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Publisher Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK

Journal of Urban Technology

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title-content=t713436614>

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Online Publication Date: 01 August 2009

To cite this Article Fregonese, Sara and Brand, Ralf(2009)'Polarization as a Socio-Material Phenomenon: A Bibliographical Review',Journal of Urban Technology,16:2,9 — 33

To link to this Article: DOI: 10.1080/10630730903278546

URL: <http://dx.doi.org/10.1080/10630730903278546>

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Polarization as a Socio-Material Phenomenon: A Bibliographical Review

Sara Fregonese and Ralf Brand

BELFAST, the capital of Northern Ireland has suffered for many decades from a conflict between Protestant (Loyalist/Unionist) and Catholic (Nationalist/Republican) communities about identity, national belonging, and political representation. The bombing campaigns, arson attacks, and other atrocities sparked by these tensions left 1,600 people killed and forced thousands of families to relocate to more and more homogeneous ethnic neighborhoods. Over the last ten years, significant progress towards a more peaceful society has been made, but the problems are still deep-seated.

The Westlink motorway runs through Belfast and separates, along several stretches, a number of Protestant and Catholic neighborhoods where it acts, by implication, as an “interface” between these antagonistic groups. Many stones and other missiles have, therefore, crossed the Westlink on their way to hurt, intimidate, and annoy residents on “the other” side. Political rapprochement, heroic efforts of community workers, combined with various material interventions like fences and walls reduced the number of attacks to a bearable level over recent years until, in late 2007, serious sectarian violence erupted again in one particular location.

Residences on both sides of the motorway were pelted with stones at such a frequency that residents began to protect

the windows of their houses and the windshields of their cars with bars and plywood. Heather Elwood from the Village Focus Group reported that seventy-two incidents happened in only three weeks in 2007, whereas in previous years only occasional problems had occurred and careful reconciliation work had been under way. The fast deterioration of the situation left the Northern Ireland Office (NIO) no alternative but to construct a ten-meter high anti-ballistic fence to protect a row of houses.

“Westlink Bridge...”

Typically, one attempting to understand this escalation would enquire whether the political situation in Northern Ireland deteriorated that autumn, or whether an aggressive speech re-kindled cross-community hatred. However, in the Westlink case, the answer lies somewhere else and in something more mundane and concrete than political discourse: It was the construction of a footbridge across the Westlink.

Interview with NIO representative, 27 June 2008.

Earlier in 2007, construction began of a pedestrian bridge connecting the two sides of the Westlink as part of a major upgrade of this motorway. (See Figure 1.) The bridge was mainly meant to facilitate the pedestrian connection between the Royal Victoria Hospital, located in a Catholic area, and the predominantly Protestant Donegal Road neighborhood and further parts of Belfast. The legal requirement of a wheelchair ramp resulted in the bridge being moved 40 meters from its originally planned location to its final position right in front of several houses. However, after this move, the bridge turned into “a magnet for youngsters because it is so easy for them to access the other side,” according to Daniel Jack from the Safer Neighborhood Project. Other community workers argued that the “design and location of the bridge gives youths an easy escape route” and thus makes the risk of an attack on enemy turf more calculable. Wheelchair access on the northern bridgehead was placed on a gradually sloping mound, which created the perfect elevation of a launching spot for missile attacks. (See Figure 2.) Elwood complained that “There was no consultation with either community about the location. If there had been, we could have told them this sort of thing would happen.”

“Westlink Bridge...”

“Westlink Bridge...”

“Westlink Bridge...”

This example demonstrates that the actions of human beings cannot appropriately be understood without considering their physical surroundings. Architect Kim Dovey argues that “everyday life ‘takes place,’” and it seems a logical extension of this observation that attacks, polarization, community tensions, and

Dovey

FIGURE 1
The Spatial Context of the Bridge*

*Note: The Catholic neighborhood is at the top and the Protestant area is at the bottom of the image. The foundations of the wheelchair ramp at the south side of the bridge are clearly visible.

Source: Google Maps

even radicalization also “take place.” Conversely, the Westlink Bridge emphasizes the importance of understanding the social processes that influence the location, shape, and material qualities of artifacts. In short, humans and non-humans have agency and neither deserves primacy. The material and the social are inseparable parts of a recursive “socio-material loop” in which they continuously affect each other in hugely complex and often unpredictable ways. To look at only the social or the material element of this dynamic would be like watching only one half of a tennis game as Latour puts it. In this paper, we examine how existing literature¹ across a range of disciplines manages or fails to grasp such bi-directional processes between social conditions and material settings in community cohesion, (de-)polarization, and even radicalization.

