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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.

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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". In terms of political theory or notions of democracy, on the one hand, in terms of socially relevant research practice, on the other hand, only an ambitious commitment to open science will be robust enough

to make a difference and contribute to the solution of pressing problems. In contrast, it is paying lip service only to the ideal of openness when "open science" becomes 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 be 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 "Aryan 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, 1942). 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.* 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 scholarly republic 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. 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 render a rather unprincipled messy process 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: 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 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 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. The intrinsic commitment of science to communicative rationality and democratic deliberation does 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, broadly conceived, one conceives of 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 in the name of “citizen science”:

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. 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 political 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. Science would be incomplete, they argued, if it stops short of openly debating the application of science and how it is geared towards 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. Having identified "originality and novelty" as a fifth norm to complement and complete the Mertonian conception, they are identifying 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 project of Enlightenment and a project of repair, that is, what Ulrich Beck and Anthony Giddens have discussed as second modernity, namely the attempt to reflexively manage the ecological problems, social challenges which arose in the course of the Enlightenment's first modernity.

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 when 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 in 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 public reason but in terms of public 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.

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 supposedly to build on and widen Merton's Enlightenment conception of science ends up with a brute substitution of the very definition of "science": Merton's institution for the "extension of certified public knowledge" becomes Schomberg's institution for "societal-challenge-based knowledge generation": In the name of an undifferentiated "science", profound differences are obscured when the idea of the scientist independent of society is supposedly "rephrased" rather than completely displaced by the idea of the scientist as "knowledge co-producer in and with society".

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 technoscience 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 to shine 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 these groups of scientists responded to social needs, there were many others who stood by silently, failed to respond or were not 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 and thus to complement the carrying 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 knowledge 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 manner of 19th century model of public health. 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 should hope that there will be better examples of open and responsi-

ve science – this one was selected by von Schomberg because it looked like ordinary science minus some of the dysfunctionality that comes with calls for pure and basic research, with the quest for originality and entrepreneurial success. Science modestly took a supporting role to politics. Instead, the models of open and responsive science might be sought in citizen science as it is practised now and then 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 such values as social, economic, and ecological justice. As such they integrate scientific research methods within an agenda of political Enlightenment, as such fully aware that they do not carry on but contravene the values of academic science. Keeping the spheres of science, technoscience, and society apart, bringing politics back in – this might be the more straightforward way to overcome impoverished notions of public access, data-sharing “open science”.