

Towards the Non-Mertonian Ethos of a Non-Mertonian Science: Situating the Research Value of Openness

Commentary on "Towards a New Ethos of Science or a Reform of the Institution of Science? Merton Revisited and the Prospects of Institutionalizing the Research Values of Openness and Mutual Responsiveness" by René von Schomberg.

Alfred Nordmann^a

^a Darmstadt Technical University, Germany.
nordmann@phil.tu-darmstadt.de 

It is hard to disagree with the thrust of René von Schomberg's position paper. It is driven by the worry that current conceptions of "open science" are all too impoverished – that they need to be complemented by the social practice of "mutual responsiveness". Whether in terms of political theory and notions of democracy, or in terms of socially relevant research practice – only an ambitious commitment to open science will be robust enough to make a diffe-

rence and contribute to research that addresses global challenges. In contrast, it is paying lip service only to the ideal of openness when "open science" is reduced to "open access publishing" or data storage rituals. As von Schomberg shows, this might actually deepen disparities and redundancies within dysfunctional science.



And yet, the particulars of his argument fail to effectively make the case. Von Schomberg calls on two prime witnesses to testify to "open science": There is the historical antecedent, perhaps a voice of conscience, personified by Robert K. Merton and his idea of "communism" or public ownership as a norm which is held to binding for the scientific community. And then there is the recent history of Covid-19 research where scientists surrendered personal ambition and the quest for originality and readily shared data to support public problem-solving. Neither of these precedents, however, points towards von Schomberg's ideal of open science, and together they produce an incongruous picture of science that obscures rather than highlights the questions at hand.

ROBERT K. MERTON

In the face of Nazism and Stalinism, at the time of "German physics" and "Lysenkoism", the Weberian sociologist

Robert Merton revisited "Science as a Vocation" and articulated "that affectively toned complex of values and norms which is held to be binding on the man of science" (Merton, 1973, 268-269; compare Weber, 1946). This can be viewed in the context of a research program which takes as its starting point what Merton has called the Thomas theorem: *If people define situations as real, they are real in their consequences* (Merton, 1973, p. 262). What scientists hold themselves to be bound by is constitutive of "science" as a social institution. Irrespective of the many violations of these values and norms, they serve as regulatory ideas, provide orientation, occasion ambivalence or even a guilty conscience and thus retain their effective normative force. Why do scientists hold themselves to be bound by just these norms? Merton does not address this question. As von Schomberg notes, he presupposes the commonplace answer of the day which can be traced back to Immanuel Kant and the Kantian tradition in 19th and 20th century physics and philosophy: To advance "Enlightenment",

the "disenchantment of the world", or the "extension of certified public knowledge", what is required is a public sphere that is defined by the absence of traditional authority and parochial interests. One enters the public sphere as one enters a game, and the rules of the games bind the players to discursive norms. The republic of scholars or scientific community is the model of such a game where one can win only by having the better argument, where knowledge is freely shared (communism), where all reasoners are equal (universalism), where personal ambition, ideological tenets, questions of relevance and practical benefit are bracketed (disinterestedness), and where everyone is committed to the give and take of argumentation (organized skepticism). Is this game an idealisation of science? No. Is it a picture of what goes on in science? No. This is where the Thomas theorem comes in (Merton, 1973, p. 260-263). The mere game of science is defined as real and can therefore produce very real consequences. For the people who play this game, it is an indispensable part of

scientific practice to finally publish a paper that renders a rather unprincipled messy process very tidily and according to the normative precepts of their profession – the extension of certified knowledge is presented as if it involved nothing but persuasive arguments regarding the evidence for and against theories or hypotheses. It is in this sense, famously, that every scientific publication lies (Medawar, 1996): It projects the labours of scientists into the sphere of the game, transforming hard-won experimental findings into objects of collective deliberation – as if there were no ulterior motives, powerful financiers, nasty competitions involved. For the people who play this game, there is no better way to achieve what they consider scientific knowledge.

