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# Material Knowledge and Cultural Values

Lara Schrijver

Polanyi's main proposition of tacit knowing is clearly articulated in his simple statement 'we can know more than we can tell'. It appeals to the intuitive understanding that there are aspects to what we do that are not at the surface but that do constitute a kind of 'knowing' that informs what we do. Polanyi's focus on the role of personal knowledge in tacit knowing has also revealed the fundamentally *situated* nature of knowledge. Polanyi argued that the aim of modern science in constructing an objective knowledge, detached from context and particulars, not only overlooks crucial aspects of knowledge but is in fact destructive of it.<sup>1</sup> His work has given rise to various investigations into how knowledge is constructed through both objective and quantifiable rules and tenets, and unstated habits or assumptions.<sup>2</sup> Throughout, most of these investigations are fundamentally anthropocentric, which should perhaps not be surprising, given that Polanyi himself focuses primarily on the role of the (individual) human mind in the process of knowledge acquisition, noting that the mind is more real than a cobblestone.<sup>3</sup> Nevertheless, in this article, I argue that his work opens the way for a more fundamental integration of matter and things into an understanding of tacit knowing, expanding the notion of the tacit from human agency in knowledge construction to an actor-network type of knowing. This is already made possible through the manner in which Polanyi articulates tacit knowing but becomes more plausible in the context of the 'new materialisms' that pay close attention to the independent role of things alongside human actors, suggesting that matter has its own agency.<sup>4</sup>

Polanyi's ideas on the tacit suggest that as much as we can codify some knowledge in rules and general tenets, there are important insights that are accessible but not necessarily explicated. In part, this has to do with

what he identifies as a key feature of tacit knowing: the integration of subsidiary particulars within a coherent whole.<sup>5</sup> Physical skills provide a relatively self-evident example; in learning to sketch a building plan in pencil, there are aspects involved such as drawing a straight line, approximating horizontal and vertical proportions, and pressure on the pencil in order to modify line weight or thickness. These aspects are not *themselves* at stake; they are integrated into the focal knowing of how the plan should be drawn. Polanyi addresses this in relation to understanding and recognizing faces: the separate features are not themselves in focus but rather stand in the function of recognizing the face as a whole.<sup>6</sup> This type of knowing requires more than explication and codification: it requires a certain knowledge of context and undertones. The unstated and uncoded elements of knowledge are in that sense subsidiary parts of a skill (or of understanding a network of features), which rarely come into focus but are crucial to its workings.

As noted above, many studies have focused primarily on the human agency in tacit knowing, informed by, on the one hand, individual knowledge, and on the other hand, its social context. Tacit knowledge is then explored as an eminently social process, typically founded upon the transfer of knowledge by example and through experience.<sup>7</sup> In architecture, for example, this focus on the role and agency of human actors can be studied in studio exchanges, where the interaction between teacher and student is informed by more than just explicit requirements such as programme. This might equally include the modalities of personal knowledge and experience (the studio master) as well as the general cultural *habitus* of the studio and the discipline.<sup>8</sup> Yet alongside the tacit knowing residing in the designer or the design team, there are also material elements involved in this exchange. In architecture, this might materialize in the sketches or notes of a design meeting, or in the models used at different stages of the design process, all of which have remained slightly out of focus in this discussion. Notwithstanding an increasing interest in material objects and their agency in the world, the philosophical tracts on object ontologies remain somewhat abstracted, and conversely, architecture debates examine their objects closely but do not always attempt to draw more general insights from these particular cases.

Moreover, with discourse shifting away from 'objective' truths since roughly the 1970s, a number of interesting theoretical positions have

paved the way for a more thorough evaluation of the role of material objects in these disciplines. Post-structuralist theory, science and technology studies, and actor-network theory are beginning to provide a vocabulary for rethinking human agency and develop a more embedded discourse that regrounds human actants in perpetual relation to their material counterparts.<sup>9</sup> As such, the rise in new materialisms and ideas such as ‘vibrant matter’ and material agency may help to include ‘things’ in explorations of tacit knowing.<sup>10</sup> This would allow investigations into tacit knowledge to not only focus on the informal and unstated habits and conventions in social interaction – all tied to human perception and agency – but also to include the agency of objects. Building on the ideas of actor-network theory and contemporary new materialisms, this approach then extends the anthropocentric core of tacit knowing to include the non-human.

