

Provided for non-commercial research and educational use only.
Not for reproduction or distribution or commercial use.



VOLUME 37 Number 4 December 2006

ISSN 0039-3681

Studies in History and Philosophy of Science

Volume Contents and
Author Index for Vol. 37 (2006)
are included at the back of this issue

Available online at www.sciencedirect.com
 ScienceDirect



This article was originally published in a journal published by Elsevier, and the attached copy is provided by Elsevier for the author's benefit and for the benefit of the author's institution, for non-commercial research and educational use including without limitation use in instruction at your institution, sending it to specific colleagues that you know, and providing a copy to your institution's administrator.

All other uses, reproduction and distribution, including without limitation commercial reprints, selling or licensing copies or access, or posting on open internet sites, your personal or institution's website or repository, are prohibited. For exceptions, permission may be sought for such use through Elsevier's permissions site at:

<http://www.elsevier.com/locate/permissionusematerial>



Essay review

Feenberg and STS: counter-reflections on bridging the gap

Jeff Kochan

*Department of Philosophy, Swiss Federal Institute of Technology (ETH),
ETH Zentrum RAC, 8092 Zurich, Switzerland*

Heidegger and Marcuse: The catastrophe and redemption of history

Andrew Feenberg; Routledge, London & New York, 2005, pp. xvi + 158, Price £50.00 hardback, ISBN 0-415-94177-6, £15.99 paperback, ISBN 0-415-94178-4

1. Introduction: Feenberg and STS

Andrew Feenberg is one of the most interesting and prolific scholars currently at work in the philosophy of technology. With the appearance of his latest effort, *Heidegger and Marcuse: the catastrophe and redemption of history*, he can now claim five books, two co-edited volumes, and numerous articles in that field.¹ His intellectual ambitions are powerful and far-reaching. In his 1991 book *Critical theory of technology*, he introduced a highly original and theoretically sophisticated account of technology, and announced his theme as nothing less than ‘the possibility of a truly radical reform of industrial society’.² More specifically, he set about in that book to ‘develop the background to a new theory of the transition to socialism in accord with Marx’s critique of capitalist technology’.³ He has, over the intervening years, remained unwaveringly committed to this goal, developing and refining his approach in a remarkable series of publications. More recently, Feenberg has turned his attention towards the burgeoning field of science and technology studies (STS), absorbing insights from STS into his own philosophical work.

E-mail address: kochan@phil.gess.ethz.ch (J. Kochan).

¹ Feenberg has made a full list of his publications available on his personal web page at: www.sfu.ca/~andrewf/.

² Feenberg (1991), p. 3.

³ Ibid., p. 21.

But Feenberg is not content simply to learn from STS. He also wants to change it. His 2003 article, ‘Modernity theory and technology studies: reflections on bridging the gap’, presents his most extended, and most critical, encounter with STS. There he argues that STS and his own field of modernity studies have reached an impasse, and he suggests his own philosophy of technology as a way of ‘bridging the gap between the two fields through a synthesis of their main contributions’.⁴ STS should welcome such bold outside interest. Recent case studies in STS powerfully challenge many deep-seated beliefs about technological practice and social life. The field needs to encourage the participation of daring and original theorists who promise to strengthen and consolidate its stunning empirical success.⁵

The purpose of this essay is to evaluate Feenberg’s 2005 book *Heidegger and Marcuse* from an STS standpoint. My principal question will be whether or not this book provides sufficient grounds for Feenberg’s work to be co-opted by the STS community. There is a clear sense in which this way of proceeding threatens to be quite unfair. As the book’s title implies, Feenberg is here centrally concerned with modernity theory, not STS.⁶ However, since Feenberg has suggested that his theory of modernity will successfully bridge over into STS, he would surely welcome the critical approach I propose here. In any case, the book does include a brief but significant passage in which Feenberg attempts to translate his theory into the language and concerns of STS (pp. 103–106). Most importantly, Feenberg claims that his book develops ‘the basis for a radical sociology of technology’, and thereby offers STS ‘a much needed perspective on the political implications of the systemization of society’ (pp. 103, 104). Feenberg’s charge that STS lacks a clear political perspective on technoscience is at the heart of his criticism of the field, and thus also the place where he most hopes to make an original contribution. In the next section, I will examine Feenberg’s political critique of STS in the place where he most clearly articulates it, his 2003 article ‘Modernity theory and technology studies’. This preliminary discussion will lay the ground for a subsequent consideration of *Heidegger and Marcuse* as a potential contribution to STS.

2. Rationality and ideology in technoscience

In ‘Modernity theory and technology studies’ Feenberg sets up a conflict between STS’s ‘principle of symmetry’ on the one hand, and modernity theory’s basic distinction between rationality and ideology on the other.⁷ As is well known, the principle of symmetry requires that the same style of explanation be applied to competing beliefs on either side of a controversy. In other words, in analysing a dispute over the admissibility of some

⁴ Feenberg (2003), p. 73.

⁵ One outstanding example of such work is Martin Kusch’s (2002) carefully argued attempt to transform traditional epistemology on the basis of insights drawn from STS (specifically, that wing of STS known as the sociology of scientific knowledge (SSK)).

⁶ This distinction between modernity theory and STS is somewhat artificial. There is an obvious sense in which the study of technoscientific culture is also the study of modernity. However, given that the distinction is Feenberg’s own, I am happy to accept it for present purposes.

⁷ Ibid., p. 85. The principle of symmetry actually has its origin in the so-called ‘strong programme’ of SSK. Whilst SSK indeed constitutes an influential wing of STS, Feenberg is wrong to imply that STS, as a whole, employs SSK’s principle of symmetry. Nevertheless, since my own sympathies lie with SSK, I am quite happy to accept Feenberg’s reduction of STS to SSK and defend STS accordingly.

piece of data as ‘evidence’ or ‘fact,’ the analyst should not explain the winners’ success by reference to a rational realm of transcendent truth, and the losers’ failure by reference to an irrational realm of social prejudices, interests and ideologies.⁸ STS, insofar as it employs the principle of symmetry, is dedicated to a uniformly sociological explanation of knowledge claims, regardless of whether those claims are finally judged by a community to be true or false. It thus rejects analyses which appeal to a qualitative distinction between transcendent rationality on the one hand, and social existence on the other. Rationality cannot be meaningfully understood in abstraction from social life; much less understood as providing privileged access to a transcendent realm of truth. It is rather, in its very essence, a thoroughly social phenomenon firmly rooted in the rich soil of everyday social experience.

Feenberg is thus quite right to recognise that modernity theory’s basic distinction between rationality and ideology is threatened by the symmetry principle.⁹ Under this principle, both rationality and ideology would be treated as irreducibly social phenomena. Feenberg worries that:

... there is a risk in such even-handedness where technology is concerned: if the outcome [i.e., the final sorting of winners from losers] cannot be invoked to judge the parties to the controversy, and if their various motives and rhetorical assets are evaluated without prejudice, how are we to criticize mistakes and assign responsibility?¹⁰

Note that Feenberg does not challenge the claim that technoscientific practice is social practice. He wishes rather to draw ‘a clear distinction between principle and application’, between abstract formal rationality, on the one hand, and applied practical rationality, on the other. In his 1999 book *Questioning technology*, he argues that ‘[a]t the essential level, there is no risk of confusion between formal principles of rationality as such and social interests’. For Feenberg, ideology affects rationality only at the point of practical application. Hence rationality can be distinguished from ideology only to the extent that rational principles can be formulated in nonsocial terms, as what Feenberg calls ‘purified ideal-types’.¹¹ Hence, Feenberg’s worry that the symmetry principle effaces the difference between rationality and ideology can be understood precisely as a concern to preserve the epistemic legitimacy of a non-social transcendent realm of ideal principles.

