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Exploring the Social in Science and Technology Studies

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Abstract: The aim of this study is to critically focus upon two of the most influential approaches within the field of science and technology studies: the shift towards practice and the actor-network theoretical approach. It briefly describes them and carefully points out their problematic relationship with the social, as well as their inherent limitations, weaknesses and implications, from a sociological point of view. But critical interrogation is also tied to the search for remedies. This mainly involves the potential openness of contemporary science and technology studies towards modern social theory, as well as towards critical perspectives upon the nature and character of knowledge, culture and technoscientific expertise. The therapeutic attempts strongly emphasize the epistemologically healthy role of reflexivity and an alternative normative reconsideration of both the social and the human.

Key words: Technoscience, constructivism, epistemology, sociology of knowledge

INTRODUCTION

The post-Kuhnian social studies of science and technology comprise a very broad church of approaches which cover a knowledge area of huge impact and immense variety. In general, these approaches share the ambitious analytic concern of interrogating the knowledge content of technoscience and of interrelating it to specific social, economic, cultural and historical factors. From this heterogeneous viewpoint, technoscience cannot separate itself from the social structure, but at the same time it cannot pontifically tell us what society should do.

The value-free relativism (Pels, 2003) of the social studies of science and technology however seeks to usefully equip society with the basic ability to radically question technoscientific knowledge and representations, so as to better understand how we might re-act to the various claims made within the relevant fields of expertise. They also attempt to open technoscience to greater public participation, engagement and debate, against the elitist mysticism and mentalism which silently shield the particular self-referential goals and interests of specialized professions.

In this context, many researchers question the very possibility of objective and impersonal knowledge production in the realm of science and technology, but also raise serious doubts about their own ability to say anything neutral about what the experts are systematically researching. Some approaches have regularly focused on language, discourse and interaction in the production of technoscientific facts, whilst those in the interests school and the so-called strong programme tended to rely upon interviews with existing scientists and secondary sources for the study of historical controversies.

THE TURN TOWARDS PRACTICE AND NETWORKS

In particular, ethnomethodological researchers, mainly inspired from the Nietzschean and Wittgensteinian philosophies of language and meaning, have tended to increasingly adopt an ethnographic approach to the systematic study of what Steve Woolgar and Bruno Latour called Laboratory Life (which eventually has gone on to comprehensively include studies of conferences, journal management etc). That is, access to the everyday negotiations at the lab bench are said to give an added dimension of insight into the very reality of social life inside technoscience.

These researchers have pointed out the myriad ways in which truth and the idea (or impression) of objectivity are competently managed and enacted in the everyday performative activities of technoscience-in particular, the ways in which the inherently messy business of generating new data is cleaned up in its later presentation at scientific conferences and in academic publications.

Two interesting and apparently innovate anti-social contributions, which are closely related to the aforementioned laboratory studies and systematically tried to develop new groundbreaking directions in science

and technology studies, can be discerned in the original emphasis on scientific practice and on the actor-network approach (or the sociology of translations).

On the one hand, the British sociologist and science historian Andrew Pickering (after having the K deleted first) intriguingly deletes the S of SSK (Sociology of Scientific Knowledge), since there seems no warrant for assigning causal priority to the social in understanding scientific practice and culture (Pickering, 1992).

The shift towards practice seems to comprise all complex dimensions of technoscience and to significantly minimize the traditional focus on its social variables, aspects or parameters: scientific practice is interesting in its own right (Pickering, 1992). This also suggests an important constitutive role for the material world within technoscience. Technoscientific findings are then regarded as inherently shaped and transformed by what Pickering calls maneuvers in the field of material agency (Pickering, 1993). In the same line, Knorr-Cetina asserts that constructivism (...) requires nothing less than to keep the analysis sufficiently free from theory (Knorr-Cetina, 1989).

The practical turn clearly tends to devalue the working scientists' cognitive and social inputs and backgrounds. But technoscientific knowledge-production processes in an observed laboratory have always their own, relatively autonomous cognitive and social elements, which are nevertheless not practically reducible and remain distinct from the routinized daily sequence of activities. The methodological device to definitely give up theory is also epistemologically naive and paradoxically opposes to the constructivist notion of the essential theory-ladenness of any kind of scientific observation and experience.