In the first section, we explore literature focusing on the urban aspects of war and post-war situations. These contributions

Latour 1992

¹The clustering rationale we apply to the existing literature is of our own choosing as a means to achieve a manageable overview of the arguments on polarization.

FIGURE 2
The Completed Bridge from the North Side of the Westlink*

*Note: The Protestant area lies behind the trees at the left and the Catholic area is at the right. The new “peace line” fence protecting the latter can clearly be seen.

Source: Photo by Ralf Brand

bring together an interdisciplinary pool of scholars, including social scientists as well as architects and planners. However, they mostly focus on the deplorable state of war but tend to overlook the processes of escalation towards it.

In the second section, we review studies that do consider the procedural aspects of polarization and radicalization. However, we notice that they tend to treat them as purely socio-cultural and psychological phenomena. It appears that they would benefit from complimentary attention to non-human agency.

Conversely, the third section focuses on literature from disciplines with an inherent emphasis on materiality such as architecture, planning, and environmental criminology. Some of their representatives seem, however, to display a belief in “material fixes” to the extent that they underestimate human agency.

Lastly, we assess the value of Science and Technology Studies (STS) as a conceptual framework to holistically grasp the phenomena in question. Although STS seems to escape a number of problems we identified in other disciplines, it suffers from a disregard for substantive issues at the intersection of the urban environment and community relations. This myopia, however, appears remediable. Consequently, STS emerges as a conceptual platform that could contribute to more comprehensive understandings of the socio-material worlds through which polarization “takes place.”

FIGURE 2
Continued

War City Literature: More Processes, Please!

This section reviews some of the literature on the socio-material nature of urban conflict, that is, the ways in which war shapes urban infrastructure and how urban infrastructure affects on the course of war. We are interested in this strand of literature because it neither treats conflict exclusively as a mental or (geo)-political issue, nor does it portray the urban environment as the determinant force of war. However, we also think that these arguments would benefit from more attention to the processes whereby societies become polarized (or are in the course of reconciliation) rather than focusing only on the state of open violence.

A large number of scholars in architecture and planning embrace the notion that the processes and results of urban development are shaped by and shape socio-political conditions. Planning as a socio-political practice is increasingly seen not as “an innocent, value-neutral activity [but as] deeply political.” Translated into a context of urban conflict, Wendy Pullan² raises similar arguments for the case of Jerusalem where urban infrastructure and politics are tightly intertwined. Here, even “the highways are political.” From another perspective, urban infrastructure can become a tool of resistance in a highly contested space when through “market stalls, tea stands [and] paratransport” the relationships constituting the Palestinian social fabric are reclaimed. Oren Yiftachel is also among this group of scholars who scrutinize architecture and planning for their political and geopolitical agendas including ethnic domination, military tactics, and other

Healey

Pullan

Pullan et al.

²Conflict in Cities project, www.arct.cam.ac.uk/conflictincities

Pullan et al.

Pullan

Pullan et al.

“dark sides.” More recently, Calame and Charlesworth highlighted the role of architecture and design in war ravaged cities by analyzing a number of “divided cities” in which they explore the parallels between the physical evolution of their hard inner boundaries (walls, dividing lines, and so on) and the social conditions that physical separations effect.

Some authors who write about the damage inflicted upon the physical fabric of cities call for a non-anthropocentric approach that describes attacks against the urban built fabric as “urbicide.” The negative implications of these acts for the well-being of human communities are the foundation upon which arguments rest to pursue architectural damage in the international justice system. Cultural and physical representations of Western and “Oriental” (especially Arab) cities have been employed to reinforce discourses of security, defense (for the cities in the “West”) or danger and attack (against those in the “East”) by the advocates of the “War on Terror.” Such arguments are the focus of Urban Geopolitics, a body of literature about the relations between the fabric of cities and acts of political violence. Urban Geopolitics stems from the need to critically analyze the city as “both target and arena of war,” in the light of a so-called repositioning of conflicts in the post-Cold War era, from “the open countryside of western Europe” into urban terrains. This repositioning has been advocated by post-1989 military theory considering cities as the ultimate terrains of the so called “new wars” of the twenty-first century. These strategies conceive urban environments as flexible terrains that can be entirely reworked for military control and security purposes.