To be sure, Merton's argument can also be viewed also as his emphatic political commitment to science and Enlightenment – envisioning a specific interface between science and democracy. He was not alone in this, with similar arguments presented by Michael

Polanyi, Karl Popper, and others: The game of science served and sometimes still serves as a model for rational deliberation in the public sphere, it exemplifies what Jürgen Habermas considers the non-coercive force of the better argument (Habermas, 1984, 11). The intrinsic commitment of science to communicative rationality and democratic deliberation did not imply, however, that science should take notice of what is going on in that other public sphere of civic democracy, that it should be interested in the problems, concerns, priorities of citizens. Indeed, when one envisions science as part of civil society and subject to public reasoning, more broadly conceived, one is confronted with a very different interface between science and democracy. It takes a rather daring construction to conflate the two – and René von Schomberg is offering such a construction: Since Merton offers no demarcation criterion of science, he cannot exclude anyone from the sphere of scientific reasoning and therefore must admit all deliberators into the world of science, thus infusing the

scientific community with civic sentiments and concerns (von Schomberg, 2024, 7). Indeed, according to Schomberg, Merton's commitment to openness requires just this.

This is a daring construction because it is not at all clear that any of this follows from Merton's failure to provide an explicit demarcation criterion or from the unavailability, in principle, of such a criterion. It is evident that Merton, following Max Weber, assumes that not everyone holds themselves to be bound by these certain values and norms, and certainly, that not everyone seeks to extend certified public knowledge. In this regard, science as a profession is like medicine or the law, institutionally constituted by a set of commitments and mechanisms of self-governance such as accreditation, peer-review, and the like.

To be sure, Schomberg is not the first who seeks to "improve" upon the Mertonian conception of science, extending the values of science towards the poli-

tical democratization of science. Gernot Böhme, Wolfgang Krohn, Wolfgang van den Daele, and others formulated in the 1980s the so-called finalization thesis, suggesting that communicative rationality, the norms and methods of science require that scientists collectively deliberate the ends of science, including the choice of questions and problems (Schäfer, 1983). Science would be incomplete, they argued, if it stops short of openly debating the application of science and how it should serve societal interests. It would thus be a necessary next step of science to become political, that is, engaged with civil society. In the meantime, John Ziman, Michael Gibbons, Helga Nowotny, and others described a "new production of knowledge" that is responsive to societal interests (Ziman, 2000; Gibbons *et al.*, 1994). Having identified "originality and novelty" as a fifth norm to complement and complete the Mertonian conception, they proposed a dynamic that invites considerations of social needs, technical and economic interests.

Either way – whether we follow von Schomberg or the latter theorists of science – it is unhelpful to conflate openness as a value of science and openness of science towards society. Openness as a value of science negates authority and hierarchy as well as parochial "special" interests, openness of science towards society subjects it to (legitimate) considerations of relevance and interest. By conflating these notions of openness, one also conflates the game of science as extension of certified public knowledge with quite another game of using scientific theories and capacities to accomplish things of technical, practical, societal relevance. One thereby finally conflates the modern project of Enlightenment and a project which Ulrich Beck, Anthony Giddens, and Scott Lash discussed as second modernity, namely a project of repair that attempts to reflexively manage the ecological and social problems that arose through modernization (Beck *et al.*, 1996).

Indeed, the finalization theorists, John Ziman, Michael Gibbons and his collaborators did not suggest that the democratization of science and its openness towards society are consistent with Mertonian notions of communism, universalism, disinterestedness, and organized skepticism. On the contrary, the problem of "finalization" arises only once the game of science is over, that is, when the business of theory-development is "closed" and the problems shifts to the ends that can be served by all the already accumulated knowledge of science. John Ziman and the others explicitly associated the Mertonian norms with the peculiar institution of academic science or mode-1 research and spoke of the new production of knowledge as non-academic mode-2 research with its orientation towards social needs. Accordingly, the Mertonian norms are said to be displaced by a new social contract between science and society and a different view of the interface between science and democracy – not in terms of communicative rationality but in terms of public engagement and participation.