To illustrate and justify his worry, Feenberg turns to Harry Collins and Trevor Pinch’s case study of the space shuttle *Challenger* accident.¹² Recall that on 28 January, 1986, the *Challenger* exploded shortly after lift-off, killing seven astronauts. A US Presidential Commission blamed the explosion on the failure of a rubber O-ring used to seal together the sections of *Challenger*’s massive and enormously powerful Solid Rocket Boosters. It also came to light that engineers at Morton Thiokol, the company hired by NASA to build the boosters, had warned that unusually low temperatures at the launch site might compromise the O-rings. On the eve of the launch, an impromptu teleconference was held so that

⁸ Cf. Bloor (1991), p. 7.

⁹ Feenberg (2003), p. 85.

¹⁰ Feenberg (2003), pp. 85–86.

¹¹ Last three quotes from Feenberg (1999), p. 162.

¹² Collins & Pinch (1998), Ch. 2, pp. 30–56.

Thiokol could make a case for its no-launch recommendation to the engineers and managers at NASA.

The prevailing story of the teleconference is that NASA managers, under immense political pressure to stay on schedule, overruled their prescient engineers, with horrific consequences. In other words, political ideology won out over technical rationality. Based on their analysis of extant investigations of the event, Collins and Pinch reject this story as too simple.¹³ They argue that:

... the dangers of the O-rings were not ignored because of economic or political pressures. They were ignored because the *consensus* of the engineers and managers who took part in the fateful teleconference was that, based on the engineering data and their past safety practices, there was no clear reason not to launch that night.¹⁴

According to Collins and Pinch, this was not a case of ideology overruling rationality, but of competing parties in a technoscientific dispute ultimately reaching consensus on the basis of shared ‘technical standards’. Note that these ‘technical standards’ fulfil much the same role that Feenberg reserves for his ‘purified ideal-types’. However, as we shall see, these standards of judgement are not transcendent, abstract or ideal. They are, on the contrary, immanent in the everyday practical activities of NASA’s technoscientific community.¹⁵

Going into the teleconference, Thiokol engineers had noticed that their technical data was flawed. NASA engineers quickly spotted the flaw, and argued that Thiokol could not support its no-launch recommendation with a solid engineering argument. Thiokol engineers could only agree. All they had to offer was the personal testimony of Robert Boisjoly, their O-ring specialist. Boisjoly was repeatedly asked if he could quantify his concerns, translating them into standard engineering data which could then be examined and judged by the other participants in the teleconference. He was unable to do so. Thiokol requested an off-line caucus to review its position. Without solid data, Thiokol engineers could no longer agree on their earlier no-launch recommendation. In the absence of a consensus among the engineers, Thiokol managers were finally forced to make a ‘management decision’. They decided that the launch should proceed as scheduled. Thiokol went back on line and told NASA that they had changed their minds. The Shuttle Projects manager asked all participants in the teleconference, Boisjoly included, if there were any disagreements or further comments. No one said anything. The teleconference ended and the launch proceeded on schedule.

Feenberg disagrees with Collins and Pinch’s account of the teleconference. He argues that:

Their symmetrical account obscures the asymmetrical treatment of different types of evidence within the technical community they study. It is clear from their presentation that the controversy at Morton Thiokol was irresolvable because of the

¹³ Collins and Pinch’s analysis of the *Challenger* accident is largely based on Vaughan’s (1996) case study.

¹⁴ Collins & Pinch (1998), p. 33, emphasis added.

¹⁵ It should thus be clear that the symmetry principle does not reject *any* distinction between rationality and ideology, but only those distinctions which rely upon ‘purified ideal-types’ and similar transcendent standards of rational judgement. If a decision clearly violates a community’s immanent shared standards of rational judgement, then one might potentially argue that that decision was made for ideological rather than rational reasons without thereby forfeiting the symmetry principle.

systematic demand for quantitative data and the denigration of observation, even that of an experienced engineer [i.e. Boisjoly].¹⁶

Feenberg further argues that Thiokol's failure to heed Boisjoly's testimony, which he describes as based on 'the evidence of his eyes', cannot be dismissed as a mere accident.¹⁷ He asks: 'Could it be that Boisjoly's observations were dismissed—and quantitative data demanded—mainly to keep [NASA] on schedule?'¹⁸ He concludes that this asymmetrical treatment of evidence 'suggests the existence of an ideological bias masked by the principle of symmetry'.¹⁹

It should be immediately clear that Feenberg's distinction between two different kinds of evidence—quantitative evidence, on the one hand, and 'evidence of the eyes', on the other—is not supported by Collins and Pinch's analysis. In fact, the controversy was not over different kinds of evidence, but over whether or not Thiokol had any kind of evidence at all. No one participating in the teleconference suggested that Boisjoly's personal testimony should be treated in the same way as standardised engineering data. Thus Collins and Pinch's analysis confirms one of STS's most important insights into technoscience: that technoscientific knowledge, as a paradigmatically rational form of knowledge, is the product of social negotiation and agreement. The point is that private experience does not, as such, count as evidence in technoscientific culture. Only once private observation has been quantified and inscribed in standard, mutually agreed-upon forms can a technoscientific community even begin to debate its status as evidence. This is why Thiokol had prepared technical data in advance of the teleconference to support their recommendation. And this is why they decided to reverse their recommendation once the flaws in their data were discovered. The failure to accept Boisjoly's private knowledge as evidence was not the responsibility of a politically pressurised and ideologically biased management. It was rather a quite normal outcome of the standard epistemic practices of NASA's technoscientific community.²⁰ That 'normal science' should have led, in this case, to such disastrous consequences cannot change this empirically well-grounded matter of fact.

The nub of Feenberg's disagreement with STS can be further elucidated by drawing on his own distinction between 'substantive' and 'formal' bias. Substantive bias 'results from applying different standards to individuals where they ought properly to be judged by the same standard'.²¹ Racial discrimination is an example. Formal bias 'consists in applying

¹⁶ Feenberg (2003), p. 86.

¹⁷ Ibid.

¹⁸ Ibid., p. 87. Note that Feenberg does not challenge Collins and Pinch's analysis on the basis of his own research into the *Challenger* accident. On the contrary, he suggests that, when simply examined in the light of 'critical reason,' their analysis is obviously suspect. He writes: 'I cannot claim to have made an independent study of the case, and Collins and Pinch may well have stronger reasons for their views than those that appear in their exposition. However, we know from experience that quantitative measures are all too easily manipulated to get the answers demanded by the powers that be' (ibid.). This section endeavours to show, *contra* Feenberg, that Collins and Pinch's argument is in fact sufficiently supported by their exposition and thus that their conclusions do not necessarily require any further justification.