### **Historical underpinnings: anthropocentric materialisms and cultural values**

To bring these issues into focus, it is worth taking a brief detour through two earlier thinkers, John Ruskin and Siegfried Kracauer, who explicitly address material articulations in relation to cultural values and intentions. In his reflections on (and concerns about) industrialization in building, Ruskin directly focuses on material and craftsmanship, both as an expression of vitality. In *Seven Lamps*, Ruskin in some fashion situates the architectural project itself as a translator between making and understanding, suggesting that an observer or user can directly apprehend ‘that some places have been delighted in more than others – that there has been a pause, and a care about them; and then there will come careless bits, and fast bits’.<sup>11</sup> As such, he suggests a certain type of implicit legibility – the kind that will allow a transfer of sensibility between craftsman and user by virtue of a hidden and further undisclosed mechanism.<sup>12</sup> While Ruskin does not explain how this transfer might come about, simply noting that it can be immediately ‘seen’, it does articulate his difficulty with envisioning empathy and connection to things in the industrial age.<sup>13</sup> Like many of his contemporaries, Ruskin was thinking through the consequences for buildings of industrial production. His

turn to the craftsman suggests that minor flaws, imperfections and expressions of individuality signal vitality.

Another notable example of the values implicated in (artistic) production is the work of Siegfried Kracauer, which has received increasing attention in architecture theory since the 1995 translation of his Weimar essays into English.<sup>14</sup> Together with Walter Benjamin, he was one of the first to address the products of mass culture as a diagnostic tool – a form of seismograph – for the rumblings underneath the explicit societal values of a particular time. His work remains relevant today, particularly as it addresses the articulation of intentions and values in the cultural expressions of a society and its time. To Kracauer, this extends to both the explicit aims and wishes of a society, and its more hidden habits and values.<sup>15</sup> In this sense, his work already provides a foundation for more synthetic explorations of value today, as it addresses more than simply isolated aspects or explicit propositions. His Weimar essays critically reflect on a variety of cultural expressions (Berlin cinemas, Hollywood films, hotel lobbies) in which he sees a more general cultural *habitus*. As such, he provides some grounds for the supposition that the architectural object itself (the building, the drawing, the urban plan) incorporates a tacit expression of values, which is thereby correlated to its explicit intentions.

Bringing this idea of cultural values into the present, it becomes important to realize that matter itself has an autonomous existence alongside the projected values. While Kracauer already articulates negotiation between explicit positions, tacit values and matter, current ideas on the agency of things recalibrate his work, setting matter more clearly at the core of understanding the relationship between cultural expressions and underlying values. This requires taking into account the alignment of intentions and values while simultaneously acknowledging that these two aspects are *weakly aligned*. There are correlations, tangible and sometimes even legible, but the bond between values and intention within the matter is situated in time and place; this bond can be severed and reconstructed, infused with new values and cultural stories. This is perhaps the most important correction to modernist thinking in architecture, which built on a simplified version of Ruskin's transfer of sensibilities to assume a self-evident and often causal relation between artistic intention and material articulation.

It is this weak alignment between intentions and matter that has remained somehow out of sight and that has the ability to bring the negotiation between knowing *that* and knowing *how* into clear focus.<sup>16</sup> Any form of alignment between what the artist intends and the observer perceives is based on a constellation of knowledge, perception and assumptions, and includes a broad spectrum of both implicit and explicit elements of knowledge. It is, moreover, *situated in matter*, which is itself an independent actant. In this sense, the early insights of Polanyi and Ryle aid in differentiating aspects of human agency (in terms of experience-based and embodied knowledge) and material agency (in terms of its presence in knowing *how*). At the same time, the history of architecture thinking also provides valuable touchstones, which speak of the manner in which a building, an ornament or a drawing can contain dimensions of knowledge and understanding. Particularly in the context of new and emerging ecological sensibilities, the very idea that matter can independently connect with its observer, appealing to an intention to treat it with care, for example, suggests the potential to renew the general understanding of architecture as something that matters.

### **From human agency to actor-networks**

The current shift to thinking through actor-networks and vibrant matter provides an additional perspective to the idea of a cultural diagnostic. In this perspective, the appeal to re-examine the values within things becomes about so much more – thinkers such as Timothy Morton and Jane Bennett reveal the unforeseen effects of matter, addressing things as autonomous entities that reconfigure the idea of human agency as it has been conceived throughout the twentieth century – they show how matter pushes back. Uncomfortable as this may be in resettling the boundaries between human and non-human actors, it is to some degree liberating and also familiar within architecture. It suggests that our things can have a life far beyond what we inject into them. It is here – in the complicated confluence of vibrant matter, human sensibility and contextual relationality – that more is to be explored.