On the other hand, Bruno Latour and others (Michel Callon, John Law and Madeline Akrich) who have developed the actor-network approach unreflexively employ the same anti-social rhetoric and hence give up any received distinction between social/nature and social/technology. Consequently, the social becomes nihilistically devalued and ultimately disappears from the field of the social studies of science and technology, on the methodological basis of three supposedly universally applicable principles (Callon, 1986):

Agnosticism: Analytical impartiality towards all actors (humans or non-humans) involved in the project under consideration.

Generalized symmetry: The application of an abstract and neutral vocabulary that works in the same way for both human and non-human actors.

Free association: The elimination and abandonment of all a priori dichotomies between technology, nature, society and politics.

These a priori dichotomies have to be permanently substituted, since a (socio-technical) network is strategically re-composed of heterogeneous actors or actants (and their on-going interactions), which all mutually and synergistically contribute to its strength/hardness or weakness/softness. Such an anti-humanist and pragmatic notion of an ultra-activistic nature constitutes a radical departure from our taken-from-granted anthropocentric worldviews (assigning priority to the social). The prospective naturalistic emancipation of the nonhumans from the double domination of society and science (Latour, 1988) champions microbes as new social actors and scallops as beings with ends (Callon). In addition, the first half of the well-established label social constructivism has literally disappeared.

In the last instance, both the reductionist shift towards practice and the actor-network approach can be critically seen as providing a very poor and insufficient social-theoretical account of the modern forces of science and technology. This is accompanied with a completely de-socialized conception of action and interaction, as well as with the total eclipse the indispensable normative dimension.

SEARCHING FOR REMEDIES

The unbridled naturalism of the empiricist and descriptivist turn towards practice and networks offers an extremely narrow framework for meta-technoscientific analysis, which obviously leaves out of perspective any relevant organisational or disciplinary level. This profoundly calls for a critical sociology of science and technology (W. Rehg) -that is, a critical broadening of contemporary science and technology studies, beyond the selective ontological focus on substantive findings and the limiting questions about public participation and engagement.

What is really needed here is to always keep a sharp reflexive eye to the diverse social phenomena between technoscience and other parts of society, as well as to the wider financial, political and historical contexts and dynamics of science and technology, so that we can possibly apply new emancipative policies and move out from today's dominant debilitating discourses, in a largely uncaring world risk society (Ulrich Beck). For example, the risks and potentialities of the rapid developments on artificial life/intelligence, genetics and nano-, bio-, or info-technologies cannot be fully grasped without thinking more globally, in the crucial direction of new

areas of study and forms of radical egalitarian action. Hence, more sociological emphasis should be carefully put on the global implications of science and technology, as well as on the new emerging alliances between technoscience, the public and the state, towards an alternative Wissenpolitik (Stehr, 2005).

In direct contrast to the shift towards scientific practice and the actor-network approach, which in principle keeps the detailed constructivist analysis sufficiently free from theory (Knorr-Cetina, 1989), a new socialized conception of science and technology studies should get tied to important moral, political and policy questions, far beyond Latour's myopic war metaphors. Instead of naively reducing the social to performative inter-personal linguistic negotiations (Lynch, 1985) and everyday individual-behavioral matters (Latour and Woolgar, 1979), we should rather move from reflexivity within actions, to reflexivity upon actions (Tim May), with a concurrent focus on the content, the context and the social consequences (or the social dynamics) of technoscience.

Of course, the technoscientific production of society does not take place in situ (Michael Lynch); it is always power-ridden, community-grounded, historically relevant and culturally bound. In addition, technoscientific actions, interactions and decisions are never absolutely free, strategic, manipulative, rationalistic or voluntaristic; they always depend on pre-structured and time-depending social contexts, underlying generative mechanisms (Roy Bhaskar) and (both enabling and constraining) symbolic backgrounds or habituses.

We thus have to take seriously into account a fruitful opening of the recent science and technology studies towards modern social theory or a more broadly conceived social theory of knowledge or social epistemology (Fuller, 1988). This also implies a radical shift from the micro-oriented ethnographies of laboratory life and scientific controversies towards a comprehensive macro-social theory of knowledge (as characteristically outlined in the works of Marx, Mannheim, Bourdieu, Beck, Lash, Castells, Berger and Luckmann), which reincorporates science and technology studies in the more general concerns of cultural studies and social and political theory (Pels, 2003).

It additionally extends our scope of study from academic beliefs toward the hotly debated Mannheimian problem of ideology and ideology critique, as well as toward contemporary debates on the public role of intellectuals, experts, professionals, epistemocrats or cultural capitalists. We could therefore restore the symmetrical interdependency among epistemology, sociology and ethics, thus counteracting the tendency of any sort of disciplinary imperialism, or disciplinary chauvinism (Fuller, 1988).

