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**Simon Locke, Re-crafting Rationalization. Enchanted Science and Mundane Mysteries. Farnham (UK), Burlington (USA): Ashgate, 2011, 224 pp.**

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## Book reviews

**Simon Locke, *Re-crafting Rationalization. Enchanted Science and Mundane Mysteries*. Farnham (UK), Burlington (USA): Ashgate, 2011, 224 pp.**

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Simon Locke's book is a study of the sociology of rationalization as applied to the so-called Public Understanding of Science (PUS) – put very briefly, the set of attitudes, behaviours and opinions of the general public with regard to science. The first chapter is devoted to a criticism of the “deficit model” of PUS, in which the “lay” public is represented as scientifically ignorant and therefore displaying an anti-science attitude. One of the most interesting criticisms raised by Locke is that PUS tends to be a sort of measurement of the deviance of public levels of understanding from what he considers to be the standard self-presentation of “official” scientists, rather than science itself. This formal, institutionalized view of science is a rhetorical representation made possible by what he calls the standard view of rationalization.

Drawing on Max Weber's sociological analysis, this view stresses two main features: the prevalence of instrumental rationality, with its associated disenchanting outlook, and the related process of secularization, in which religion and magic progressively lose their influence on the interpretation of reality and the organization of conducts. The disenchanting outlook is produced by, and peculiar to, intellectualist rationalization, which is in turn linked to the development of modern science. Science is characterized by the formal rationality – the union of theoretical mastery and the precise calculation of means (i.e. rationalism plus empiricism) – which informs the modern Western outlook. Science is conceived as purely instrumental in its pursuit of knowledge, and unable to say anything about the meaning of the world. But Locke adopts the rhetorical sociology approach, and points out that Weber's ideal type of science is “a description of a formal, publically established, legitimizing discourse” and therefore “only one rhetorical characterization of science among others” [p. 44]. These ‘others’ are the focus of Locke's theoretical enterprise. Indeed, the author replaces the concept of PUS with that of public (or popular) meanings of science (PMS) defined as “the complex of ‘informal’, ‘unofficial’, ‘deviant’ versions and uses of science, and the accounts that are given of them that circulate in the social world and which might and often do work to make them appear ‘formal’, ‘official’ and ‘not-at-all-deviant’” [p. 21].

The analytical framework adopted by Locke in this book is defined as rhetorically and ethnomethodologically inspired cultural studies (REMICS), an elaboration of elements from rhetorical sociology, discourse analysis (in particular the work of Gilbert and Mulkay on scientists's discourses), membership categorization analysis and, of course, the “ethnomethodologically inspired cultural studies” of Miller and McHoul. His approach focuses on “the practical sociological reasoning visibly displayed in accounts about science” and “how and what versions of science are employed as suasive devices; and how these versions are used in the construction of alternative, ‘unofficial’ discourses” [*ibidem*].

Applying this approach, Locke holds that “disenchantment and the characterization of science and formal rationality on which it is based [...] should be viewed as a standardized verbal formulation or rhetorical account” [p. 46]. But Locke does not restrict his analysis to detecting other rhetorical accounts; he intends to demonstrate that other versions of science may derive from a re-crafting of Weber’s thesis on rationalization. His starting point is that Weber emphasized the scientists’s instrumentally-inspired ethics of conduct, which in turn presented the standard view as the definitive version of science and its public meaning. Locke, on the other hand, holds that formal rationality and disenchantment are only one way of characterizing the modern outlook and the relationship between science and society, whereas enchanted representations of science play a significant role in generating public meanings of science – especially in popularization, where representations of this kind are “necessary rhetorical resources in the maintenance of institutional science” [p. 44] – and formal rationality is only a form of substantive rationality. Substantive rationalities and formal and informal irrationalities therefore operate within science, and produce implications for PMS. “Formal irrationality” – i.e. the application of means which cannot be controlled by the intellect, in Weber’s view – may apply to science in those repertoires dealing with methodological questions. According to Locke, “‘formal irrationality’ refers to one set of rhetorical resources that scientists can deploy in order to undermine the credibility of opposing viewpoints on cognitive and/or methodological grounds, thereby constructing boundary demarcations from ‘pseudo-scientists’ or ‘unorthodox’ [...] groups and individuals by questioning their reasoning or research methods” [p. 56]. Substantive rationalities and irrationalities refer to the presence of interests other than those appropriate to formal procedures, which may be of either a social (from the economic, political or ideological sphere) or personal nature (personal bias, fraudulent behavior and so on). These intervening “non-scientific” errors are used in repertoires which have the purpose of accounting for errors committed by one’s opponents. The attribution of social interests and the questioning of methodological and cognitive errors should be regarded as socially available means of disputations, and then studied as to their role in producing PMS.