¹⁹ Ibid.

²⁰ Note also in this regard Collins and Pinch's observation that the teleconference participants 'did not divide neatly into engineers and managers since the structure of an engineering career means that everyone who was a manager had previously been a trained engineer' (ibid., pp. 50–51).

²¹ Feenberg (1988), p. 231.

the same standard to individuals but under conditions that favor some unfairly at the expense of others'.²² A culturally biased teaching curriculum, equally available to everyone but presenting special difficulties for students from a different cultural background, is an example. Feenberg explicitly identifies ideology with substantive bias.²³ Hence, when he argues that Collins and Pinch's principle of symmetry masks an ideological bias at NASA, he means that NASA is a substantively biased institution. Feenberg suggests that NASA's insistence that Boisjoly's private experience be translated into standard data was an unusual demand made for ideological reasons. He gives the impression that, in the absence of political pressure, Boisjoly's personal testimony would have received a more favourable hearing. In other words, Feenberg holds that 'normal' technoscience accommodates the evidential authority of unquantified, private observation. Moreover, given that Feenberg is preoccupied with a defence of modernity theory's distinction between ideology and rationality against STS's principle of symmetry, it would seem to follow from his argument that, had NASA proceeded in the absence of ideological pressure, then their decision would have been more fully rational. Feenberg apparently believes that an authentic, fully rational technoscience will recognise the authority of individual private experience. He equates authentic technoscientific practice with rationality, and rationality, at least to some consequential extent, with private knowledge.

In contrast, Collins and Pinch's analysis of the case suggests that the bias at NASA is a formal one. There are two ways in which this can be seen to be the case. First, as already shown, all parties to the controversy accepted that any evidence, to count as evidence, must be based on standard methods of quantification and inscription, methods which ensure that all potential evidence can be collectively scrutinised and confirmed or disconfirmed. No one, including Boisjoly, believed that Boisjoly's private observations counted as potential evidence. In this way, the technoscientific community at NASA might be said to hold a formal bias towards public evidence over private evidence.²⁴ Second, and more central for Collins and Pinch, technoscientific culture in general might be said to hold a formal bias toward *certainty*.²⁵ Indeed, a critique of this formal bias is one of the main goals of Collins and Pinch's analysis. They wish to challenge 'the mistaken view that engineering knowledge is certain knowledge'.²⁶ They write that:

Part of the shock caused by the *Challenger* accident comes from a mistaken image—an image NASA did nothing to discourage by flying US Congressmen and ordinary citizens in the vehicle. The shuttle always was, and will be for the foreseeable future, a high risk state-of-the-art technology.²⁷

Indeed, they point out that, even after the post-explosion redesign of the shuttle's Solid Rocket Boosters and the introduction of new safety procedures 'the official risk is one catastrophic accident per hundred flights—astronomically greater than would be contemplated for any commercial vehicle'.²⁸

²² Ibid.

²³ Ibid., p. 232.

²⁴ On the historical origins of this formal technoscientific bias towards public evidence, see Shapin (1994).

²⁵ On the historical origins of this formal technoscientific bias towards certainty, see Schaffer (1984).

²⁶ Collins & Pinch (1998), p. 48.

²⁷ Ibid., p. 46.

²⁸ Ibid.

Feenberg worries that, on Collins and Pinch's symmetrical analysis of the *Challenger* explosion, '[i]t appears that no one is to blame for the tragic accident'.²⁹ If to place blame means to uncover an ideological bias at work within NASA's otherwise rational community, then Feenberg is right to worry. But, in this particular case anyway, it seems that no such bias existed at NASA. Feenberg's worry is thus unfounded. If, on the other hand, to place blame means to uncover a formal bias at work within NASA's in any case *social* community, then there is a clear sense in which Collins and Pinch can be said to place blame. They conclude their analysis by writing that:

There is a lesson for NASA here. Historically it has chosen to shroud its space vehicle in a blanket of certainty. Why not reveal some of the spots and pimples, scars and wrinkles of [state-of-the-art] engineering? ... Space exploration is thrilling enough without engineering mythologies.³⁰

Collins and Pinch's conclusion suggests that technoscience's formal bias towards certainty is empirically unfounded, and that it sets unreasonably high collective expectations with respect to technoscientific progress. When those expectations are abruptly shattered, there may follow a level of collective shock and trauma far in excess of what might seem reasonable given a more realistic understanding of the everyday practices of technoscientific culture.³¹

I have attempted to show in this section that Feenberg's charge that STS lacks the grounds for a clear political perspective is unfounded.³² Granted, if one reduces the political analysis of technoscience to a study of conflict between rationality and ideology within 'dysfunctional' technoscientific communities, then there is some truth to Feenberg's criticism. The principle of symmetry dissolves modernity theory's categorial distinction between rationality and ideology by arguing, on strong empirical grounds, that both forms of knowledge are thoroughly social in their constitution. And once one recognises that fully rational technoscientific communities are also thoroughly social communities, then one must also realise that technoscience is not qualitatively different from other forms of social life. It is rather just one more form of life alongside many other such forms in a broader cultural and global context. The question of the difference between modernity theory and STS, at least as Feenberg presents that difference, is thus precisely the question

²⁹ Feenberg (2003), p. 86.

³⁰ Collins & Pinch (1998), p. 55.

³¹ In a similar vein, but with reference to the September 11, 2001, terrorist attack on the World Trade Center, Langdon Winner (2004, p. 167) argues that 'the ultimate fear driving public and private policies in the post-9/11 era, is an awareness that seemingly secure, reliable structures of contemporary civilization are, taken together, an elaborate house of cards'. He contrasts two ways of acting upon such intense feelings of vulnerability and dread: (1) 'knee jerk militarism, Orwellian surveillance and pre-emptive strikes on human rights'; and (2) the 'construction of more peaceful, resilient, loosely coupled systems ... aimed at living on the earth with justice and compassion' (pp. 170, 171).

³² Two rather more successful critiques of STS research, both from a feminist standpoint, are Haraway (1997, Ch. 1) and Potter (2001). Both authors take Shapin & Schaffer (1985) and Shapin (1994) to task for ignoring the crucial ways in which gender relations were both sustained and reconfigured during the emergence of seventeenth-century experimental science. Note, however, that unlike Feenberg neither Haraway nor Potter rejects the symmetry principle *as such* for being *generally* indifferent to political inequality; they only highlight the shortcomings of these *particular* applications of the principle, and only with respect to the *specific* issue of gender inequality. Glazebrook (in press) has in turn critiqued Feenberg's work from a feminist perspective.

of whether or not technoscientific rationality is fundamentally rooted in social practice. Feenberg has written that technoscientific reason, once placed in the sights of a critical theory of modernity, ‘emerges unscathed, in fact purified by the fire of criticism, its ultimate neutrality confirmed by the critical glance that strips it bare of sociological accretions,’ and he concludes from this, quite rightly I think, that modernity theory thus ‘gestur[es] toward an abstract ideal of truly neutral technical reason, undistorted by power and ideology’.³³ Put briefly, STS tries to put the social into rationality, while Feenberg’s modernity theory tries to take it out. But by taking the social out of rationality, Feenberg is left with no other option than to conceptualise technoscientific knowledge on the basis of a transcendent realm, a realm accessible only to a thoroughly purified, ideal form of technical reason. I take non-social rationality to mean non-public rationality—in other words, private rationality. It is widely accepted, amongst those given to philosophical reflection, that if one can be certain of anything then one must first of all be certain of oneself, of one’s own knowledge, beliefs and intentions. Hence, there seems to be a quite important conceptual link between doctrines of epistemic privacy and traditional notions of certainty. Certainty, then, is certainty with respect to a transcendent, privately accessible realm. Alas, such technoscientific artefacts as space shuttles do not belong to a transcendent private realm, and so neither do they belong to a realm of certainty.