Eventually, we must seek to recover the critical dimension of classical analyses of reification and fetishism over against the generalized strong symmetry and agnosticism of actor-network theory and similar ethnomethodologically inspired approaches, which actively admire everyday essentialism as a smartly competent strategy of ordinary actors, requiring social theory merely to reflexively duplicate it on its second-order level of observation (Pels, 2002). We must not just follow the actants, but to follow them critically.

If the accounting of (social) facts can no longer be successfully grounded in the old modernist division between true knowledge and mere belief, a critical (or relational) performativism should be ready to acknowledge that the second-order constructions of the sociologist are themselves no more than factishes (Latour) or fictional realities, which agonistically act upon or do something to reality rather than objectively reflect it, in a mimetic way (Pels, 2000). A critical notion of reification may then reveal the extent to which both ordinary and scientific actors empirically share this presumption about the continuity or co-extensivity between fact and fiction, as well as about the virtuality of the social, or prefer to externalize their own performative contribution to it by defining and treating (and being treated by) social facts *as things*.

The parallel critique of fetishism might possibly unveil how the attribution of supernatural powers to both material objects and human subjects (e.g. famous sights, landmarks, celebrities, authorities) denies and erases the active performance of the subjects that make them and identify with them. This critical perspective also undercuts any strict ontological symmetry between humans and humans, favouring the retention of a weaker and more differentiated asymmetry both on normative and reflexive grounds (Pels, 2003):

- Normatively speaking, an attenuated hierarchy remains significant in view of the venerable Enlightenment adage that people must not be treated as tools, instruments, or property. This emphatically stresses the vital need for a new human project.
- In reflexive terms, the opposition remains important because all narrative constructions of the actorial presence of people and things invariably derive from the second-order linguistic activity of human spokespersons.

CONCLUSION

Intellectual developments like the practical turn and actor-network theory ultimately imply that science and technology studies might be a remarkably fruitful source of new exciting ideas and conceptions for social theory. This can be especially discerned within the emerging possibilities of a sort of epistemologically relativist and skepticist inquiry aiming at a reflexive reconsideration and reinvention of the nature and scope of social theory. In other words, we could now imagine an innovate form of social theory which explicitly comprises non-human elements in an expanded conceptualization of the social. That is, a critical social theory that self-consciously attempts to radically revise its most fundamental preconceptions about the nature and character of social and of agency (Woolgar, 1997).

REFERENCES

Callon, M., 1986. The Sociology of an Actor-Network: The Case of the Electric Vehicle. In: Callon, Law, Rip (Eds.). Mapping the Dynamics of Science and Technology: Sociology of Science in the Real World, London, Macmillan.

Fuller, S., 1988. Social epistemology. Bloomington, Indiana University Press.

Knorr-Cetina, K., 1989. Spielarten des Konstruktivismus. Einige Notizen und Anmerkungen, Soziale Welt, 40: 86-96.

Latour, B., 1988. The Pasteurization of France, Cambridge, Harvard University Press.

Latour, B. and S. Woolgar, 1979. Laboratory Life. The Social Construction of Scientific Facts, Beverly Hills, Sage.

Lynch, M., 1985. Art and Artefact in Laboratory Science. A Study of Shop Work and Shop Talk in a Research Laboratory, London, Routledge and Kegan Paul.

Pels, D., 2000. The Intellectual as Stranger. London and New York, Routledge.

Pels, D., 2002. Everyday Essentialism. Social Inertia and the Münchhausen Effect. Theory, Culture and Soc., 19 (5/6): 69-89.

Pels, D., 2003. Unhastening Science. Liverpool, Liverpool University Press.

Pickering, A., 1992. From Science as Knowledge to Science as Practice. In: Pickering, A. (Ed.). Science as Practice and Culture, Chicago, Chicago University Press.

Pickering, A., 1993. The Mangle of Practice: Agency and Emergence in the Sociology of Science. Am. J. Sociol., 99: 559-589.

Stehr, N., 2005. Knowledge Politics: Governing the Consequences of Science and Technology. Boulder, Paradigm Publishers.

Woolgar, S., 1997. Science and Technology Studies and the Renewal of Social Theory. In: Turner, S.P. (Ed.). Social Theory and Sociology: The Classics and Beyond, Oxford, Blackwell.