Locke also shows that in scientists’s formalized discourse (which derives from the standard view of rationalization), formal rationality predominantly refers to the “calculation of means” rather than “theoretical mastery,” and this disjunction gives rise to that between disenchanted and enchanted science. The emphasis on theoretical mastery (abstraction and universalization) has propelled the image of a comprehensive understanding of the world, rather than the merely partial understanding which science is able to provide.

Using the work of Harriet Whitehead, Locke holds that an unfolding discourse of the charismatic operates in science which leads to an enchanted science. This is especially visible in the popularization of science, where, using Thomas M. Lessl’s concept of the “priestly voice” in order to maintain their institutional authority over publically legitimized meanings, scientists articulate “a total cosmological vision, a definition of the whole of reality within which humanity is defined and located” [p. 65], in which disenchantment and enchantment are wrapped together. Indeed, elements of ‘the scientific’ are humanized – which produces enchantment – and elements of ordinary human experience are scientized – producing disenchantment. Locke argues that “because science is

presented as collectively owned and because it is invested with a quality of enchantment which may be accentuated in the transference of its transcendent vision(s) to the wider public [...] the opportunity – and the rhetoric – is then available for members of the public to use it as a resource in the construction of alternative form of transcendence” [p. 65]. The result of this is that, on the one hand, we find science invested with a charismatic quality which promises both complete practical control and comprehensive universalistic knowledge, while on the other, religious beliefs may articulate a new language of the transcendent which seeks to go beyond the division between science and religion.

The case of creationism/Intelligent Design (ID) and Scientology is explored in support of this point. Supporters of ID adopt an empiricist repertoire usually employed by scientists to describe nature, with which they use a complicated and extremely fine-tuned cellular mechanism in order to present evidence of an Intelligent Design. They exploit an enchanted discourse, in its scientized forms (which is a significant feature of scientists’ rhetoric), to rationalize a transcendent outlook. Locke concludes that “rather than disenchanting the world, science may however unintentionally lend strength to existing moral frameworks such as those of established religion” [p. 77] as “the doing of science is open to being represented as making available the wonder of the world and a world to be wondered at” [p. 84]. Scientology is another example used by Locke to show how the re-crafted view of rationalization explains forms of enchantment built from resources offered by modern science. The example of Scientology accentuates the possibility of a belief in transcendent meaning partly constructed from science, since Scientology is a religion with instrumental goals and technological methodologies for achieving those goals. ID and Scientology exemplify the fact that PMS need to be understood as being informed by a mixed discourse which involves both disenchanted and enchanted versions of science, which creates “contending representations, resources and rhetoric for the construction and articulation of alternative visions of science” [p. 99], and which enables “the development of an enchanted discursive multiplicity in which [science] is employed both as means to legitimize traditional moral commitments and construct alternative mysticism” [p. 125].