3. Technoscientific authenticity

We are now in a better position to consider Feenberg’s recent book *Heidegger and Marcuse: the catastrophe and redemption of technology*. In the last section I cast suspicion on Feenberg’s offer to bridge the gap between STS and modernity theory by introducing a political perspective into STS. In fact, STS already has the basis for a genuinely political perspective. Feenberg’s attempt to politicise STS is, in effect, an attempt to transform that basis by challenging the field’s very basic methodological commitment to symmetry. If Feenberg has indeed managed to build a bridge, he has not then proceeded to meet STS halfway along that bridge. He has, rather, merely insisted that STS cross over and join him on his own side.

In *Heidegger and Marcuse*, Feenberg attempts to build another kind of bridge. He proposes an ‘immanent critique’ of Heidegger’s philosophy of technology, a critique which ‘bridges the gap between his thought and that of his student, Marcuse’ (p. 43). As is well known, the works of both Martin Heidegger and Herbert Marcuse have played a fundamental role in the development of contemporary philosophy of technology. The appearance in 1927 of Heidegger’s *Being and time* so impressed Marcuse that he returned to academic study under Heidegger’s tutelage. In a 1929 article, the thirty-year-old Marxist Marcuse wrote that *Being and time*:

... seems to mark a turning point in the history of philosophy: the point where the internal tendencies of bourgeois philosophy lead to its own dissolution and clear the way for a new ‘concrete’ science.³⁴

³³ Feenberg (1988), p. 239.

³⁴ Cited in Abromeit (2004), p. 131.

In a 1974 interview, Marcuse described how he quickly came to change his opinion:

I soon realised that Heidegger's concreteness was to a great extent phony, a false concreteness, and that in fact his philosophy was just as abstract and just as removed from reality, even avoiding reality, as the philosophies which at that time had dominated German universities, namely a rather dry brand of neo-Kantianism, neo-Hegelianism, neo-Idealism, but also positivism.³⁵

The key moment which explains this reversal came in 1933, with the election to power of the National Socialist Party. Marcuse left Germany and settled in the United States. In 1968 he achieved fame as the so-called 'guru' of the New Left. Heidegger, in contrast, became the first Nazi rector of Freiburg University, only to resign after ten months. The extent to which Heidegger continued to support the National Socialists following his resignation, and the extent to which his political activities influenced his philosophical writings, is a subject of ongoing and impassioned controversy. In any case, he is today widely considered to be one of the greatest philosophers of the twentieth century.

The personal relationship between Heidegger and Marcuse is high drama in the history of philosophy. Feenberg, however, does his best to rise above it all. He will, he tells us, 'focus on philosophical issues' (p. 3). There is '[a] history of philosophical influence [which] remains to be unraveled' (p. 3). There are 'traces of Heidegger's thought everywhere in [Marcuse's] writings' (p. xi). For students of Marcuse's work, this will no doubt make for exciting reading. Yet there is another story of influence also being told in this book. In the opening paragraph, Feenberg writes:

I arrived in La Jolla, California in the fall of 1965 as a graduate student in philosophy. One of my reasons for coming was what I had heard of Herbert Marcuse. He was not yet famous but he was well known and what was known about him intrigued me. ... [A] philosopher wild enough to synthesize Marx and Freud was wild enough for a young graduate student looking for an alternative to the dry as dust positivism then dominating American philosophy. (P. ix)

Just as Heidegger called Marcuse to Freiburg, so Marcuse called Feenberg to La Jolla. Intimations of a continuing intellectual legacy reverberate between the lines of Feenberg's text.

But here too, in the present essay, the focus is mainly philosophical. In this section, I will consider one key concept in *Heidegger and Marcuse*: 'authenticity'. Feenberg writes that Marcuse, whilst under Heidegger's tutelage, developed a unique and exciting philosophical position. He arrived at this position via two paths. First, he 'concretised' Heidegger's notion of authenticity. Second, he reformulated Hegel's dialectical notion of 'real possibility' (p. xi). According to Feenberg, Marcuse never brought these two paths completely together. However, Feenberg writes, one 'can project a likely unification of his thought at which he would no doubt have arrived had he remained under Heidegger's influence for a few more years' (xii). This fateful unification, the final completion of Marcuse's interrupted encounter with Heidegger, is the task Feenberg sets for himself in *Heidegger and Marcuse*. A concrete account of Heideggerian authenticity will be achieved through a Hegelianisation of Heidegger's philosophy. In what follows, I will first gloss the

³⁵ Cited in Olafson (1988), p. 96.

conceptual context of Heidegger's concept of authenticity and then move on to consider Feenberg's Marcuse-inspired Hegelianisation of that concept.

In *Being and time* Heidegger argues that the human being, which he calls *Dasein*, is a thoroughly social being. The world of *Dasein* is a 'with-world,' a world in which *Dasein* is always already *with* others.³⁶ These others to whom one essentially belongs, Heidegger calls *the 'they'* [*das Man*].³⁷ He writes that '[t]he "they" ... belongs to *Dasein's* positive constitution'.³⁸ On this basis, Heidegger distinguishes between two different kinds of selfhood: the 'they-self' and the 'authentic self'.³⁹ The term 'they-self' describes the selfhood of *Dasein* when it is absorbed unreflectively in the world with others. In this case one does not distinguish one's own beliefs, desires and intentions from those of the group to which one belongs. The term 'authentic self' describes the selfhood of *Dasein* when it achieves reflexive distance from the group, recognising that certain beliefs, desires and intentions are idiosyncratically its own rather than simply being a reflection of the average everydayness of the group.

With this argument, Heidegger offers an account of human nature quite different from the traditional account. According to the tradition, a person is taken to be an essentially autonomous individual. Human sociality is thus a secondary phenomenon which must be explained in terms of the basic autonomy of each person. On Heidegger's account, sociality takes priority and individuality becomes a secondary phenomenon which must be explained in terms of basic human sociality. In other words, the they-self, the self of the socially absorbed person, is prior to the authentic self, the self of the reflexive and self-conscious person. It should be clear from this that, for Heidegger, the autonomous individual of the traditional account is impossible, for the basic nature of each person is always ultimately grounded in sociality. Heidegger presents his notion of the authentic individual as an alternative to the traditional notion of the autonomous individual.