While there is a remarkable number of studies about the material aspects of cities at war that investigate the role of architecture and planning in a state of open violence, relatively few scholars tackle the process of (de-)escalation towards or away from violence. In other words, the existing literature on the mutually shaping relationship between the material and social in conditions of open violence would benefit from more complementary studies on the socio-material processes before and after violence erupts. Architect Esther Charlesworth affirms that “more research is needed to observe the patterns that lead to civil violence and displacement and to look at how this is manifested in the physical domain.”

Some scholars have contextualized non-violent (but escalating) issues of ethnic identity, segregation, racism, inclusion and exclusion, territoriality, and discourses of defense within conceptualizations of urban space. Among the arguments which are

Coward 2006

Bevan

Graham 2001

Graham 2006

Graham 2004

Coward 2007

Coward 2007

Peters

Press

Kaldor

Weizman 2004

Mostar Architects Association

Bogdanovic 1993

Lindqvist

Coward 2002

Coward 2004

Coward 2006

Ramadan

Roseman et al.

Keith

Gold and Revill

attentive to the built and architectural aspects of polarization of communities are those dealing with the production and reproduction of inequality through mundane planning and infrastructure laws and the limitation of civic freedoms brought by ubiquitous surveillance technologies.

Weizman 2007

Gold and Revill
Coaffee 2003

Besides acknowledging the need for more study of polarization processes, Charlesworth also calls for more synergy between political actors, social scientists, and spatial experts in understanding de-polarization in war-torn cities. She argues that “achieving political and ethnic collaboration . . . requires architects to consult with non-spatial professionals such as politicians, environmentalists, sociologists, psychiatrists, economists, and community representatives.” Also Scott Bollens is an influential exponent of research on the impact that both urban policy and urban design can have for post-war de-escalation in conflict-ridden cities. Here, social reconstruction becomes inextricably linked to physical reconstruction. Likewise, the material fabric of the city acquires particular importance because it constitutes the basis for the future reconciled city: “Everything from sewage systems and road networks to markets, and playgrounds, and river promenades. [In such situations] the planning process can help build trust and understanding across communities, reshaping not only the physical but the social and political geography of the city.”

Charlesworth

In this sense, Charlesworth argues, “post-war urban planning can be a peace-building process in itself,” and it has the power of stirring positive dynamics between communities and architecture. Moreover, she stresses the possibility of a spatial thinking and practice that can prevent processes of societal division, and enquires whether it is “possible to design clever buffers, remedies, or release valves in order to mitigate the worst effects of the negative [social] changes, assuming we cannot stop them altogether?”

Charlesworth

Despite the growing acknowledgement of the political value of planning processes and outcomes, these need to be considered more carefully. As Charlesworth notices, “there has been little comparative research informing design professionals about effective examples of using architecture as a peace-building tool.” Patsy Healey also affirms the valuable role of planning to promote social co-existence by forging synergies with policy sectors that are normally not involved with planning, architecture, and urban design. She highlights the importance of understanding “social polarization [as] . . . an active, ongoing process of socio-spatial differentiation.” This argument is similar to Watson’s

Charlesworth

Healey

Charlesworth
Bollens “Ethic Stability. . .”
Bollens “Urban Policy. . .”
Bollens 1999
Bollens 2006
Bollens 2002

encouragement to pay attention to spaces in which “people rub along, or don’t” and the spaces which accompany “the conditions under which violent and negative emotions can erupt.”

Watson

In a nutshell, it seems possible and worthwhile to complement the considerable body of literature on the socio-material nature of open violence with a more systematic focus on the processes that precede and follow a state of conflict. In the next section, we will review studies that do consider these processes, but pay very little attention to their material dimension.

Socio-Political Literature: More Matter, Please!

Studies centered on processes of escalation, polarization, and even radicalization, come from different disciplinary angles. From a database search of over 77 studies on radicalization from 1977 to 2008 (See Figure 3), it emerges that research on this issue is strongly concentrated within the political, sociological, and psychological-behavioral sciences. From these perspectives, the problem is usually framed in ways that demand a focus on “the psychological process across all levels of terrorist involvement,” individual and group identity formation, social networks, and the role of ideological orthodoxy. A remarkable number of studies

Horgan
McCauley and Moskalenko

FIGURE 3
Disciplinary Distribution of Research on Radicalization
between 1970 and 2009

Source: ISI Web of Knowledge ^SM

Kirby
Sageman
Weiman and Von Knop
Ryan
Horgan
McCauley and Moskalenko

in this area concern counter-terrorism strategies and the psychological mechanisms of radicalization in individuals. In other words, these studies identify discourses, beliefs, and mindsets as the realms where answers to radicalization can be found and emphasize the importance of (geo)political grievances, counter-arguments, education, change of perception, and “positive” role models.