But according to Locke, there is another social sphere in which mixed discourse such as this occurs and PMS are constructed: the aesthetic and cultural sphere of science fiction, and, in particular, superhero comics. Here, according to the author, a rationalization of the irrational operates, as science operates as a resource for imaginative speculation and verisimilitude. Science fiction is meant to be a space in which magic, the improbable and the charismatic are re-interpreted in modernist terms – magical powers become scientized super-powers “with an aura of possibility and potentiality through connection to the world of technoscientific wizardry” [p. 101]. An analysis of sci-fi comics gives rise to the argument that magic is not destroyed in modernity, but “relocated into a discursive space where enchanted potentialities remain as speculative possibilities in the imaginative creation of fictional worlds” [p. 116]; in other words, in sci-fi, the magical becomes an enchanted version of science.

Locke also identifies another paradox of the consequences of rationalization in which PMS could be understood. According to him, disenchantment – or better, the search for explanations in the light of the knowability of the world – could lead to unresolved mysteries and related activities, usually called fringe science. The disenchanted

outlook of science treats the unknown as something explainable through the institutional means it has developed, which are directed towards “the demonstration that what was taken to be unknowable can in fact be known” [p. 126]. In this sense, the knowability of the world entails “an in principle refutation of any alternative belief to the contrary” [ibidem]. Like Pollner’s mundane reason, which follows a set of assumptions that the world is “determinate, coherent and non-contradictory,” disenchanted science has also developed resources for accounting for errors and for reconciling statements, objects and experiences with pre-given assumptions of knowability. But part of the unknown persists on the fringes of scientific orthodoxy. Even though strategies for the marginalization of fringe science are at work, fringe scientists can publicize their claims and use scientific rhetoric to legitimize forms of what is formally thought of as deviant knowledge. In this case, the rhetorical resources for accounting for errors (methodological, or those driven by social or personal interest: that is, formal irrationality, substantive rationality and irrationality) are deployed in competing accounts which seek to make the unknown known. In what Locke calls “politics of experience” – a concept developed by Pollner – non-scientists can also exploit scientized accounts in order to claim the superiority of their experiences and downgrade explanations produced by official scientists.

Conspiracy discourse is also regarded by Locke as an area within which to explore alternative versions of rationalization. Extreme and excessive though it may be – it assigns responsibility for almost everything to the machinations of a small group with immense power and pervasiveness – conspiracy discourse is a form of rationalization, a “type of theodicy accounting for suffering” [p. 152], which attributes blame not to a transcendent sphere, but to social interests. According to Locke, conspiracy discourse is an articulation “of the resources of accounting for suffering available within disenchanted mundane reasoning” [p. 158].

Locke’s analysis of mundane mysteries, fringe science and conspiracy discourse serves to stress “that science may be taken up and utilized by ordinary people in the form of characteristic styles of argumentation directed at legitimizing and delegitimizing knowledge-claims and in relation to this attributing blame” [p. 161].

In the last chapter, Locke deals with Membership Categorization Analysis (MCA), interpreting membership categories as available resources that people use to order situations, actions and individuals. His intent here is to demonstrate how PMS could be deployed (and then constructed) within this ordinary reasoning activity. Using the example of speculation on the identity of Jack the Ripper in newspaper coverage of the time, Locke shows how by depicting the Ripper as a “mad doctor,” several meanings of science and scientist were deployed. Therefore, according to Locke, MCA is a useful basis from which to study PMS, as MCA shows that PMS are rhetorically inventive, and that people draw on science as a resource for the construction of descriptions of actions and events in the social world.

Through these cases, Locke returns to the problem of PUS, and suggests that even though these descriptions and understandings may diverge from those of official members of the scientific community, this should be not explainable as a matter of ignorance or, in the case of religious and transcendent beliefs, as a form of re-enchantment. In his re-crafted view of rationalization, PMS involves a wide range of opportunities, where people use multiple resources drawn from science to construct categories to account for

observed actions, events, objects, and transcendent beliefs. While PUS is strictly connected with the standard view of rationalization in its deficit model version, the sociological understanding of PMS provides a basis from which to analyze the use of science in a number of forms of mundane reasoning and, therefore, the complex and varied meanings of science.

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