One of the first moments that this deep interconnection between human agents and their material surroundings was approached as a new

theoretical perspective was with the emergence of actor-network theory (ANT) in the mid-1980s.<sup>17</sup> The notion of care and concern was clearly articulated by Bruno Latour in 2004 when he closely analysed the mechanisms of criticism and suggested that for critics, the thing that is assembled should be treated with care.<sup>18</sup> Here, he brings the variety of associations that contribute to an object and its relationships, in order to show the beauty and simultaneously fragility of these constructions. Yet one might equally suggest that the things themselves are quite robust – Yaneva's analysis of the OMA models shows something like this, when she traces the life of models within the office, including their recuperation for other projects.<sup>19</sup> And this particular tracing shows hints of a weakly defined intentionality – the model of a project that has been fully articulated in relation to a particular question and programme, for example, can be recuperated as a model, understood at a different scale and then reworked in a fully different way.

These complicated and often problematic correlations may lead to the conclusion that there is no inherent value-based dimension in architecture.<sup>20</sup> However, the very desire to build an alternate environment almost by necessity contains a belief in 'the good' *embedded* within the very material of the envisioned project. It is, however, precisely because the values are situational and weakly aligned with the material that they represent a continuing negotiation between context and intention. Some values and contextual dimensions may (appear to) be materialized, and these can be examined in relation to cultural values and ideas about their material articulation.

There are some issues that may be useful to separate, however. The extended agency of ANT and new materialisms might be applied in a more limited fashion. Materials cannot themselves be said to have an ethical agency in the traditional sense, as brick and glass have no consciousness. At the same time, the idea of a weakly defined correlation between intentionality and effects can help explore the agency and knowledge of material objects. For this, it may be more helpful to turn to the implicit ethical appeal that resides in perception and is more contextually dependent. Building is thus not a *conscious* agent but becomes a *cultural* agent in the sense of Kracauer: it is present, it can be used, it is perceived and discussed, and as such it not only engages with but also expresses the undercurrents of society.

### In search of a material consciousness

While the material dimension, as something that lacks conscious will or intent, may not have the same type of effects as human agents, the modern focus on universal tenets has negated the unforeseen effects of matter that is not delimited by human intentionality. Actor-network theory and new materialisms are, at heart, deeply relational. They examine things in light of both their autonomy and their situatedness. As such, they introduce an openness in the object, which can be subsequently re-coded and re-energized with new cultural codes. More importantly, they present an independence of matter, which reconfigures the typically instrumental relationships that modern science and architecture have assumed: that matter is simply a tool to be manipulated. ANT addresses the contextuality of the network (which includes non-human agents) and adds the material object as an agent of equal standing to humans. This combination of the autonomy of material objects and the relationality of the network can aid in addressing the particularities of architectural examples. It allows for an examination of the life of things and their effects, of observers and of surroundings, and potentially their role in creating a general *habitus*.

Might it thus be possible to envision some kind of ethical dimension that aligns with these new materialist approaches? This would suggest a mode of object-based reflection that allows for both the autonomy of the materialist understanding and the cultural values that are more relationally defined. This synthesis would require an awareness of the multiple appeals within the object, which both provide individual distinction on the basis of material properties and yet work in an integrated manner, appealing to more generally held cultural values. Additionally, it would require a permanent awareness of the incongruent relationship between intent and reception. The primary failure of political art is in its single-minded presumption of the reception of its 'message'. While an embedded political or moral appeal may be conceived of as such by the observer of the artwork or work of architecture, there is always the possibility that it will be overlooked or misunderstood. At the same time, the history of architecture provides examples of attributes that suggest particular values. Fragility may not demand care, but it does suggest it. As such, I would like to argue for revisiting material architectural qualities,



which can be described and experienced, for their implicit promises – their desire, as it were, for a world more perfect than the one we inhabit.

One final important condition to address is that of *material resistance*.<sup>21</sup> This positions the architectural object and its subsidiary components (design, drawings, models, realized building) as a material manifestation that engages with the individual observer and cultural network as a whole. As such, it moves beyond universalist ideas of architecture as a cultural expression that provides a blueprint of societal codes and intentions. Instead, material resistance signals the autonomy of things. It shows that matter is not only shaped by human intentionality but also possesses its own qualities, and more importantly, that it pushes back.