In this cohort of studies, the socio-political and psychological aspects are rarely or almost never complemented by analyses or descriptions of the material settings where radicalization takes place. In other words, the social goes without the material. An attempt to understand the deterioration of community relations across the Westlink in Belfast from this perspective would miss some crucial explanatory variables. This is not to say, of course, that the pedestrian bridge is responsible for these skirmishes, but that it doubtlessly facilitates the acting-out of a certain mental state.

Weinberg and Pedahzur 2003

Scholars do occasionally acknowledge the importance of material contexts for polarization or radicalization, but they mostly focus on sponsoring and financing support for extremists. Weinberg and Pedahzur argue that radicalism can be related to a state’s economic situation. For example, in countries with poor economies extremist networks can thrive by channeling local socioeconomic grievances and thus “transform themselves into mass-movements.”

Weinberg and Pedahzur 2003

The biggest focus of this strand of literature seems behavior, together with ideological predispositions such as universalism, millennialism, and Manichean worldviews. These philosophical visions and behavioral attitudes seem to outdo the role of the physical environment that is often depicted as a given. Although some scholars mention spatial segregation as a potential issue, it hardly ever features as a noteworthy variable: “Whether or not they separate themselves physically from the surrounding community by living in enclaves, for example, fundamentalists typically separate themselves from those around them by their behavior.”

Weinberg and Pedahzur 2004

It seems, then, that approaches focusing on radicalization as an issue of “extreme” mindsets, beliefs, feelings, ideology, and identity might benefit from some kind of “material turn” or at least from complementary studies about concrete contexts. This argument is not intended to undermine the huge importance and value of these approaches, but it indicates the risk of falling for the allure of social or mental “fixes” with little spatial and material grounding. There are a number of exceptions to this interpretative strand. A range of studies in community planning and urban

design deals with the dynamics of segregation, school design, and location and the spatial translations of current ideas about cohesion.

Clapper
Ganapati

Political science scholars have mentioned issues other than mindset in their analyses of radicalization. Githens-Mazer and O'Duffy highlight the shortcomings of exclusively macro- or micro-level perspectives on radicalization and argue that macro-level grievances (foreign policy, perceptions of global injustice, etc.) need to be considered together with micro-level conflicts (socioeconomic conditions and social networks). Some studies only seek causes of radicalization within the micro social-psychological mechanisms of "young and impressionable [...] ignorant and immature [people] ... from a poor background and a broken family." However, an exclusive focus on the micro-level of social networks of recruitment overlooks the wider grievances weighing on the radicalized individual or group, as O'Duffy argues. Similarly, analyses relying exclusively on the macro-level, highlight the negative impacts of Western foreign policy on domestic radicalization, but do not follow these impacts on micro-practices such as recruitment and activism. Instead, we need to acknowledge the particular urban and technological dimensions of radicalization through "nuanced and well-informed strategic thinking about locating sites where radicalization may be taking place [...] and how such locations [...] lead to both ideological and tactical capacities."

Githens-Mazer

O'Duffy

Githens-Mazer

Githens-Mazer

In his work on the links between segregation and Muslim radicalization, Daniel Varady points out that we need to research and establish specific links between the presence of extremist behaviors and the presence of a segregated community. Varady argues that this could be made by considering the concrete practices and immediate surroundings of the radicalized subjects, rather than only engaging with abstract issues of identity formation and indoctrination. He argues that "what is absent from the current debate is any serious analysis of how Muslim population concentrations may help or hurt an immigrant's integration into the broader social fabric." The small number of studies on the interactions between segregation and polarization might explain the "little evidence of the importance of enclavization vis a vis other factors (e.g., hate speeches by fundamentalist clerics) in contributing to societal instability through rioting or recruitment into terrorist cells." We suggest that this evidence could be provided using approaches that combine social aspects such as ideology, role models, and so on, with spatial and material aspects that might also have a role to play in polarizing communities.

