals and purposes, but that in the modern world many practical questions have been reduced to technical questions. So, often we do not consider whether something ought to happen, we only consider the most effective ways to bring it about. For example, we might not discuss whether train is more efficient than truck transportation, which is a better use of limited resources, and which is better for the long-term environmental health of the planet. Instead, we might discuss how to make long-haul trucking more efficient—triple trailers, more superhighways, and so on. So, given some goal, S&T can tell us the most efficient means of accomplishing that goal, but often cannot discuss the virtues of the goal itself. Or, given the way things are, S&T can tell us how to accomplish something, but may not be able to tell us if this is how things ought to be.

As Habermas notes, real science exists as a social enterprise. As such, science is affected by existing social relations. Some sciences can describe these social relations, but by aiming at "objectivity," these sciences preclude the possibility of evaluating existing social relations. Or, in other words, science cannot explain and evaluate the social preconditions of its own existence. Habermas also argues that science cannot examine its internal social relations. It can tell us the most effective treatments for a disease and the most effective way to build instruments of mass destruction. But *as science*, so long as it pretends to objectivity, it can neither evaluate the value of these projects, nor explain its tendencies toward "good old boy" networks, response to economic pressures, or resistance to new work, especially work which questions the existing presuppositions or social practices of science. For example, much research on education suggests that women are discouraged from pursuing scientific careers throughout their time in school.<sup>16</sup>

When Habermas claims that science cannot examine (1) its social preconditions and (2) its internal social relations, he means that as an expression of technical interests committed to avoiding value judgments, science cannot explain these phenomena though it may be able to describe them. Science is committed to truth-telling. The goal of an accurate description and explanation of the world requires an interest in open and free communication. If we

are interested in controlling (or simply understanding) the world, then we need an accurate model. In order to ensure we have the best possible model, we must test it, examine how it fits with existing models, and explore the questions it opens up. Doing so requires that the testing and discussion of theories must aim at truth, at the best possible explanation. To ensure this, science has an interest in openness and thus an interest in self-examination. In so far as the existing social relations limit open debate, research, and testing, then science has an interest in changing those social relations. Out of the actual conditions under which science is practiced, because they fall far short of the ideal and can distort the practice of science, we find that science (and scientists) has an emancipatory interest. If science believes in its own values, then it is committed to allowing the practice of science to proceed with knowledge of why and how some projects are undertaken and others are not. Because technoscience is a social enterprise, this also means (1) that there is a communicative interest presupposed, and (2) that implicit in the practice of technoscience is an interest in democracy.

### **Implicit Democracy: Habermas on The Ideal Speech Situation**

Habermas' account of the ideal speech situation is another way of thinking about how democracy is implicit in the technosciences, and thus why Hickman has misread Habermas on this point. Because science is a social practice, it is characterized by communicative interactions, that is by people talking to each other. Habermas argues that the very act of speech presupposes the possibility of an ideal speech situation where the force of the better argument alone will prevail.<sup>17</sup> Furthermore, the ideal speech situation functions as a regulative ideal against which we can compare our existing society.<sup>18</sup>

Habermas claims that when we speak, we presuppose four claims. When I speak I assume (1) that what I say is comprehensible, (2) that what I say is true, (3) that what I say is appropriate to this context, and (4) that what I say is sincerely meant.<sup>19</sup> These assumptions underlie every speech situation; however, they may not be concretely realized in every speech situation. That is, we may intend understanding when we talk; nonetheless, we might not achieve understanding.

Habermas argues that reaching an understanding presupposes that we can genuinely understand each other, and that it is possible to distinguish between a genuine understanding and a deceptive understanding. According to Habermas, a genuine understanding is based solely on the force of the better argument. If we agree, our agreement should not be based upon any hidden factors or prior constraints on speech. If we reach a genuine understanding, it is based on the force of the better argument alone. This can only be the case if all possible participants (i.e., all affected parties) have an equal opportunity to freely participate in the debate.<sup>20</sup> In this way we arrive at the "ideal speech situation," a situation of discursive practice much like Kant's "Kingdom of Ends."

In order to achieve a genuine understanding at the social level, all members of a society must have an equal opportunity to participate. For this reason we must change our society in order to ensure that discussion, communication, and opinion formation is free from coercive control and manipulation. So, implicit in beginning to speak, and thus in the technosciences, is an interest in the ideal speech situation. In making this argument, Habermas is attempting to ground a human emancipatory interest in the universal, for humans, condition of communicating with each other. Here we find that the internal values of technoscience (open communication, problem solving, and willingness to revise hypotheses in light of new evidence) converge with the values of democracy.

## Conclusion

I have attempted to show that Habermas' account of human interests includes the claim that the emancipatory interest (that which embodies the human interest in freedom and self-determination and, hence, is compatible with democracy) is implicit in the technosciences, and in the subsequent section, I argue further that the democratic ideal that Habermas calls the "ideal speech situation" is also implicit in the technosciences. I have argued that although Hickman is correct that there is an apparent split between technoscience and democracy in Habermas' work, this is so only in so far as he is analyzing the way things usually work. But, both Habermas and Hickman agree that technoscience itself implies and requires democracy.

I close by suggesting that this discussion of the relations between technoscience and democracy is no mere arcane debate between disengaged scholastics. In so far as what we say and do is made possible and constrained by what we think, how we conceive of this relationship is an important element in any attempt to reform technoscience and democracy.