In *Being and time*, Heidegger argues that one understands oneself as an individual only when one faces the inescapable possibility of one's own death. He writes that '[t]his ownmost non-relational possibility is at the same time the uttermost one'.⁴⁰ In other words, the possibility of my death is inescapably *mine*; it can never be a property that I share with others. Furthermore, in resolutely anticipating the inevitableness of one's own death, one achieves individual authenticity—i.e. a sense of one's own private self in relation to others. Heidegger argues that '[a]nticipation utterly individualises *Dasein*,' and that the resolute acceptance of one's own inevitable death is 'the truth of *Dasein* which is most primordial because it is *authentic*'.⁴¹ Authentic individuality is thus achieved through a resolute anticipation of the possibility one's own necessarily private death.

Heidegger further argues that, in addition to being private and ultimate, one's death is also *certain*.⁴² 'Nobody doubts that one dies'.⁴³ He writes that certainty about one's

³⁶ Heidegger (1962), p. 155[118]. Following the convention of Heidegger scholarship, I include the pagination of the original German text (*Sein und Zeit*, Max Niemeyer Verlag, Tübingen, 1927/2001) in square brackets.

³⁷ *Ibid.*, p. 164[126].

³⁸ *Ibid.*, p. 167[129], emphasis removed.

³⁹ *Ibid.*

⁴⁰ *Ibid.*, p. 294[250].

⁴¹ *Ibid.*, pp. 310[266], 343[297].

⁴² *Ibid.*, p. 302[258].

⁴³ *Ibid.*, p. 299[255].

own death ‘is more primordial than any certainty which relates to entities encountered within-the-world, or to formal objects’.⁴⁴ Moreover, not only is certainty about one’s own death more basic than certainty about formal objects, quite unlike this latter form of certainty it cannot be verified apodictically by pointing to some bit of evidence.⁴⁵ Being certain about one’s death ‘does not belong at all to the graded order of the kinds of evidence we can have about [objects]’.⁴⁶ Put another way, such certainty is existential rather than rational in character. This existential certainty is prior to rational certainty; one cannot be rationally certain unless one is already existentially certain. From this Heidegger concludes: ‘Therefore the evidential character which belongs to the immediate givenness of Experiences, of the “I”, or of consciousness, must necessarily lag behind the certainty which anticipation includes’.⁴⁷ Here he simply means that traditional philosophical certainty about the existence of an autonomous ‘I’, a Cartesian ego, is a rational certainty which is parasitic upon the more basic existential certainty of the authentic individual who resolutely anticipates the possibility of her own death.

To summarise, in these passages from *Being and time* Heidegger attempts to replace the traditional account of the individual as rational and autonomous with a new existential account of the individual as social and authentic. In so doing, he also replaces the primacy of the traditional apodictic notion of certainty with an existential notion of certainty. Unfortunately, Heidegger did not expand much on this new notion of certainty, but it will be enough for present purposes if we simply recognise that, on Heidegger’s account, existential certainty provides the conditions for the possibility of rational certainty.

In a 2004 article, which summarises the argument of *Heidegger and Marcuse*, Feenberg writes that ‘the difference between Heidegger and Marcuse lies in their understanding of the nature of ... authentic self-affirmation’, i.e. the affirmation of ‘one’s own individuality and ideas against received opinion’. ‘While Heidegger conceived of individuality as a response to inevitable death, Marcuse followed a radical tradition in which self-affirmation is the individual’s share in the affirmation of life itself’.⁴⁸ In *Heidegger and Marcuse*, Feenberg writes that, for Marcuse, ‘authenticity becomes the “radical act” of revolutionary refusal of the existing society’ (p. xii).

Authentic individuality ... depends on not going along (*nicht mitmachen*), resisting at least inwardly complicity with the system. ... For Marcuse, authenticity involves a confrontation with one’s own time and its possibilities. (P. 139)

On the basis of Feenberg’s account, it is clear that the difference between Marcuse’s and Heidegger’s notions of authenticity is more than a difference in preference between existential notions of life and death. Heidegger understood the authentic individual as a reflexive member of a community. The various possibilities which Heidegger’s authentic individual possesses belong to her only through her participation in a community, and she is authentic to the extent that she critically reflects upon those possibilities and chooses the ones

⁴⁴ Ibid., p. 309[265].

⁴⁵ Ibid.

⁴⁶ Ibid., emphasis removed.

⁴⁷ Ibid., p. 310[265].

⁴⁸ Feenberg (2004), p. 79.

which suit her best. Marcuse's authentic individual, on the other hand, seems to refuse all the possibilities made available by her community. In her stark act of refusal, Marcuse's individual must seek to secure possibilities for authentic action which do not come from her community. In this way, Marcuse seems to implicitly reject the priority which Heidegger gives to social life. If Marcuse's individual is to achieve authenticity, she must do so without recourse to a community. One is justified in asking where Marcuse's individual will secure possibilities for authentic action, if not through her participation in the shared life of a community.

Feenberg claims to solve this problem by bringing together Marcuse's notion of authenticity, on the one hand, and Marcuse's reformulation of the Hegelian notion of the 'Absolute' in terms of Hegel's notion of 'life,' on the other (p. 64).

In this alternative, the absolute is a specific way of life that understands itself as such. ... Only in [this way] can Heidegger's essential advance toward a concrete philosophy be preserved in a Hegelian context. (P. 66)

But Feenberg seems not to have noticed that in refusing the possibilities offered by a community, Marcuse is no longer working with a Heideggerian notion of authenticity as rooted in social life. Hence he can write that: '[t]here is a striking similarity between Hegel's concept of life as Marcuse interprets it and Heidegger's concept of *Dasein*', whilst at the same time describing life as 'a confrontation with one's own time and its possibilities' (pp. 53, 139). Feenberg has lost hold of Heidegger's philosophy because he relies upon Marcuse's misconstrual of that philosophy.⁴⁹ Rather than building a bridge between Heidegger and Marcuse and then joining the two halfway, Feenberg has simply pulled Heidegger over to Marcuse's side, effacing the novelty of Heidegger's work in the process.

In his 2002 book *Transforming technology*, Feenberg writes that:

... 'life', if indeed that is the correct word for the force against which hegemonies impose themselves, is not pre-individual but represents an alternative form of individuality elaborated in a variety of social activities, not least of which is resistance to social domination.⁵⁰

This certainly seems a workable definition from a Heideggerian perspective. 'Life' names those social activities which resist domination. Life, on this definition, might be located in such places as civil rights, anti-sexism, and global justice movements. An individual might achieve authenticity by adopting as her own such possibilities as are made available by these movements. What seems to block this Heideggerian construal of 'life' for Feenberg is his acceptance of Marcuse's equation of contemporary social existence, as such, with a system of domination. Following Marcuse, he writes that:

⁴⁹ Similar misconstruals of Heidegger's concept of authenticity were apparently widespread in the years immediately following the appearance of *Being and time*. Geiman (1995, p. 117 n.71) notes Heidegger's exasperated complaint during a lecture from this period 'that he has pointed out "ad nauseum" that authentic *Dasein* can't be seen apart from its *connection* to the world'. Given the extent of the confusion, a considerable amount of the fault must surely lie with Heidegger himself for not having presented his position more clearly.