Varady

Varady

Of course, not the entire gamut of the social sciences suffers from an underexposure of material contexts. Even if not specifically within the theme of polarization, a range of authors went beyond mainstream constructivist and discursive approaches and called for a more serious consideration of mundane material objects, together with social relations, as mediators of behavior. Such contributions to the study of material culture and to the understanding of how “things other than humans make a difference in the way social relations unfold” have populated the social sciences and especially human geography in the last decade. Located “at the cutting edge of geographical research that seeks to link the material and the immaterial” this literature extends the idea of agency from subjects to include objects and their mediating impact on human practices. However, it also highlights the ethical implications of attributing agency to materiality. As Bakker and Bridge warn, “the resurgence of the material after a decade of social constructionism [...] should be a reason for pause, since it raises specters of worn-out dualisms, resurgent physicalisms, object fetishism, and environmental determinism.” In the next section, we will turn our attention to some of these aspects.

Bakker and Bridge

Bakker and Bridge

Jackson

Lees

Lees

Built Environment Literature: More Contest, Please!

One of the most problematic aspects of dealing with the material contextuality of social practices is its potential ontological proximity to determinism and its smell of behaviorism, social engineering, and manipulation. A considerable body of literature from the 1960s and 1970s employs such assumptions in its claim about the direct impact of the design and management of urban space on crime, anti-social behavior, or social decay and fragmentation. Derived from this premise is the conclusion that planners and architects can “design out” certain social problems.

Angel

Heimsath

Jeffrey

Newman

Wood

One particular strand within this literature enjoyed an impressive career since the 1970s under the heading “Environmental Criminology” or as “Crime Prevention Through Environmental Design” (CPTED). Its basic assumption is that “an architect, armed with some understanding of the structure of criminal encounter, can simply avoid providing the space which supports it.” CPTED, therefore, relies on the existence of a causal relation proceeding unilaterally from the physical to the social and nurtures the expectation that social problems can be alleviated, if not solved, by clever physical interventions. However, more

Newman

nuanced views about the impact of the material on the social coexist with Newman's. Jane Jacobs' arguments for example, although displaying traits of determinism, did not advocate universally applicable material fixes to crime. Jacobs adopted a network-like approach rather than seeking generalized formulas to cure social ills.

In the 1980s, scholars developed approaches to materiality that were still well aware of its impact on undesired social practices, but that nevertheless conceded less room to determinism and adopted a more cautious language. Various disciplines used the idea of "territoriality" to analyze arrangements of the urban space that discourage, rather than simply prevent, crime and encourage the defensiveness of homes by shaping perceptions of belonging and presence. Increasingly through the 1980s and 1990s, the cultural turn in the social sciences favored visions of materiality shaped by sociality rather than the opposite, and the social sciences have reacted cautiously to the deterministic positions of much of the 1970s' literature on defensible space.

Brown

Recently, deterministic positions seem to be enjoying a certain renaissance in the guise of the ambition that "the future is a design problem." U.K. Security Minister, Alan West seems to have embraced such a vision as evidenced in his recent call to "design-out" terrorism. This and similar approaches, however, have attracted criticism also in the past, when literature on urban change and global security analyzed the socially shaped nature and non-neutrality of anti-terrorism measures in urban environments.

Murphy

Lazell

In our view, the argument that certain design features automatically trigger or prevent certain behavioral responses falls short of explaining reality. Otherwise, we should expect that every pedestrian crossing the new bridge in Belfast—or anywhere else if the exact same bridge were built in an absolutely identical physical setting—would throw a stone. The vast majority of people, however, do not even feel the urge to do so. The free will and agency of human beings clearly have a role to play. To ignore or underestimate them would imply a belief in "material fixes," which have been debunked as wishful thinking a long time ago. The behavior of stone-throwing individuals in Belfast has to be understood not as a result of the bridge alone but also of Northern Ireland's history, the individuals' socioeconomic condition and previous experience, the macro-political climate, and a myriad of other factors. In other words, artifacts do have some kind of agency, but this is just one of thousands in a messy vector-field of teeming agencies.

Coaffee 2003
Coaffee 2004
Graham 2004
Hunter

Shaftoe acknowledges this by emphasizing the importance of socioeconomic and political contexts within which he places his recommendations to create “convivial spaces.” He argues not only for physical interventions that discourage undesirable behaviors but also for those that might facilitate desirable ones. Ultimately, however, he concludes with a list of *dos* and *don'ts* that make his rhetorical appreciation of context forgotten and slips back toward the allure of material fixes. In addition, his argument lacks an acknowledgement of how difficult it often is to overcome the obduracy of the existing urban fabric—even if his recommendations were perfectly adapted to local contexts.