This new social contract redefines public knowledge as intellectual property, introduces relevance, inclusion, responsibility as values that are held to be binding on scientists. Steven Shapin in his book on the scientific life in Silicon Valley provides "a moral history of a late-modern vocation" and adds familiarity and charisma as counter-norms to universalism and disinterestedness (Shapin, 2008).

Of course, René von Schomberg also laments that public knowledge is now conceived as intellectual property and therefore rediscovers Merton as a promoter of open science. At the same time, however, he does not and would not endorse the call to go "back to academic science". He does not appear to fully acknowledge that the values of Mertonian science simply are not made to provide orientation for post-academic "open science". And so, his attempt to apparently build on and widen Merton's Enlightenment conception of science ends up with a brute substitution of the very definition of "science": Merton's ins-

titution for the "extension of certified public knowledge" becomes Schomberg's institution for "societal challenge based knowledge generation": By speaking in an undifferentiated manner of "science", profound differences are obscured. It appears that the concept of the scientist independent of society is merely "rephrased" when the position is, in fact, to entirely replace it with the concept of the scientist as "knowledge co-producer in and with society" (von Schomberg, 2024, 23, 27).

COVID-19

The wilful conflation of academic and non-academic science makes sense, of course. As a participant-observer of changing science-and-society interactions, Schomberg welcomes the new social contract. He sees the tremendous gains towards an opening up of the research process in recent decades – but in terms of a Habermasian political philosophy he is also worried about the attendant losses. Non-academic tech-

noscience has severed the bond of science and Enlightenment, it valorises innovation and loses sight of social progress. Can't we have our cake and eat it?

To be sure, we are fully in agreement that this is the challenge of the day – to secure the legacy and spirit of Enlightenment for the current age, also in the sphere of science and technoscience. But precisely because this is an important task, we are ill-served by Schomberg's conflation. This is especially evident when he cites Covid-19 research as a shining example of open and mutually responsive science. Schomberg's judgement is based on the conduct of researchers who did not seek personal gain but diligently provided data for public management of the pandemic. Fair enough. This they did, though the data in question were collected primarily by public health agencies that have cultivated the art of epidemiological data collection for at least 100 years. Aside from using different tools to visualise the data curves, their

method of generation hasn't changed much in all this time. And even older is the art of treating epidemics by isolating potential carriers of an infectious agent.

Quite apart from this and in a highly competitive entrepreneurial spirit, vaccines were developed with all the redundancies and duplications of effort that one typically sees in such competitions – when everyone has a sense of how it might be done, but one will be faster, perhaps better at it. If both, epidemiologists and vaccine developers, responded to societal needs, there were many others who stood by silently, failed to respond, or were not even asked to respond. On the one hand, there was aerosol science that never had its day, though it might have contributed innovative ways of moderating, filtering, streaming the flow of infectious droplets, thus complementing the wearing of masks. On the other hand, there were the social scientists, including STS scholars, who stood by and watched the utter political disregard of their much-heralded know-

ledge society. Governance efforts did not seek to mobilize the distributed intelligence and experimental spirit of citizens, and yet the STS community hardly commented upon 21st century governance in the style and manner of 19th century public health and population control. The best that can be said about the COVID-19 constellation of science, politics, and society is that it worked, and that scientists played along without rocking the boat – that the virtues of diligent data-management overshadowed the exercise of creativity and intelligence while everyone was waiting for the vaccine-to-come.

One would hope and expect that there are better examples of open and responsive science – this one was selected by von Schomberg because it looked like ordinary science minus some of its dysfunctionality. Instead, the models of open and responsive science might be sought in citizen science as it is practised in the context of patient-initiated clinics, of environmental advocacy, of science-diplomacy and peace-

building. These paradigms of open or citizen science follow a public policy agenda, are committed to values such as social, economic, and ecological justice. They integrate scientific research methods within an agenda of political Enlightenment, fully aware that they do not carry on but contravene the values of academic science. Holding the Mertonian ideal of openness within self-governed science apart from the institutionally enforced mutual responsiveness in technoscience-society interactions, and bringing politics back in – this might be the more straightforward way to overcome impoverished notions of “open science”.

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