⁵⁰ Feenberg (2002), p. 72.

Achieving individuality is problematic in new ways in the 20th century. ... Where the thoughts are supplied by 'das Man' or manipulated by the media, and the ultimate authority is no person but the 'facts of (corporate) life', what looked like daring self-assertion in an earlier generation becomes the new conformism. (P. 139)

There is, to my ears, a remarkable despair in this statement. It suggests that contemporary acts of resistance, whatever their level of organisation, are in effect acts of conformity with the very system of repression against which they contend. In his 1964 book *One-dimensional man*, Marcuse called this the 'paralysis of criticism,' the 'society without opposition'.⁵¹ Astonishingly, however, five years later, in *An essay on liberation*, Marcuse would suddenly leap over this shadow and proclaim that '[u]topian possibilities are inherent in the technical and technological forces of advanced capitalism and socialism: the rational utilization of these forces on a global scale would terminate poverty and scarcity within a very foreseeable future'.⁵²

I argued in Sect. 2 that Feenberg's modernity theory takes the social out of technoscience, conceptualising technoscientific practice with respect to a purified, non-social form of rationality. On this basis, we can see that Marcuse's sudden reversal is not also a return to the possibilities for resistance immanent in social life, but rather a renewed belief in the revolutionary potential of a purified technoscience. In this way, Marcuse's reversal does not return him to a Heideggerian prioritisation of social existence. Indeed, Marcuse's Hegelian notion of 'life' stands in close conceptual proximity to his notion of technoscientific rationality. Both denote resistance to a thoroughly repressive society. Thus, citing Marcuse directly, Feenberg can argue that:

... advanced industrial society is not defined by technological rationality, but rather by the opposite. Namely, by the blocking, by the arrest, and by the perversion of technological rationality. (P. 102)

In other words, the apparent rationality of contemporary technoscience is a massive societal illusion which conceals the deep ideological distortion of contemporary technoscientific practice. Marcuse's proposed route of escape from this ideological catastrophe is through an authentic turn to 'life'. This turn appears to be more or less identical with a turn towards a purified technoscience. 'Marcuse argues that life-affirming values are actually internal to technology and are not an arbitrary imposition' (p. 105). By stripping technoscience of its ideological distortions, by releasing its life-affirming potentialities, Marcuse's authentic individuals will redeem technoscience and herald a utopian age of peace, freedom and justice.

One can only applaud these ambitions. But one might also ask how they are, in fact, to be realised. How will Marcuse's authentic revolutionaries clear a way through the ideological thickets of today and open a path out onto the sun-drenched fields of tomorrow? The answer, as it turns out, is through a heroic act of aesthetic imagination.

⁵¹ Marcuse (1991), p. xli.

⁵² Marcuse (1972/1969), p. 13.

4. Aesthetic technoscience

Feenberg writes that, in Marcuse's final works:

... an authentic human existence is to be achieved at the level of society as a whole through the aestheticization of technology, that is, through its transformation into an instrument for realizing the highest possibilities for human beings and things. (P. xiii)⁵³

In *An essay on liberation*, Marcuse argues that the aesthetic reconstruction of society presupposes 'a new type of man'.⁵⁴ This new person 'would speak a different language, have different gestures, follow different impulses ... The imagination of such men and women would fashion their reason and tend to make the process of production a process of creation'.⁵⁵ But this idea, Marcuse insists, is not his own invention:

It has been the great, real, transcending force, the '*idée neuve*', in the first powerful rebellion against the whole of existing society, the rebellion for the total transvaluation of values, for qualitatively different ways of life: the [1968] May rebellion in France.⁵⁶

Marcuse's experience during the May events was the catalyst which precipitated his turn away from the despair of *One-dimensional man*. In France, he witnessed the birth of the New Left:

... the hatred of the young burst into laughter and song, mixing the barricade and the dance floor, love play and heroism. And the young also attack[ed] the *esprit de sérieux* in the socialist camp: mini-skirts against the apparatchiks, rock 'n' roll against Soviet Realism.⁵⁷

Feenberg was at his teacher's side during this crucial moment:

We witnessed the beginnings of the movement together in Paris. Returning to his hotel in the Latin Quarter [Marcuse] was accosted by a group of students who had just occupied the *Ecole des Beaux Arts*. They recognised him from his picture in the newspapers where he was celebrated as the 'Guru of the Students in Revolt'. (Pp. x–xi)⁵⁸

⁵³ Marcuse's call for the aestheticisation of technoscience, and thus also of the political order of technoscientific society, must have surprised many Marxist theorists. Since the appearance of Walter Benjamin's 'The work of art in the age of its technological reproducibility' in 1935, it has been widely accepted in Marxist circles that the aestheticisation of politics is a characteristic of fascism (see Benjamin, 2002, p. 121). Nevertheless, in the preface to his 1978 book *The aesthetic dimension*, Marcuse (1978, p. ix) writes that 'in contrast to orthodox Marxist aesthetics I see the potential of art in art itself, in the aesthetic form as such. Furthermore, I argue that by virtue of its aesthetic form, art is largely autonomous vis à vis the given social relations. In its autonomy art both protests these relations, and at the same time transcends them'.

⁵⁴ Marcuse (1972/1969), p. 28.

⁵⁵ Ibid., pp. 29–30.

⁵⁶ Ibid., p. 30.

⁵⁷ Ibid., p. 33.

⁵⁸ Apparently the French media exaggerated Marcuse's influence. Callinicos (1998, web page) notes that 'two leaders of the French student revolt in May 1968 declared: "None of us have read Marcuse"'.

Marcuse was waylaid into the *Ecole*, with Feenberg in tow, where he delivered a short speech to the art students gathered in the main hall: ‘It is easy to imagine the excitement of the author of a [PhD] thesis on aesthetic resistance at the podium of this monument to “affirmative culture”’ (p. xi). Marcuse had written a PhD, shortly after his participation in the 1918 German revolution, which featured artists in conflict with society. The May rebellion fifty years later must have rekindled the passion and optimism of his youth. He was so enthused by the French militants that he dedicated *An essay on liberation* to them: ‘they have taken the idea of revolution out of the continuum of repression and placed it into its authentic dimension: liberation’.⁵⁹

Feenberg too was deeply impressed by the May events, as well as by Marcuse’s construal of its revolutionary potential.⁶⁰ In fact, his own work might be read as a prolonged attempt to both theorise and activate that potential. In the preface to *Transforming technology*, he writes:

Someday, probably sooner rather than later, we will want to rethink the plan of our social life. For that purpose we will need imaginative social criticism, and that is what I hope readers will find here.⁶¹

Apparently Feenberg hopes to be counted among the imaginative ‘new men’ who will ignite a Marcusean aesthetic revolution against the whole of existing society.