Bakker and Bridge

Miessen and Basar

But overall, there is clearly a trend among recent contributions to highlight the relational and context-specific nature of sociality and materiality and to consider neither of them as independent. In other words, the material is not seen as determinant of the social, but as mediator in a relation with the social. Consequently, the image of the architect and planner has also shifted from “spatial hero” with ready fixes for social problems to one spatial actor among many.

Healey, therefore, argues that planning “is an activity conducted by, and in relation to, specific people concerned about specific places. How it works out is contingent upon the particular history and geography of these places.”

Thrift

It seems evident that a more nuanced view of the relationship between the material and the social than the dominant deterministic one of the 1970s is emerging also in reflections on social, ethnic, and political tensions and violence. Shifting away from abstract theorizations of violence, Thrift defines it as “an expanding series of practices in which objects...have a more than incidental place,” blurring the ontological boundaries between the human and non-human elements of the lived reality of violence.

In the next section, we will assess whether or not Science and Technology Studies (STS) might be an appropriate conceptual framework for investigating social (de)polarization. This assumption is based on the claims about the field of STS being good at understanding how humans and non-humans jointly compose reality.

The Science and Technology Studies Approach: More Topics Please!

Some scholars, including the authors, are experimenting with an alternative conceptual frame through which the phenomena of

polarization and radicalization and their embeddedness in the material world may be viewed. It is inspired by the research tradition of Science and Technology Studies (STS), which originated in sociological studies of science that tried to understand how scientific results are socially shaped. Since its inception during the 1960s, STS has had the project of presenting an understandable vision of the whole process of technological innovation as a non-linear relationship between invention, development, dissemination, and appropriation. Although STS is not a monolithic school of thought, most of its exponents share the conviction that a Cartesian split between subject and object, matter and mind, technologies and humans or, in our context, the built environment and societies, is misleading. Rather, these pairs must be treated as emergent and mutually constituting. A strand within STS called Actor-Network-Theory (ANT) takes this notion furthest and endorses a radical ontological “symmetry” between humans and non-humans whereby both have agency, act upon, and respond to the other. The corollary of this position is that a distinction between something social and something material operates with false ontological categories, that such a distinction imposes neat categories where no neat categories exist and, consequentially, that the boundary between humans and non-humans is blurry if not undistinguishable.

Latour 2005

In the wake of such an acknowledgement comes the necessity to escape the ontological trap implied in commonsensical words like “social” or “material”. Many STS scholars, therefore, have proposed new words and new meanings for existing words such as *assemblages*, *cosmos*, *actants*, *translation*, *delegation*, or *quasi-objects* to circumnavigate these semantic cliffs. The same purpose motivated Donna Haraway to introduce the idea of cyborgs as an ontological category of our partly human, partly non-human existence. In a similar move, Latour exemplifies the relationship between technologies and human beings with the notion of a “gun-person” that is a genuinely new entity that emerges when a gun and a human being get together and form a new association. For Latour, it is not guns that kill nor people that kill; the culprit is the combination of a gun with a person:

Latour 1993

The dual mistake of the materialists and of the sociologists is to start with essences, either those of subjects or those of objects. . . . Either you give too much to the gun or too much to the gun-holder. Neither the subject, nor the object, nor their goals are fixed for ever. We have to shift our attention to this unknown X, this hybrid which can truly be said to act.

Latour 1993

Meanwhile back at the Westlink in Belfast, a new entity has emerged: the “bridge-person.” In fact, we would argue that neither the bridge in itself nor the engineering company that designed and built it bear the full blame for the outbreak of some skirmishes since late 2007. Conversely, it would be an oversimplification to dump the entire responsibility onto the stone-throwers, because the poorly thought-through location and design of the new bridge have also contributed to encouraging the behavior of stone-throwing by making it materially easier. In cities with polarization and radicalization trends, it makes sense, then, to look very closely for signs of similar associations between humans and non-humans. This will, of course, not explain everything—but ignoring this perspective will most certainly result in some key issues being overlooked. This is what motivates some scholars to employ conceptual tools borrowed from STS to better understand some aspects of social tensions in their physical setting.