On a cultural level, particularly in this age of faith in the endless agency of humankind and technology, this may also include literal material resistance such as the limitations presented by the material used. These limitations then become instrumental in reformulating the sense of endless possibility, suggesting a level of humility. Necessary to this is an enhanced sensitivity to the implications of a material object – both on the level of immediate apprehension, in what is directly legible, and on the level of underlying suppositions, cultural codes and conditions of production. The vocabulary of architecture until now has offered many handholds for metaphorical expressions of values and ethical dimensions but relatively little correlated to the material object. More attention on the dimension may help us forward. This will immediately lead to more complexity – as the question of a ‘sustainable building’, for example, then encompasses much more than the immediate material impact or technological implications. It may include the spatial organization that enables various forms of reuse – not by technological flexibility but rather sufficient space; it may be the kind of building that becomes a cultural emblem such that it remains valued enough to be reused; it may be the kind of building that builds upon its predecessors, or in contrast, something that presents a radical alternative. In all of these instances, however, the assessment is untenable if based only on a quantitative listing of costs and benefits; it requires a qualitative discussion, including contextualist arguments that explicate the implicit suppositions with which the building is imbued.

The very notion of material resistance incorporates an appreciation of particularity, as each action (intellectual or physical) induces an encounter with the response of the thing – this specific thing – which may lead to general principles but is not in itself a general thing. At the same time, this approach does not, as some fear, eliminate the particularity of human agency and perception. The condition of judgement remains present, as a counterforce to technocratic ideas of optimization, to the possibility of scientifically identifying a ‘best’ practice within generally wicked problems. Questions of judgement go to the heart of what we hope to do and to be. In other words, if we take discernment and careful observation as the space to escape codification, as creating the room for the agency of matter as well, then perhaps this is where we can explicitly begin to define our value systems. This should stand in some kind of relation to rational discourse but will be reconfigured by its attention to matter.<sup>22</sup> It simply requires an acknowledgement that ‘works of art have multiple dimensions of value, including not only aesthetic and moral values, but historical, sociological, political, anthropological and other sorts of values as well’.<sup>23</sup> It is these multiple dimensions that ANT brings into focus and that new materialisms enrich with a more thorough understanding of material things as autonomous entities.

The history of architecture has mainly focused on anthropocentric values and the agency of the architect (such as due diligence and professionalism), assuming, or building on, a naturalized connection between human conduct and the results of design. By contrast, a materialist-oriented perspective allows for unforeseen results and changing circumstances – precisely within the bandwidth of understanding some of its appeals and intentions to be tacit and, therefore, not ‘unknown’ but rather incorporating affordances by their very nature, and thus allowing for not only the unforeseen in reception and use but also for fundamental transformations and recuperation.<sup>24</sup> As is clear from the other articles in this book, this raises many questions both on the level of the design process (the perspective of the architect), the object (the material perspective) and the user (the relational perspective). In this sense, it encourages an approach of fostering relations, thereby situating ourselves back in the network of the world-as-it-is, as one of many agents, from wood wide webs to vibrant matter.<sup>25</sup>

