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and Linton, 2010. What is water? The history of a modern abstraction. UBC Press.  
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## BOOK REVIEW

**Strang, V.** 2004. The meaning of water. Oxford and New York: Berg. ISBN: 978-1-85973-753-8, 274 pages, £18.99

(URL: [www.bergpublishers.com/Default.aspx?tabid=1800](http://www.bergpublishers.com/Default.aspx?tabid=1800))

**Linton, J.** 2010. What is water? The history of a modern abstraction. Vancouver and Toronto: UBC Press. ISBN: 978-0-7748-1702-8, 333 pages, US\$34.95

(URL: [www.ubcpres.ca/search/title\\_book.asp?BookID=299172758](http://www.ubcpres.ca/search/title_book.asp?BookID=299172758))

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A joint review of an ethnography of the multiple meanings of water in the Stour valley in southwest England, and a geographer's political ecology investigation of the history of the concept of the hydrologic<sup>1</sup> cycle, do not perhaps constitute an obvious choice. What links the two books is that they both address questions of knowledge and meaning in the study (and experience) of water as a substance and a flow, and do this in innovative ways – innovative certainly from the perspective of both received wisdom in the 'water sector' and its community of professional practitioners and researchers. The two books are also complementary in several ways. Where Linton opens his book with the provocative statement that 'water is what we make of it', Strang's book can be read as an account of how water makes us in, and through, a variety of senses.

Directly speaking to professional water knowledge is Linton's reconstruction of the emergence of the hydrologic cycle concept – which most water professionals and researchers would consider as 'basic', self-evident and beyond social science critique. Linton shows that the concept in its present, modern form, standardly reproduced in education and policy texts, has not been around that long, since 1931, and, more importantly, emerged in a specific historical and geographical setting, which has coloured its content.

The key original contribution of Linton's book is his tracing of the 'social construction' of the hydrologic cycle concept. In chapters 3, 4 and 5 he presents the prehistory of the modern concept, including the period of 1700-1850 when 'sacred and scientific' understandings of the hydrologic cycle stood in competition. The scientific understanding gained the day, 'naturalising' the western understanding of water by erasing water's social content. The conceptual closure of this process of the disenchantment of water to make it into 'modern water' is described in detail in chapter 6 of the book. The significant moment is Robert E. Horton's reading of his paper 'The field, scope and status of the science of hydrology' at the 1931 American Geophysical Union meeting. Horton's paper included a diagrammatic presentation of the hydrologic cycle (figure 6.1 in Linton's book), variations and elaborations of which constitute the standard representation found in textbooks and popular media to date. Thus the field of hydrologic investigations became a recognised discipline and a 'pure science'. A reconstructed history of the concept was produced within the new discipline, portraying it as the

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<sup>1</sup> Linton systematically uses the hydrologic rather than the hydrological cycle – a usage adopted in this review too.

culmination of the steady evolution of human knowledge on the subject, finally leading to the correct understanding of the behaviour of water on earth.

What's the problem? Linton argues that no matter how forcefully the concept of the hydrologic cycle has 'naturalized' our understanding of water, "the hydrologic cycle nevertheless internalizes a human story" (p.106). Linton argues the specificity of the concept as including a temperate zone positing of abundance of water – he feels that common representations of the hydrologic cycle naturalise the presence of abundant surface water (p.124), which in the context of societal modernisation provides a justification for diverting water for productive purposes and economic growth: intensive harnessing of water resources for hydropower and irrigation through dam building happened in the USA from the 1930s, and for hydropower in Canada since the 1950s (for Canada, see figures 1.1 and 1.2 in the book).

The broader argument Linton's book seeks to make is ambitious indeed: "this book is about the idea of water in Western thought" (p.5). 'Modern water' in Linton's analysis is conceptualised as a) uncomplicated (excluding ecological, cultural and social factors), b) universal, and c) natural (the reduction to H<sub>2</sub>O is its 'basic essence') (p.8).<sup>2</sup> Linton claims this is a 'hegemonic' conceptualisation. "Even from moment to moment, I might regard water as a source of inspiration, then as a natural resource, and then again as a medium of social relations. Nevertheless, it is possible to speak of a *hegemonic* construction of water in that there is one way of knowing water that has attained general predominance in my own time and place" (p.9).