## NOTES

<sup>1</sup> For an excellent survey of the history of the philosophy of technology see Carl Mitcham, *Thinking Through Technology* (Chicago: U of Chicago P, 1994).

<sup>2</sup> See Larry A. Hickman, *Philosophical Tools for Technological Culture: Putting Pragmatism to Work* (Bloomington: Indiana U P, 2001), *John Dewey's Pragmatic Technology* (Bloomington: Indiana UP, 1990), and (ed), *Reading Dewey*. (Bloomington: Indiana UP, 1998).

<sup>3</sup> See Herbert Marcuse, *One-Dimensional Man* (Boston) Beacon Press, 1968). Jürgen Habermas, *Knowledge and Human Interests* (Boston: Beacon Press, 1972) (hereafter Habermas, *KHI*), Andrew Feenberg, *Questioning Technology* (London: Routledge, 1999), *Critical Theory of Technology*. (New York: Oxford UP, 1991), *Technology and the Politics of Knowledge*, eds., Andrew Feenberg and Alastair Hannay (Bloomington: Indiana U, 1995), and *Transforming Technology: A Critical Theory Revisited* (New York: Oxford UP, 2002).

<sup>4</sup> In this essay I will use "S&T" and "technoscience" to identify the same complex of social interests and practices. In using "technoscience" in this manner, I follow Hickman. See Hickman, *Tools*, 41-43.

<sup>5</sup> Hickman, *Tools*, 167. For Habermas on the colonization of the lifeworld see *Theory of Communicative Action*. 2 vols. (Boston: Beacon Press, 1984, 1987). See also, J. Craig Hanks, *Refiguring Critical Theory* (Lanham, MD: UP of America, 2002).

<sup>6</sup> As Hickman notes, Habermas has not written much directly on the technosciences since the early 1970s. Recently Habermas has given some attention to issues in bioethics. See Jürgen Habermas, *The Future of Human Nature* (Polity Press, 2002).

<sup>7</sup> In "Labor and Interaction," Habermas discusses Hegel's conception of Spirit as a product of human interaction formed through three media: (1) symbolic representation, (2) labor (or control of nature), and (3) interaction (or struggle for recognition). According to Habermas, Marx and Hegelian Marxists have collapsed these three media into labor. Habermas' initial move is to reintroduce interaction. See, Jürgen Habermas, "Labor and Interaction," *Theory and Practice* (Boston: Beacon Press, 1973) 140ff. In *KHI* Habermas expands this account to include an emancipatory interest.

<sup>8</sup> Habermas, *KHI* 301-317.

<sup>9</sup> Habermas, *KHI* 195.

<sup>10</sup> Habermas, *KHI* 309.

<sup>11</sup> See Theodor Adorno, et al., *The Positivist Dispute in German Sociology* (New York: Harper and Row, 1976).

<sup>12</sup> Karl-Otto Apel, "The a priori of Communication and the Foundation of the Humanities," *Man and World*, no.5 (1972)10.

<sup>13</sup> Thomas McCarthy, *The Critical Theory of Jürgen Habermas*, (Cambridge, MA: MIT P, 1978) 7.

<sup>14</sup> See Thomas Kuhn, *The Structure of Scientific Revolutions* (Chicago: U of Chicago P, 1970).

<sup>15</sup> See Jürgen Habermas, "Technological Progress and the Social Life-World," *Towards a Rational Society* (Boston: Beacon Press, 1970) 50-61.

<sup>16</sup> The discouragements range from subtle discouragement of an interest in science to general social attitudes about what sorts of activities are appropriate for girls and boys, to support and encouragement from faculty members (studies show that male graduate students in most disciplines receive more positive feedback, more constructive criticism, more personal encouragement, and more financial support than do women). For more see Gwen. A. Pearson, "A Funny Thing Happened on the Way to Graduate School," *American Entomologist* (forthcoming); Sandra Harding, *The Science Question in Feminism* (Ithaca, NY: Cornell UP, 1986); Helen Longino, *Science as Social Knowledge: Values and Objectivity in Scientific Inquiry* (Princeton, NJ: Princeton UP, 1990); Andrea Nye, *Words of Power: A Feminist Reading of the History of Logic* (New York: Routledge, 1990).

<sup>17</sup> See Jürgen Habermas, "Towards a Theory of Communicative Competence," *Inquiry* 13 (1970) 368-372. See also, Jürgen Habermas, "On Systematically Distorted Communication," *Inquiry* 13 (1970) 205-218. For a more detailed account of the relation between Habermas' work on speech act theory and universal pragmatics, and the work of Noam Chomsky, J.L. Austin, and John Searle, see Roderick, *Habermas and the Foundations of Critical Theory* (London: MacMillan, 1986) 73-100.

<sup>18</sup> Habermas, *Legitimation Crisis* (Boston: Beacon Press, 1975) 110-113.

<sup>19</sup> Habermas, *Communication and the Evolution of Society* (Boston: Beacon Press, 1979) 1-6.

<sup>20</sup> Habermas, *Communication and the Evolution of Society* 45-68. See also John B. Thompson, "Universal Pragmatics," *Habermas: Critical Debates*, eds., John B. Thompson and David Held. (Cambridge, MA: MIT P, 1982).