## Notes

- 1 Michael Polanyi, *The Tacit Dimension* (Chicago: University of Chicago Press, 1966/2009), 20.
- 2 For example, Bo Göransson, Maria Hammarén and Richard Ennals (eds.), *Dialogue, Skill and Tacit Knowledge* (Chichester, England: J. Wiley & Sons, 2006); Stephen P. Turner, *The Social Theory of Practices: Tradition, Tacit Knowledge, and Presuppositions* (Chicago: University of Chicago Press, 1994).
- 3 He notes that 'minds and problems possess a deeper reality than cobblestones, although cobblestones are admittedly more real in the sense of being *tangible*'. Polanyi, *The Tacit Dimension*, 33.
- 4 Diana Coole and Samantha Frost (eds.), *New Materialisms: Ontology, Agency, and Politics* (Durham: Duke University Press, 2010).
- 5 Polanyi, *The Tacit Dimension*, 7–10.
- 6 Polanyi provides an additional reflection on this general ability through witness descriptions in police procedures, where the particular examples of individual features are in specific focus but again in relation to providing a general description. Polanyi, *The Tacit Dimension*, 4–5.
- 7 Stephen P. Turner, *Understanding the Tacit* (London: Routledge, 2014). This is also addressed by Richard Sennett in *The Craftsman* (London: Allen Lane, 2008), 53–80, where he discusses medieval apprenticeship and the Renaissance workshop.
- 8 Pierre Bourdieu, *Outline of a Theory of Practice*, R. Nice (transl.), (Cambridge: Cambridge University Press, 1977). Bourdieu's idea of *habitus* is related to the ideas of tacit knowing, particularly in its unarticulated but formative structuring mechanisms, which Bourdieu sees as collectively and unconsciously orchestrated. In architecture, this may become visible in particular schools.
- 9 See, for example, Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences* (New York: Vintage Books, 1970 [orig. *Les mots et les choses*, 1966]); Isabelle Stengers, *In Catastrophic Times. Resisting the Coming Barbarism*, A. Goffey (transl.), (Open Humanities Press/Meson Press, 2015 [orig. *Au temps des catastrophes*, 2009]); John Law (ed.), *Power, Action, and Belief: A New Sociology of Knowledge?* (London/Boston: Routledge & Kegan Paul, 1986); Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network-Theory* (Oxford: Oxford University Press, 2005).
- 10 See, for example, Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham: Duke University Press, 2010); Timothy Morton, *Dark Ecology. For a Logic of Future Coexistence* (New York: Columbia University Press, 2016); Coole and Frost (eds.), *New Materialisms*.
- 11 These are introductory lines in Section XXI of the *Lamp of Life*, where he further observes that 'sculpture is not the mere cutting of the form of anything in stone; it is the cutting of the effect of it'. John Ruskin, *The Seven Lamps of Architecture* (London: Smith, Elder & Co., 1849), 141–142 (par. XXI).
- 12 Ruskin largely limits this to only the transfer of a sensibility, while modernist architecture expands this to a perceived correlation between intention and reception. Yet here, I follow Polanyi's concern that generally held tenets are problematic. Each work of design or material object is defined less by a metaphysical and inherent quality as it is a suggestion and framework informed by currently held values, which may be subsequently transformed or reconstituted.
- 13 John Ruskin, *The Seven Lamps of Architecture* (London: Smith, Elder & Co., 1849).
- 14 Siegfried Kracauer, *The Mass Ornament: Weimar Essays*, Thomas Levin (transl.), (Cambridge, MA: Harvard University Press, 1995 [orig. *Das Ornament der Masse*, 1963])
- 15 Siegfried Kracauer, 'The Mass Ornament', in Kracauer, *The Mass Ornament: Weimar Essays*, 75–86.

- 16 This is especially with attention to the particularities of knowing *how*, which does not require theoretical understanding but does require a grasp of principles and the ability to act in accordance with the desired results. Gilbert Ryle, 'Knowing How and Knowing That: The Presidential Address', *Proceedings of the Aristotelian Society*, 46:1 (1946), 1–16.
- 17 The book usually credited as the starting point of ANT is John Law (ed.), *Power, Action, and Belief*.
- 18 Bruno Latour, 'Why Has Critique Run out of Steam? From Matters of Fact to Matters of Concern', *Critical Inquiry* 30 (Winter 2004), 225–248.
- 19 Albena Yaneva, *Made by the Office for Metropolitan Architecture: An Ethnography of Design* (Rotterdam: nai010 Publishers, 2009).
- 20 This seems to underlie many of the positions in the 1970s and 1980s, in which formal concerns were emphasized as a distancing from sociopolitical and ethical concerns.
- 21 Richard Sennett, *The Craftsman* (London: Allen Lane, 2008).
- 22 See, for example, Greet De Block and Vera Vicenzotti, 'The Effects of Affect. A Plea for Distance Between the Human and Non-human', *JoLA: Journal of Landscape Architecture* 13:2 (2018), 46–55.
- 23 Jeffrey Dean, 'Ethics and Aesthetics: The State of the Art', *Aesthetics Online*, 2002, American Society for Aesthetics. (online at: [aesthetics-online.org/general/custom.asp?page=DeanState](https://aesthetics-online.org/general/custom.asp?page=DeanState). Last accessed December 18, 2020).
- 24 See James J. Gibson, *The Ecological Approach to Visual Perception* (Boston: Houghton Mifflin, 1979); and James J. Gibson, 'The Theory of Affordances', in: Robert Shaw and John Bransford (eds.), *Perceiving, Acting and Knowing: Toward an Ecological Psychology* (Hillsdale, NJ: Lawrence Erlbaum, 1977), 67–82.
- 25 The 'wood wide web' refers to an underground mycorrhizal network that connects trees. The phrase was popularized by Suzanne Simard, one of the first to research these networks. Suzanne Simard, 'How Trees Talk to Each Other', TedSummit, June 2016, online at: [www.ted.com/talks/suzanne\\_simard\\_how\\_trees\\_talk\\_to\\_each\\_other](http://www.ted.com/talks/suzanne_simard_how_trees_talk_to_each_other) (last accessed January 4, 2021); see also Merlin Sheldrake, *Entangled Life. How Fungi Make Our Worlds, Change Our Minds, and Shape Our Futures* (London: The Bodley Head, 2020), 3–15, 165–193.

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