It is with respect to this claim that Strang's book can be read as a counterpoint and complementary analysis. From a 'water sector' standpoint, Strang's book speaks to the issue of the values and valuation of water, a pre-eminent public and policy concern in the European context, as elsewhere. Her ethnography shows that one doesn't have to go to remote and distant 'traditional' places and peoples (on which she also writes, see Strang, 2005), but that (middle class) inhabitants in the urbanising English countryside are an equally good context for documenting the multiple meanings and values of water. For European/western readers Strang's book brings the question of modernisation as 'development' home so to speak, and raises penetrating questions on nature/culture dichotomies on home terrain.

Strang documents in great detail the multiple meanings of water as these operate in the daily practice of water use, management and governance in her study region in England. She discusses (in chapters 1 and 2) the 'disenchantment' that Linton speaks of, as a process of alienation, a historical decrease of individual interaction with, and control over, water resources, with great consequences. Strang casts the historical net as far back as Linton, to the Celtic and Roman eras. The key transformative period was the industrial revolution; in the Stroud valley region, technological management of water provided a means to intensify agriculture (through meadow irrigation) and to develop local industry and employment (through water powered mills), a process as conflict-ridden in this region as elsewhere. (See also chapter 10 on the distancing of the majority of people from direct participation in resource management).

Notwithstanding the historical pattern of the last two-three centuries being a "consistent pattern of lost agency and ownership" by rural village communities, to urban communities, to semi-local water supply companies, to larger and more distant suppliers, to grand corporations and municipal institutions, to ever-more centralised forms of corporate and government agencies in the latter part of the 20th century, the next 11 chapters show a remarkable diversity in meanings of water at work in contemporary water-related practices. In chapters 3 and 4, Strang shows that many people's sensory

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<sup>2</sup> A more detailed specification of modern water's 'constitution' as five epistemological commitments is given on p.184, in summary: 1) water and society are separate and must remain so; 2a) we carry on as if water were a natural fact, producing this facticity in social practice; 2b) we carry on as if water and society fell into separate categories, while depending on the water process for virtually every aspect of social production; 3) society can (thus) do what it will with water while maintaining the (mis)apprehension that society itself remains unaffected; 5) the result of this is the proliferation of water hybrids without these being recognised as such.

experience of water in daily life is far from 'abstracted' and 'reduced' along scientific lines. Water's mesmerising visual and aural characteristics, its symbolic place in people's cosmologies (of life and death, of order and disorder, of social transformation), its metaphorical role in people's understanding of their own bodies, and emotive role in people's psychologies, are very much alive. Neither is the active use of water in spiritual and religious practice a thing of the past – new forms of 'secular hydrolatry' are emerging (chapters 5 and 6). Chapter 7 shows that in active use, secular cosmologies like the hydrologic cycle are, indeed, cosmologies, and associate with specific religious and aesthetic visions, notwithstanding the (reductionist) claim to the contrary. "Like the religious cosmologies, secular models make use of images that maintain homologous links between the individual and the ecosystem" (p.120), not in the least because the water process is conceived as a cycle, and as flows – which allows water metaphors to travel to many other domains.

In chapters 8 and 9 Strang addresses more familiar territory for 'water sector' professionals – issues of ownership, rights and participation. The popular resistance to the privatisation of water supply is argued to be grounded in the multiple meanings that people attach to water. Strang shows that disenchantment and alienation are not fully achieved, to say the least. According to Strang, this has been partly internalised by the water companies active in the study region, beyond strategic self-representation. However, this is much less the case at the national level of water-sector regulation, where reductionism reigns more strongly: "the mechanisms enabling local representation to move upwards are weak" and "where the vital questions about water are debated, 'the public' is primarily a spectator" (p.163). Chapter 11 shows that the multiple meanings attached to water find organisational translation in environmental movements and other social organisations. Though the present focus on wildlife, recreation and aesthetics is removed from the economic and physical control of the resource, and the sense of community associated with it is "only a pale reflection of earlier models of common ownership" (p.188), it has driven resistance against water privatisation in this region. Chapters 12 and 13 discuss how this counterpoint gets translated, respectively, into individual everyday practices of water use (like gardening and bottled water consumption), and into the responses to, and partly undermining of, government and private-sector water policy implementation – as evident in the failure of demand-side management instruments to slow rising water-usage levels (p.243).

