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All that's liquid

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Esther Leslie, *Liquid Crystals: The Science and Art of a Liquid Form*, London: Reaktion, 2016, 296pp, £25 hardback.

Writing histories of media always entails engaging with a theoretical and methodological question: how should we approach the relationship between the technological and the social? A long-standing debate on the issue has animated the field. Yet this debate has been enriched in recent years by the inclusion of a third pole: the natural, intended also and especially in its material and geological dimension. Ignited by studies in [Science and Technology Studies](#) that refuse rigid distinctions between the human and non-human, recent works have signaled a potentially paradigmatic shift in media studies, with Jussi Parikka proposing the study of a “[geology of media](#)” and others, including John Durham Peters, calling for the examination of the ecological and elemental dimensions in historical and theoretical approaches to media and communications.¹

[Esther](#) Leslie’s book contributes to this emerging niche of research, providing a timely examination of an element, liquid crystals, that relates at the same time to the technological, the scientific, the natural and, Leslie argues, the discursive and the imaginary level as well. The author aims to interrogate to what extent ‘forms of physical matter play into the technologies of a particular time — which would include the modes of thinking’ (p21). Liquid crystals have become ubiquitous in our societies, from digital watches to computer screens, laptops, and LCD televisions; but have they [also](#) become, Leslie asks, ~~also~~

¹ Jussi Parikka, *A Geology of Media*, Minneapolis, University of Minnesota Press, 2015; John Durham Peters, *The marvelous cloud: Towards a philosophy of elemental media*, Chicago, University of Chicago Press, 2015.

an inherent part of the ways in which technologies are thought, represented, and narrated in contemporary societies?

The key contribution of the book, in this regard, lies in how it enters in dialogue with the rich literature in media history that looks at the relationship between technology and the imaginary.² One of the strands of such literature is based on the concept of [the](#) 'technological sublime', proposed by Leo Marx in his *The Machine in the Garden* (1964) and further developed by authors such [as](#) David Nye and Vincent Mosco. Yet, while recent explorations of this idea [tended](#) to focus on the technological element, Leslie's work reminds us that the concept of [the](#) sublime in Kant is inseparable from the question of how human culture sees and imagines the natural realm. This element was present in Leo Marx's work, as he reflected on the awe and wonder inspired by the observation of technological infrastructures that dominate [upon](#) the natural (or we might say, following Leslie, the liquid), such as bridges and dams. Yet, it has become less crucial in recent examinations of the 'digital sublime', as Mosco called it, where the dimension of the natural is secondary if not completely absent. Leslie's observation that many advertising videos of LCD screens take up images of water and snow, whose rendering is facilitated by the technology, is in this sense quite compelling. Such [a](#) visual repertoire, she suggests, helps us realise that 'the digital mechanism has an affinity to the liquid and the crystalline' (p208).

The interrogation of how the natural – more precisely, the crystalline and the liquid – can be integrated within media historical inquiry represents the core preoccupation of *Liquid Crystals*. Leslie employs a *longue durée* perspective, which moves from scientific research on liquid crystal in the nineteenth century to lead us on a journey that ends with the ubiquity of screens in our contemporary world. She posits the emergence of 'liquid thought' or

² See, for an overview, Simone Natale and Gabriele Balbi, 'Media and the imaginary in history: The role of the fantastic in different stages of media change', *Media History*, 20(2), 2014, 203–218.

'crystal imagination', promising that this will allow us 'to think about a complex of matter, thought, society, in relation to the late Victorian social world, which is not so distinct from us'" (p21). It is in the character of the journey, however, that the book reveals its more problematic and potentially contentious aspect. The story of how liquid crystals were discovered in the late nineteenth century and then applied to technical media in the last decades of the twentieth century mingles, in Leslie's narrative, with an examination of how the boundaries between liquid and solid, ice and water are thematised in art, philosophical thought, literature, and science. Leslie's inventiveness, the curiosity that leads her in transversal connections and detours, becomes however the book's weakness, as we find out that the journey we have embarked upon has become a rather erratic one. One is left wondering, as representations of water and ice are integrated within the cultural history of liquid crystals, if the at times predominant use of metaphorical connections is the most effective way to bring together the dimensions of the technological, the social, the cultural and the natural. Perhaps it ~~was~~ the relative scarcity of materials specifically *about* liquid crystals (such as, for instance, a 1968 *Life* magazine article ~~discussed at p201~~ that suggested that liquid crystals could in the future be used to read the body for disease and explain how we see, touch and think

[p201]) ~~that~~ forces Leslie's move towards metaphorical links to advance her analysis. Yet, this makes Leslie's claim that 'we live now, and those who found liquid crystal lived, in what might be called a liquid crystal epoch, in which all that happens can be conceptualized in relation to a pull this way and that between the liquid and the crystalline, the fluid and the frozen' (p21) sound even more overstated.

The fact that a painting, Friedrich's *Das Eismeer* ('The Sea of Ice', 1824), is presented as the *fil rouge* across the book is revealing of an underlying problem: how does the particular imaginary embedded within a painting (or within literary and philosophical sources) relate to things such as natural elements, scientific practices, and technologies? The

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difficulty ~~at times~~ to find an answer to this question at times anchors Leslie's explorations within [what Karen Barad would label](#) a representationalist perspective,³ whereas the chain of connections between the material and the discursive follows a purely metaphorical approach. If we want to challenge the idea that words and ideas are strictly separated from the world of matter, Barad and others contend, we need to look at the engagement between such dimensions in a way that is not limited to the metaphorical level.

The strongest and most convincing parts of Leslie's book, in this regard, are those that revolve around the history of scientific work and technological applications of liquid crystals. The author tells us, in this context, the fascinating and little-known story of how the faculty of liquid crystal to convert heat into visible patterns of various colours opened up ~~to~~ the opportunity of using them in media devices. In the last two chapters of the book, Leslie makes compelling media history as she successfully follows the trajectory of the technological, the physical, and the imaginary dimension through a more substantial analysis of the different threads of connections between those levels. She convincingly argues that liquid crystals' influence lies in their oscillation between stasis and movement, and relatedly, between life and death. What makes this argument compelling is the fact that its evidence does not ~~rely~~ on the metaphorical level, as ~~it~~ was often the case in the chapters dedicated to earlier episodes of liquid crystals' history, but rather on a combination of material and discursive elements. Leslie emphasises the role of animation in visual media both in terms of technology and of the imaginary (including the *images* of water and snow, recurring, as mentioned above, in representations of the performances of LCD screens). Animation becomes therefore the act of animating, ~~i.e.~~ bringing back to life – something that is symbolically, technically, and naturally subsumed by liquid crystals in their oscillation and indecision between stasis and movement. The fact that research in biology has underlined

³ Karen Barad, *Meeting the universe halfway: Quantum physics and the entanglement of matter and meaning*, Durham, Duke University Press, 2007.

liquid crystal's presence on our body and their potential role in the formation of biological structures (p234) is in this sense a fascinating thing, which Leslie aptly discusses.

Liquid Crystals is, in summary, a timely and thought-provoking book that, despite its failure to fully address some pressing theoretical and methodological issues, will appeal to scholars in media history and related fields who are interested in the relationship between the human and the non-human. Leslie has the merit ~~of having to have~~ grasped and made manifest the peculiar nature of liquid crystals, whose oscillation between the animate and the inanimate might function as a call for media historians to further scrutinize the entanglement between these two realms.

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