

**Antimonies of Science Studies:
Towards a Critical Theory of Science
and Technology**

Nikó Antalfy

BA (Hons UNSW) 1998

Cert of Ed in Higher Ed (MU) 2002

Thesis submitted in fulfillment of the requirements
for the degree Doctor of Philosophy

Department of Sociology
Macquarie University, Sydney, Australia

2008

Table of contents

Abstract	iv-v
Acknowledgements	vii
Introduction	1
1 ACADEMIC VESSELS: STS and HPS	6
1. Acronyms	7
2. HPS	9
3. Vienna Circle to Popper	10
4. STS reconstructions: early years and influences	19
5. Two subcultures in STS united by sociological episteme	27
6. STS and HPS	30
2 SSK – SCIENTISM AS EMPIRICAL RELATIVISM	33
1. Brief history and scholarly origins	34
2 SSK's tenets and philosophical underpinnings: problems of hybridity	42
3 The hybrid agenda of SSK and its confusion over the HPS-STS divide	44
3 LATOUR AND ACTOR-NETWORK-THEORY	54
1. ANTecedents in a famous lab study: social constructivism, anthropological fieldwork and agnosticism	56
2. Latourean mixes	70
3. Latourean mix No 1: actants, networks, post-structuralism, relativism, post-humanism	73
4. Latourean mix No 2: post-structuralism, symmetries, radical realism, non-modernity	77
5. Avant-garde discipline smashing, post-humanist politics	86
6. Immanent problems & ANT's place in Science Studies	97
4 TENSIONS AND DILEMMAS IN SCIENCE STUDIES	104
1. Science Wars – a debated symptom	109

5	KUHN – PARADIGM OF AN UNCRITICAL TURN	129
1.	Kuhn’s basic model, points of praise	131
2.	Kuhnian links to SSK and ANT: scientism/ naturalism, prescriptive ‘paradigmatism’ and science-as-practice	139
3.	Reconstructionist attempt: Sharrock and Read	148
4.	Problematizing the legacy: Fuller’s critique	157
6	CRITICAL THEORY OF TECHNOLOGY: ANDREW FEENBERG	166
1.	The necessity of Critical Theory	166
2.	Critical Theory of technology	170
3.	Feenberg’s scholarly context and the development of his theory	171
2.	Subversive rationalisation and the technical code	179
3.	Ambivalence, subversion and the democratization of technology	186
4.	Critical theory of technology for a renewed Science Studies	189
5.	The STS-HPS divide: Feenberg and Habermas	192
7	CRITICAL THEORY AND SCIENCE STUDIES: JÜRGEN HABERMAS	195
1.	Introduction	195
2.	Habermas’s theory of science – an overview	196
3.	Scholarly origins	198
4.	Habermas and science: the ‘society-in-science’ view	200
5.	Habermas and science: the ‘science-in-society’ view	211
8	CONCLUDING REMARKS: NORMATIVITY AND SYNTHESIS	229
	Bibliography	233

Abstract

Science Studies is an interdisciplinary area of scholarship comprising two different traditions, the philosophical History and Philosophy of Science (HPS) and the sociological Science and Technology Studies (STS). The elementary tension between the two is based on their differing scholarly values, one based on philosophy, the other on sociology. This tension has been both animating the field of Science Studies and complicating its internal self-understanding.

This thesis sets out to reconstruct the main episodes in the history of Science Studies that have come to formulate competing constructions of the cultural value and meaning of science and technology. It tells a story of various failed efforts to resolve existing antimonies and suggests that the best way to grapple with the complexity of the issues at stake is to work towards establishing a common ground and dialogue between the rival disciplinary formations: HPS and STS.

First I examine two recent theories in Science Studies, Sociology of Scientific Knowledge (SSK) and Actor-Network Theory (ANT). Both of them are found to be inadequate as they share a distorted view of the HPS-STs divide and both try to colonise the sociology of science with the tools of HPS. The genesis of this colonizing impulse is then traced back to the Science Wars which again is underpinned by a lack of clarity about the HPS-STs relationship. This finding further highlights the responsibility of currently fashionable theories such as ANT that have contributed to this deficit of understanding and dialogue.

This same trend is then traced to the work of Thomas Kuhn. He is credited with moderate achievements but recent re-evaluations of his work point to his culpability in closing the field to critical possibilities, stifling the sociological side and giving rise to a distorted view of the HPS-STs relationship as seen in SSK and ANT. Now that the origins of the confused and politically divided state of Science Studies is understood, there is the urgent task of re-establishing a balance and dialogue between the HPS and the STS sides.

I use two important theoretical threads in critical theory of science and technology to bring clarity to the study of these interrelated yet culturally distinct practices. Firstly I look at the solid line of research established by Andrew Feenberg in the critical theory of technology that uses social constructivism to subvert the embedded values in the technical code and hence democratize technology.

Secondly I look at the work of Jürgen Habermas's formidable Critical Theory of science that sheds light on the basic human interests inside science and technology and establishes both the limits and extent to which social constructivism can be used to study them.

Together Feenberg and Habermas show the way forward for Science Studies, a way to establish a common ground that enables close scholarly dialogue between HPS and STS yet understands and maintains the critical difference between the philosophical and the sociological approaches that prevents them from being collapsed into one indistinguishable entity. Together they can restore the HPS-STs

balance and through their shared emancipatory vision for society facilitate the bringing of science and technology into a democratic societal oversight, correcting the deficits and shortcomings of recent theories in the field of Science Studies.

Statement

I hereby state that following thesis is entirely my own work and has not been submitted for any other degree at any other university or educational institution. All sources of information used in the thesis have been indicated and due acknowledgement has been given to the work of others.

Signed:

Nikó Antalffy

Date:

Acknowledgments

This thesis has been the most significant project in my life and it could not have been written without the support of many around me.

Firstly I want to thank my supervisor Pauline Johnson whose tremendous insightfulness and scholarly stance I deeply admire. She has unfailingly believed in the project and has greatly helped me wrestle with the self-imposed and thoroughly worthwhile conceptual challenges of the task at hand.

I want to thank three good friends and colleagues, Norbert Ebert, Guy Hungerford and Harry Blatterer with whom I shared the journey. Thank you for the wonderful support, practical ideas and life affirming intellectual companionship! I also want to thank staff at Macquarie University with whom I taught, researched and held wonderful conversations with throughout the years I've been there.

I thank Prof Clive Kessler for awakening and nurturing my critical interests early on and thereby sowing the seeds for my budding sociological imagination! Thanks also to Paul Jones for years of lively conversations and the gift of subversive rationalisation.

Thanks goes to Craig O'Shannessy for the deep love, care, joy and respect that all started with a serendipitous symmetry of disposition! Partners shoulder more than anyone else in a thesis finale and he's been instrumental (as much as we may continue to debate the value of that word!) to my success in finishing the job. Thanks also to Simone Coupe for being there for me in critical moments!

I want to thank all my friends, who share the joy and meaning we create together and inspire me to explore, question, create, connect and love. I'm grateful to be part of a loose 'tribe' that celebrates life with passion.

I'm also indebted to my parents, Judit and George Mitro whose love and support helped sustain my studies. Thank you for helping me choose my path, it's been an amazing journey.