All in all, Strang argues that the "enclosure of water resources is fundamentally at odds with the cultural meanings encoded in water" (p.247), cultural meanings that ethnographic data suggest have been "highly consistent over time" (p.3), and therefore, "[h]owever strenuously the water industry tries to reframe water as a cultural artefact, as a product or commodity, it remains elusively part of nature, part of the body, part of the environment" (p.248). It is this embodiment that makes the difference so to speak, and grounds the statement that water makes us as much as we make something of water.

Strang's analysis of the origins and contestation of the multiple meanings of water may be read to suggest that the degree of hegemony achieved by the 'modern water' project is overstated by Linton. Where Linton searches for counterpoints in the local knowledge of marginalised groups in peripheries, Strang finds diversity of, and struggles over, meaning in a neoliberal heartland. More specifically, maybe the 'denaturalizing' of water through the hydrologic cycle concept is not so powerful and specific a closure as Linton suggests. The water process remains conceptualised as a *cycle*, maintaining its amenability for metaphoric and symbolic use elsewhere, as Strang eloquently shows, and allowing 'holistic' understandings of different kinds. Linearity can only be achieved by compartmentalising the cycle – something that has definitely been attempted, but these are attempts to which hydroecology sometimes 'talks back' rapidly and strongly, leading to within-paradigm adaptation as ecological modernisation (examples are decommissioning of dams in the USA and river restoration in Europe). The 'temperate bias' and abundant surface water diversion focus that Linton perceives as inherent to the hydrologic cycle concept seems unconvincing, that is, may be more contextual than he suggests. Groundwater (agro)hydrology has been developed in regions like the Netherlands, Egypt and Pakistan within the hydrologic cycle paradigm. Much more convincing is Linton's argument that the particular reductionism of the hydrologic cycle concept facilitates calculation of water stocks and flows, and thus

is/has been highly instrumental in political economic projects of state control (chapter 7). Evidence for this would lie in the different hydrological (and hydraulic) *calculi* that were developed within the field/discipline of hydrology (and hydraulics), in response to a variety of ecological and social circumstance, and purposes of (state) control. There is very little analysis available of the social meanings embedded in particular hydrological (and hydraulic) formulas, models and theories, and certainly not in comparative mode. One rare example is Fernandez's historical analysis of the hydrologic and hydraulic science developed for management of the Garonne river basin in France (Fernandez, 2009; Trottier and Fernandez, 2010; also see Budds, 2009 on hydrological modelling in Chile). If hydrological (and hydraulic) science has been mobilised as a 'technology of rule' in projects of nation building and the programmes of developmental states, evidence would lie in the concrete and specific development and deployment of hydrological (and hydraulic) calculi as part of these strategies of rule.

Linton observes that the ideas and meanings of 'modern water', on its way to become 'global water', get fixed materially "in concrete engineering and infrastructural works that materialize hydrosocial relations" (p.9) but does not pursue this in his book in detail. Strang also understands the artefacts and devices with which water is managed as expressing particular worldviews (p.6), and once infrastructure is consolidated it can form an obstacle for reorganisation of water management along alternative worldviews (p.250). She equally does not elaborate on the infrastructural materialisation of social relations in great detail – the materiality of sensory experience and human embodiment is Strang's primary analytical interest as regards materialisation. Linton's book, nor Strang's, pursues how the particular 'modern' conceptualisation of the hydrologic cycle was incorporated into, and elaborated in, more specific hydrological science. I have suggested above that this may be a primary location of 'social construction'. Both topics would seem to be rich and relevant research themes for interdisciplinary water studies. While the first has been taken up partially in the social study of water (notably irrigation) infrastructure and landscapes, the second is much more unexplored. Linton's uncovering of the social history of the hydrologic cycle, combined with Strang's mapping of the multiple meanings 'poured into water' and their material and social conditions of existence, form an excellent starting point and stimulus for further work along these lines.

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