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Matthew H. Edney, *Cartography: The Ideal and Its History*

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It is fallacies all the way down, up, and in all directions, in cartography. Matthew H. Edney deconstructs cartography and articulates the epistemological and ontological significance of the multiplicity of myriad map forms. There is no such thing as cartography, nor maps. This is a history of a phenomenon of things which have never been, let alone had a continuous history. It ranges from ancient Greek Euclidian geometry to the practices of the Renaissance, the misunderstood 'moment when marine mapping, property mapping and geographical mapping all collapsed into a single process' which treated space 'as the dead, the fixed, the undialectical, the immobile' and the near present (p. 76). Yet the conception of a universal practice of mapmaking and the words 'cartography' and 'cartographer' only emerged after 1800. Representations by maps of one world or archive are, thus, treacherously peddled fictions (p. 55).

This examination of mapmaking ideals versus their practices distinguishes normative historical approaches from sociocultural critiques in anglophone, German and French literatures. Edney unpacks the images and projections of space and time that have been kneaded into an integral tradition of practices and materials. Mapping is distinguished from cartography. Moreover, maps differ from plans and charts in their circumstances of production, presentation and use. As mediators between human minds and space, maps are always geographical creations. The nineteenth century and the early twentieth

crystallized societal cartographic idealizations (p. 103) and established faith in maps' agency.

Cartography is the reduction of complexity (pp. 56–7). Maps comprise arguments and statements. They bridge landscape art and poetry. Because the cartographic ideal has histories, it 'is not a universal and transcultural endeavor' (p. 103). By rebutting common misunderstandings of Indigenous mapping, Edney expands the range of maps to include non-material and performative forms. By highlighting the fallacy of the singularity of cartography, he argues that variously dated maps do not represent one process or world (p. 100). They are therefore incomparable because their ontological premises are distinct. Anthropologists have already made this point, but its consequences remain little apprehended.

Edney perceives maps as semiotic objects, with uncertain boundaries, open to ongoing interpretation in different spatio-temporal frames of reference (p. 37). In this vision, maps' production, circulation and consumption intertwine and so cannot be understood teleologically. Maps' enduring 'flawed idealization' (p. 73) depends on publicity, reproduction, publication and circulation, not of any one thing, but of a fetishized idea of their affordances (p. 91).

Maps do not perform as scientific instruments 'that make visible natural phenomena so that they can be measured' (p. 64). Overgeneralized arguments which claim that any essentialized group 'thinks of space' in one way should be regarded as logical and ethical warning signals. Therefore cognitive schemas cannot be conflated with semiotically constructed maps. Nor are personal experiences commensurate with discursively structured spatial knowledge. Edney's work thus obliterates the notion of the map, in the singular, as 'a technological extension of human cognition and experience' and perceptions of their users as cyborgs empowered to read cartographic texts via algorithmic approaches (p. 73).

This reappraisal also undermines notions of science, measurement and universalism. '[M]odern Western' society has constructed cartography as a 'coherent, moral, universal science of observation and measurement' (p. 103). The implications of this view in the projection of racial hierarchies onto maps, by Ritter and others, are demonstrated (p. 121). Constructed perceptions of colour, form and matter are also assessed. The discussion of cartographic terminologies and images of scale shows them to be consistently inconsistent. With the meshing of numerical ratios onto verbally expressed scales, and the excising of the messiness of manifold local and customary measures, came the naturalization of 'the map-to-world correspondence as a relationship between conceptually the same phenomena expressed in the same units' (p. 217).

Edney's critique of the visual and ocular comprises a study of the Geosphere project's *The Earth from Space*, an artwork that has been touted as 'the first satellite map of the Earth, showing the real world, as it appears from space' (p. 141). Thousands of scenes taken between 1986 and 1989 were 'manipulated and painted by hand, to show "natural" colors of forests and deserts, and projected to image the entire world and not just the single hemisphere that is all that one can see, at most, from space' (p. 141). The erasure of traces gives the appearance of the 'interwovenness of the mapping of distributions with the mapping of locations', thereby reinforcing 'the superimposition of a conceptual continuum onto a historical narrative' which enables the cartographic ideal (p. 145).

Edney thus exposes the fallacies of cartographic knowledge and materials, the untenable foundations of sociopolitical and scientific practices. The discourse and discipline of geography do not come out well here. Humanistic geographers' failure to question the illusion of the cartographic ideal authorized the naturalization of maps and mapping.

Cartography: The Ideal and Its History is all the more stimulating for its focus on the United States. However, alternatives to mapping clichés such as 'modern,' 'Western' and even 'global' are absent. Yet Edney's claims are rich in epistemological potential.

He is self-critical and entertaining. From page one readers will tingle with excitement. Satirical maps by Mark Twain, Henry Holiday and a reference to the Kiev-born Polish science-fiction writer Stanislaw Lem will increase this sensation. If this is representative of the state of mapping – *not* cartography – then it is a vibrant, self-examining community of practitioners taking responsibility for the works they study and their future potentialities. With its numerous half-tone illustrations, this is a critical contribution to the mapping of transdisciplinary and transnational histories and philosophies of science. Though they have, perhaps, been reached in other traditions, it will transport historians and philosophers of science to new places.

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Hans Radder, *From Commodification to the Common Good: Reconstructing Science, Technology and Society*

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At a time when endeavours in science and technology are primarily judged by their immediate economic use value, *From Commodification to the Common Good* offers a refreshing alternative that promotes research in the public interest. Through diligent attention to competing viewpoints, Hans Radder presents an in-depth philosophical argument for promoting scientific research in the ‘public interest’ to produce knowledge that is a ‘common good’. He juxtaposes this against the current state of affairs in which the products of scientific research are strongly commodified – most obviously and objectionably through product patenting. Each chapter involves a precise deconstruction of each noun in his title, plus the associated concepts of ‘knowledge’, ‘public’ and ‘democracy’, and their implications for his vision. This is not simply a diatribe against commercialization; Radder also explains *which* scientific knowledge can (and should) be a common good. Throughout, Radder is attentive to the real-world applicability of the principles discussed, setting out concrete strategies for increasing the public-interest aspect of scientific research and reducing its commodification. In doing so, his arguments are pertinent to questions of how we allocate funding, disseminate findings and promote specific areas of research.

Putting himself in conversation with major debates in the philosophy of science and technology, including the demarcation question and artefact agency, Radder offers a cross-disciplinary introduction to a range of theoretical perspectives. This is particularly true of Chapters 1 and 2, which consider how essentialists, social constructivists and empiricists have conceptualized the relationship between science, technology and society. Taking a synthetic-philosophy approach, Radder systematically evaluates key frameworks, like technoscience and technology-as-applied-science, and how they relate to each other. Radder describes these accessibly for a diverse audience of policy makers, scientists and social theorists. While providing necessary background, he advances his own position that