

Modes of Technoscientific Knowledge

Winter School 19-25 January, 2014

Topic overview: Following the “practical turn” in history of science and science studies in the late decades of the 20th century, a “thing turn” has occurred in the philosophy of science and technology. Epistemology scholars are more and more concerned with “thing knowledge” rather than with theoretical representations (Baird 2004). The technological dimension of science is no longer to be seen as a mere mediation between mind and reality for the sake of theoretical representation, theory-testing or practical application. “Epistemic things” and “experimental systems” (Rheinberger 1997), models and simulations (Morrison & Morgan 1999, Varenne 2007) and other technological artifacts are reconsidered as indispensable partners in the making of scientific knowledge. But how are we to identify and conceptualize the epistemic roles of technology in *technoscientific research*?

As long as technoscience is assimilated with a highly application-driven enterprise aiming at remaking the world, most philosophical studies focus on the “impacts” of technoscientific applications on environment, society, or ethics and their regulation to the detriment of epistemology. However, the view of current technosciences as socio-political constructs arising less from “purely scientific” goals than from larger institutional, economic and cultural contexts does not preclude addressing their epistemic strategies *qua* technoscience (Bensaude-Vincent 2009; Bensaude-Vincent et al. 2011; Nordmann 2012). On the contrary, if technosciences are not only hybrids of science and technology but research projects that embody socio-political values, projects and agendas, then it is even more crucial to reconsider their epistemic status. Far from considering science (or a particular idealization of it) as “the” norm of knowledge and technoscience as a corrupted or contaminated form of it, the purpose is to characterize technoscientific knowledge as such in order to delineate an *epistemology of technoscience* as a distinctive enterprise with its own epistemic values and its own ways of producing knowledge as well as new forms of ignorance.

This PhD and advanced graduate winter school seeks to explore the epistemology of technoscientific knowledge on the basis of a number of case studies ranging from recent technosciences such as nanotechnology or synthetic biology, to more traditional ones, such as chemistry, pharmacy or metallurgy. The purpose is to disentangle the historical, sociological, anthropological and philosophical implications of the epistemology of technoscience. Along with stimulating topics, the school offers above all a convivial place of exchange between PhD students and more advanced scholars from various countries.

Topics of inquiry include (but are not limited to):

History, sociology and anthropology of techno-epistemic cultures:

- What role do epistemological differentiations play in technoscientific research fields’ historical dynamics, community-building, boundary work, and material cultures?
- What are techno-epistemic cultures? How are they made, what are they capable of?
- What are the implications of addressing technoscientific knowledge for the historical, sociological or anthropological study of technoscience?

Epistemology of technoscience:

- Who produces and beholds technoscientific knowledge? Researchers as individuals, as collectives? Instruments, experimental systems, simulation setups? Technoscientific objects or things themselves? Hybrid of sorts?
- How is technoscientific knowledge performed? By trial and error, question and answer, dialogue or colloquium with the object? By accessing, peering or participating to thing knowledge? By iteration, participation, self-representation, interconnection, intra-action, analogy? Is it tacit knowledge, and if so, how is it publicly validated?
- “Knowledge of control” or “knowledge as control”? “Human control over the object” or “things controlling each other”? In what sense can the achievement of control be genuine knowledge in its own right?

Lecturers: Bernadette Bensaude-Vincent (Univ. Paris 1 Sorbonne); Alfred Nordmann (Technische Univ. Darmstadt); Astrid Schwarz (University of Basel); Sacha Loeve (Univ. Paris 1 Sorbonne); Xavier Guchet (Univ. Paris 1 Sorbonne); Cyrus Mody (Rice University); Anne-Françoise Schmid (Ecole des Mines Paris); Jean-Pierre Llored (Free Univ. of Bruxelles); Hans-Jörg Rheinberger (H. Prof. MPIWG Berlin To be confirmed).

Place: Chalet Giersch, Manigod, France (<http://www.giersch-stiftung.tu>)

Organization: Univ. Paris 1 Sorbonne, Technische Univ. Darmstadt, French-German ANR-DFG program GOTO (www.goto-objects.eu), BiCoDa Alliance (<http://www.bicoda.info>).

- “Knowing through making” (or “constructing” or “creating”): Does understanding precede making or the reversal? Is making a necessary and sufficient condition for understanding? A necessary but non-sufficient condition? Or a contingent but sufficient (good enough) condition? Or something else? Does the ability to create confirm a mental model or does it stand as a form of successful participation to the processes under investigation?

Ontology of technoscience:

- What exactly is known by technoscientific knowledge? Non natural artifacts? Artifacts continuous with nature? Nature as technological partner? Functions, processes, performances, behaviors, works, operations, capacities of control, means of action, design rules, engineering principles, effects of our own actions, objects, things, stuffs, substances, systems, dispositions, affordances, possibilities, individuals, singularities, patterns, generic features...?
- Which philosophies are pertinent to address and make sense of these questions?

Participation: The school welcomes PhD and advanced graduate students interested in addressing these issues from philosophy, STS, cultural studies, anthropology, and related fields (other backgrounds such as physics, chemistry or biology are also welcome). Each participant should propose a technoscientific “object” or case study (even a programmatic one) and contribute an approximately 10-page paper by December 15, 2013. A reader of texts will be distributed well in advance of the course.

Format: The course will comprise approximately 20 participants selected on the basis of submitted abstracts. The school will alternate lectures and discussion sessions involving participants and lecturers. There will be time also for skiing and hiking at one’s own leisure.

Cost: Participation in the course is free but participants are expected to pay their own travel expenses (transportation from Geneva or Annecy will be arranged). Accommodation and tuition are taken care of, leaving only a nominal amount of roughly 100 Euros for food and incidental expenses.

Please submit your abstract to Sacha Loeve (sacha.loeve@univ-paris1.fr) before October 15, 2013. Abstracts should comprise a brief description of your technoscientific object or case study, describing how it relates to the course theme(s) and briefly sketching the central issues you are facing with it. Since the course is interdisciplinary, the abstract should include some basic information about your approach and disciplinary context.

Important dates

Submit short abstract before October 15, 2013

Notification of acceptance: October 20, 2013

Submit paper by: December 15, 2013

Course dates: January 19-25, 2014