Proposal for a Special Issues of Centaurus

Verticality in the history of science

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1. Description of topic (500 words)

In this special issue we aim to build upon a recent observation by Michael Reidy (2017), that the spatial turn in history of science (as in history at large) has focused essentially on the horizontal dimension, and that an apparent bias against the vertical is a historiographical limitation that needs to be overcome. After all, scientific practices do not just occur in, and construct, two-dimensional space, but take place in three dimensions. The sciences of height, depth and volume are fundamental to the emergence of the three-dimensional, technologically-mediated world which we inhabit, but the specifics of these sciences have been largely absent from recent concerns with the spatiality of scientific knowledge.

The adoption of a vertical viewpoint shows much promise in bringing to light overlooked trends and peculiarities in the history of knowledge-production processes. Together, the contributions to this proposed special issue investigate what happens when we consider science in three dimensions. Each in its own way, they contribute by asking: what are the particular characteristics of the sciences of height, depth and volume? How have scientists sought to overcome the epistemic, technical and bodily challenges of working at height or at depth? What does it mean to consider the field site as a three-dimensional space (Kohler and Vetter, 2016)? How have the reference frames of the vertical dimension been structured, understood and translated? And how have vertical perspectives lead to epistemic transformations?

Studying vertical scientific practices is also about understanding how three-dimensional space has been produced. In this way, this special issue contributes to an ongoing and productive dialogue between historians of science and historical geographers. Geographers have recently urged more attention to the vertical as a dimension of power, taking questions of territory, sovereignty, surveillance and control from their terrestrial moorings and analysing the production and maintenance of power in aerial, oceanic and subterranean spaces (Braun, 2000; Elden, 2013; Kindervater, 2017). Cultural geographers have likewise explored how atmospheric and underground spaces have been encountered, imagined, represented and dwelt in (Jackson and Fannin, 2011; Adey, 2015; Pérez, 2015; Michel, 2018). Historians of science have much to say to such questions, in examining how scientific knowledge has contributed to the production of vertical territory – to the bounding of space and the claiming of ownership, rights and dominion – and in exploring how the practice of science in the vertical has contributed to the broader cultural construction of spaces like mountains, caves, the deep ocean and the air above our heads. What role has science played in transforming such spaces from radically alien and unknowable 'atopia' (Carroll, 2015) into culturally meaningful, familiar and accessible *places*?

The papers in this special issue have been carefully selected to explore these questions across a diversity of time periods, geographical contexts, and in scientific fields spanning the physical and natural sciences.

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