Let us return to more philosophical matters. Following Marcuse, Feenberg argues that imagination provides the means by which to escape the confinement of a systematically repressive society and establish contact with the revolutionary potential of ‘life’. Furthermore, he maintains that ‘[t]he organized work of the imagination is aesthetic activity, based on aesthetic experiences’ (p. 82). To become acquainted with ‘life’ is to attune oneself to ‘laws of beauty’ (p. 132). In the last section, I suggested that Feenberg’s notion of ‘life’ and his notion of technoscience are, in conceptual terms, very similar; they both denote resistance to domination. Technoscientific rationality, in its purified form, expresses life-affirming values. It is, in this way, much like the imagination. Technoscientific practice is thus an aesthetic activity. In *An essay on liberation*, Marcuse writes that ‘science and technology are the great vehicles of liberation, and ... it is only their use and restriction in the repressive society which makes them into vehicles of domination’.⁶² Here we return to a central theme from Sect. 2 of the present essay. There we saw that Feenberg takes technoscience to be a rational enterprise which transcends an ideologically corrupt social life. I glossed Feenberg’s distinction between purified socially transcendent rationality and corrupted socially immanent rationality as a difference between private and public forms of knowledge. I argued that Feenberg’s notion of rational transcendence entails transcendent standards of epistemic judgement, standards which Feenberg terms ‘ideal-types’. Feenberg’s aesthetic principles, his ‘laws of beauty’ and ‘life-affirming values’, being themselves standards of aesthetic judgement, obviously belong among these ideal-types. The aestheticisation of technoscience, and the subsequent liberation of contemporary society from capitalist repression, will be

⁵⁹ Marcuse (1972), p. 11.

⁶⁰ Feenberg has recently co-edited, with Jim Freedman, a volume on the May events (Feenberg & Freedman, 2001).

⁶¹ Feenberg (2002), p. ix.

⁶² Marcuse (1972), p. 21.

achieved in accordance with the standards of a specifically aesthetic kind of ideal-type. One might predict that, insofar as Feenberg earlier treated his ideal-types as transcendent and private, he will naturally describe his aesthetic principles in much the same way.

In fact, several passages in *Heidegger and Marcuse* confirm this prediction. In that text Feenberg calls the life process ‘a kind of quasi-transcendental totality’ (p. 76). He writes that imaginative perception can ‘transcend the given’ (p. 128), and that ‘the imagination is a transcendental faculty’ (p. 143 n.9). He also admits that, ‘insofar as the aesthetic is disclosed to an attuned sensibility, it appears to be private’ (p. 94).⁶³ Indeed, clearly following Marcuse, Feenberg insists that art, by which he could also mean purified technoscience, ‘must retain its autonomy to play its transcending role’ (p. 94).⁶⁴ In sum, Feenberg’s imaginative technoscientific rationality is transcendent, private and autonomous. Feenberg is thus positioned very much on the opposite shore from the STS and Heideggerian camps, both of which emphasise the non-transcendence, the basic social immanence, of all forms of human activity, including the rational activities of technoscience. For this reason, Feenberg’s bridge-building enterprise has not been successful. In order to accept his terms, STS and Heidegger studies would have to give up the very basis of their respective methods of analysis, that is, their sociologicistic conceptions of human nature.

5. Conclusion: return to symmetry

Under the present circumstances, Feenberg cannot be co-opted into STS. But the cause is not yet lost. There is still a way in which Feenberg might meet STS halfway along his proposed bridge. *Heidegger and Marcuse* promises an even-handed comparison and evaluation of the philosophies of Martin Heidegger and Herbert Marcuse. Feenberg sets out to elucidate the story of Heidegger’s influence on Marcuse. Yet, in his keenness to prove the depth of Marcuse’s appropriation of Heidegger’s philosophy, Feenberg overlooks one crucial occasion of *misappropriation*. As discussed in Sect. 3, Feenberg glosses Marcuse’s modification of Heideggerian authenticity as a mere modification of the existential content of that concept. As I have shown, however, Marcuse’s modification is in fact a transformation of Heidegger’s notion, a transformation which cuts it loose from its roots in human sociality. The Marcusean turn to transcendence and privacy inevitably follows from this transformation.

There is thus an asymmetry in Feenberg’s discussion of Heidegger and Marcuse. He reads Marcuse on his own terms, and Heidegger on Marcuse’s terms. By treating each philosopher on his own terms, that is, by treating them more symmetrically, Feenberg would allow himself the option of choosing Heidegger’s original concept of authenticity over Marcuse’s, in my opinion retrograde, construal of that concept. One benefit of such a choice is immediately clear. By accepting the thoroughly social basis of human action,

⁶³ Because I can find no passage in Feenberg’s text arguing that the aesthetic is *not* private, and many passages suggesting that it is, I assume that Feenberg writes that the aesthetic ‘appears’ to be private just because for him it *is* private.

⁶⁴ In *The aesthetic dimension*, Marcuse (1978, p. 7) argues that art’s ‘transcendence of immediate reality shatters the reified objectivity of established social relations and opens a new dimension of experience: rebirth of the rebellious subjectivity’. See also the quote in n.53.

Feenberg would then be in a position to accept STS's principle of symmetry. As argued in Sect. 2, in spite of Feenberg's worries to the contrary, such a move would not force him to abandon political critique. STS's principle of symmetry is not a politically impotent critical tool. Indeed, symmetrical analyses such as Collins and Pinch's study of the *Challenger* explosion allow for a quite fundamental critique of contemporary technoscientific practice: in the *Challenger* case, the promotion of a potentially dangerous myth of rational technoscientific certainty. The Heideggerian position is able to accommodate such a critique. As discussed in Sect. 3, Heidegger argues in *Being and time* that rational certainty is contingent upon the existential certainty of socially embedded agents. Heidegger did not expand much on this insight. More research could be done in this area.

This proposal will only work if Feenberg were to also set aside his totalising and essentialist account of contemporary society. This was Marcuse's conviction, and probably Heidegger's as well in *Being and time*, though in his later philosophy he seems to have loosened up a bit. A more heterogeneous account of social life, which remained sensitive to power imbalance, could accommodate progressive pockets of resistance. In fact, Feenberg already seems to be halfway to adopting this position. He notes that progressive technologies already exist:

... in such fields as medicine, architecture, and urban and environmental planning. Technical cultures based to a significant degree on life enhancing values derived from a long history and a wide range of experiences contend in these fields with narrow technocratic ambitions and commercialism. (P. 112)⁶⁵

This passage sits in tension with other passages in the book where Feenberg accepts Marcuse's essentialisation of social life. Rather than resolving this tension by arguing that progressive medics, architects and planners either are, or are inspired by, 'new men' with private access to a transcendent realm of aesthetic 'life', Feenberg could place such practitioners concretely into marginal pockets of resistance within existing society. This would, in turn, resolve another tension in *Heidegger and Marcuse*. Feenberg notes that, whilst Marcuse's aesthetic sensibility is a private faculty, democratic reason is public (p. 94). Hence, Feenberg asks, 'Is Marcuse's aestheticism compatible with democracy?' He reproduces Marcuse's own answer to this potential objection by referring to the artistic avant-gardes of the interwar period, and to the New Left counter-culture of the 1960s. For reasons that remain unclear, Feenberg expects us to take Marcuse's incidental use of these historical examples as evidence that Marcuse's aestheticism is democratically legitimate. Any doubts to the contrary will not be assuaged by Feenberg's subsequent assertion that the autonomy and transcendence of such artistic movements must be protected (p. 94).⁶⁶ Feenberg could paint a more convincingly democratic picture if he argued that aesthetic reason is public reason, that it is not private and transcendent but is rather the

⁶⁵ Feenberg discusses such progressive movements at greater length in *Questioning technology*, which to my mind remains his most outstanding work. There, however, he does not make any explicit theoretical claims about the nature of the knowledge employed in those movements.

⁶⁶ In a devastating overall critique of Marcuse's philosophy, Alasdair MacIntyre (1970, p. 89) questions the democratic legitimacy of Marcuse's theoretical elevation of such artistic rebellions: '... this isolation in values of bohemia is just what Marcuse values and the problem of communication with, of joint action with the majority does not arise, because the majority are to be objects of benevolent revolutionary concern, not subjects with an autonomous voice of their own'.

consequence of both active negotiation and tacit agreement within the fundamentally heterogeneous and conflictual realm of social existence.⁶⁷

Finally, if Feenberg worries that by further accommodating STS he will be forced to give up the centrality of aesthetics in his account of technoscientific practice, then he can find comfort in Nick Jardine's observation that '[t]he pervasiveness in the sciences of literary and aesthetic appeal has been well documented in recent "microsociological" studies of laboratory life and of the behaviour of scientists in contention'.⁶⁸ And, if Feenberg worries that a recognition of the social-embeddedness of aesthetic strategies nullifies a persuasive critique of those strategies, then he can make common cause with Jardine's argument the 'many rhetorical and aesthetic strategies ... have solid claims to reliability', while 'certain of the rhetorical and aesthetic strategies prevalent in the sciences, especially in polemical contexts, are deeply suspect'.⁶⁹ New philosophical research into the reliability (not certainty) of aesthetics in technoscientific practice would be well received by STS practitioners.

Perhaps Feenberg will find these counter-reflections on bridging the gap between his own work and STS unattractive. However, as long as he insists on maintaining his own unseemly commitment to individualism it is difficult to imagine how his hope—that modernity theory and STS might someday 'lie down together in the fields of the Lord'—could ever be realised.⁷⁰

Acknowledgement

My thanks to Rainer Egloff, Martin Kusch and Estheranna Stäuble for their helpful comments and advice on an earlier version of this essay.

References

- Abromeit, J. (2004). Herbert Marcuse's critical encounter with Martin Heidegger 1927–1933. In J. Abromeit, & W. M. Cobb (Eds.), *Herbert Marcuse A critical reader* (pp. 131–151). London: Routledge.
- Benjamin, W. (2002). The work of art in the age of its technological reproducibility (second version). In idem., *Selected writings*, vol. 3, 1935–1938 (pp. 101–133). Cambridge MA: The Belknap Press of Harvard University Press.
- Bloor, D. (1991). *Knowledge and social imagery* (2nd ed.). Chicago: University of Chicago Press. (First published 1976)
- Callinicos, A. (1998). Marcuse, Herbert. In E. Craig (Ed.), *Routledge encyclopedia of philosophy*. London: Routledge. Retrieved January 07, 2005, from <http://www.rep.routledge.com/article/DD042>.
- Collins, H., & Pinch, T. (1998). *The golem at large: What you should know about technology*. Cambridge: Cambridge University Press.
- Feenberg, A. (1988). The bias of technology. In R. Pippin, A. Feenberg, & C. P. Weibel (Eds.), *Marcuse Critical theory & the promise of Utopia* (pp. 225–256). Basingstoke: Macmillan Education.
- Feenberg, A. (1991). *Critical theory of technology*. Oxford: Oxford University Press.

⁶⁷ In *Questioning technology*, Feenberg discusses the 1968 May events at greater length, showing convincingly that they were democratic and popular in character. However, there he does not follow Marcuse in aestheticising the events, much less in arguing for their transcendence and autonomy vis-à-vis social existence.

⁶⁸ Jardine (1991), p. 193.

⁶⁹ Ibid., pp. 208, 207.

⁷⁰ Feenberg (2003), p. 103.

- Feenberg, A. (1999). *Questioning technology*. London & New York: Routledge.
- Feenberg, A. (2002). *Transforming technology: A critical theory revised*. Oxford: Oxford University Press.
- Feenberg, A. (2003). Modernity theory and technology studies: Reflections on bridging the gap. In T. Misa, P. Brey, & A. Feenberg (Eds.), *Modernity and technology* (pp. 73–104). Cambridge MA: MIT Press.
- Feenberg, A. (2004). Heidegger and Marcuse: The catastrophe and redemption of technology. In J. Abromeit, & W. M. Cobb (Eds.), *Herbert Marcuse: A critical reader* (pp. 67–80). London: Routledge.
- Feenberg, A., & Freedman, J. (Eds.). (2001). *When poetry ruled the streets: The French May events of 1968*. Albany: State University of New York.
- Geiman, C. P. (1995). From the metaphysics of production to questioning empowering: Heidegger's critical interpretation of the Platonic and Aristotelian accounts of the good. *Heidegger Studies*, 11, 95–121.
- Glazebrook, T. (in press). An ecofeminist response to Andrew Feenberg. In T. Veak (Ed.), *Philosophy of technology: New debates in the democratization of technology*. Albany: SUNY Press.
- Haraway, D. J. (1997). *Modest_Witness@Second_Millennium.FemaleMan[©]_Meets_OncoMouseTM: Feminism and technoscience*. London: Routledge.
- Heidegger, M. (1962). *Being and time* (J. Macquarrie, & E. Robinson, Trans.). Oxford: Blackwell.
- Jardine, N. (1991). *The scenes of inquiry: On the reality of questions in the sciences*. Oxford: Clarendon Press.
- Kusch, M. (2002). *Knowledge by agreement: The programme of communitarian epistemology*. Oxford: Clarendon Press.
- MacIntyre, A. (1970). *Marcuse*. London: Collins.
- Marcuse, H. (1972). *An essay on liberation*. Middlesex: Pelican Books. (First published 1969)
- Marcuse, H. (1978). *The aesthetic dimension: Toward a critique of Marxist aesthetics*. London: The Macmillan Press.
- Marcuse, H. (1991). *One-dimensional man*. London: Routledge. (First published 1964)
- Olafson, F. (1988). Heidegger's politics: An interview with Herbert Marcuse. In R. Pippin, A. Feenberg, & C. P. Weibel (Eds.), *Marcuse: Critical theory & the promise of Utopia* (pp. 95–104). Basingstoke: Macmillan Education.
- Potter, E. (2001). *Gender and Boyle's law of gases*. Bloomington: Indiana University Press.
- Schaffer, S. (1984). Making certain. *Social Studies of Science*, 14, 137–152.
- Shapin, S. (1994). *The social history of truth: Civility and science in seventeenth-century England*. Chicago: University of Chicago Press.
- Shapin, S., & Schaffer, S. (1985). *Leviathan and the air-pump: Hobbes, Boyle, and the experimental life*. Princeton: Princeton University Press.
- Vaughan, D. (1996). *The Challenger launch decision: Risky technology, culture and deviance at NASA*. Chicago: University of Chicago Press.
- Winner, L. (2004). Trust and terror: The vulnerability of complex socio-technical systems. *Science as Culture*, 13(2), 155–172.