Despite the fact that Actor Network Theory (ANT) does not conceptually or semantically distinguish between the social and the material—and likewise between two inverse causal directions between them—the majority of STS scholars still employ these concepts as heuristic tools or “crutches.” Much has been written, for example, about the “social shaping” processes of artifacts and, conversely, about their “social impact.” The latter, which essentially concerns the notion of non-human agency, is one of ANT’s most distinctive features and has been encapsulated in the notion that artifacts can contain “programs,” “scripts” or overt and hidden “agendas” that designers can build, deliberately or accidentally, into artifacts. The quintessential example is the speed-bump that “makes” drivers slow down. A book-length exploration of such mechanisms by Verbeek demonstrates that “taking social impact seriously” does not necessarily lead onto a slippery slope towards environmental, material, or architectural determinism as long as we operate with a highly nuanced understanding of non-human agency. It seems justified to conclude that STS at least does not severely suffer from an underappreciation of matter as we have identified in some of the socio-political literature above. This does not mean, however, that a systematic conversation across the disciplinary fence with colleagues from other departments like environmental psychology, planning, or criminology would not reveal additional potentials for a more fine-grained ontology of the impact of material settings on social conditions.

STS is certainly not guilty either of underestimating the various social, political, economic, and cultural factors that

Latour 1992
Akrich
Brand

influence the shape of things. In fact, the majority of articles in STS journals trace the convoluted social history of technologies such as nano-particles, medical apparatuses, bicycles, refrigerators, or airplanes. The intellectual handling of such social shaping processes draws inspiration from different schools such as the History of Technology or the Social Construction of Technology (SCOT). They provide not only theoretical frames but also methodological toolkits which direct attention to key issues such as relevant social groups, interpretative flexibility, power differentials, value systems, controversies, and their “closure” in studies of how technologies owe their particular shape to human agency. In short, STS has the potential to appreciate the messy social dynamics that influence the design of public spaces, buildings, street layouts, and cities. In the end, however, it is still insufficient to conduct flawless studies on the social shaping of artifacts without considering their effects—and vice versa. Rather, it is crucial to watch both sides of Latour’s metaphorical tennis court, to embrace the whole “seamless web” and to follow Bijker’s advice that “the social shaping of a technical artifact and the social impact of that technical artifact are to be analyzed with the same concepts, within the same frame, and, preferably, even within the same study.” Then, and only then, might we be able to achieve a more comprehensive understanding of the “socio-material”.

This does not yet answer the question whether experience and advice exists on how to employ such a framework for the study of cities. Unfortunately, we cannot report much such precedence but at least a number of influential steps in this direction have been taken. One of the first entries in this small, but growing library is Aibar and Bijker’s study of the extension of Barcelona in which the authors start from an understanding of the city as an

enormous artifact [which allows to interpret] the size and distribution of its streets, sidewalks, buildings, squares, parks, sewers, and so on...as remarkable physical records of the sociotechnical world in which the city was developed and conceived. [Simultaneously, the city emerges as] a powerful tool in building new boundaries between the social and the technical and, therefore, in building new forms of life.

Other authors who have made important contributions to a socio-material understanding of the built environment include, in chronological order, Callon, Latour, Söderström, Guy, Marvin

Hughes 1983

Pinch and Bijker

Winner

Hughes 1988

Bijker

Aibar and Bijker

Latour 1998

and Moss, Moore, Rohrer and Ornetzeder, Moore and Brand, Chatzis and Coutard, Guy and Moore, Hommels, Yaneva, Houdart, and Brand. Despite these efforts, scholarly work at the intersection of STS and architecture or urban planning still has not reached a critical mass as Moore and Karvonen recently argued: “There has been little emphasis in STS scholarship to date on the design of the built environment.”

STS-inspired research about the built environment as product and mediator of socio-political tensions is even scarcer. Again, such efforts are not non-existent as evidenced by sessions at the European Association for the Study of Science and Technology (EASST) I 2006³ and at the Joint Conference of the Society for Social Studies of Science and the European Association for the Study of Science and Technology in 2008⁴. Overall, however, it seems fair to state that STS has a blind spot for the dynamic of polarization, escalation, radicalization, and de-escalation as interaction between humans and non-humans. This clearly is a missed opportunity, especially if we acknowledge the inherent obduracy of the built environment combined with its ability to “inadvertently accentuate as much as ameliorate divisions in contested space.” In other words, the Westlink bridge will probably sit where it sits for the next forty years although it clearly contributes to (but does not cause) the deterioration of some people’s everyday lives. STS has the conceptual equipment to deal with such dynamics more comprehensively than some other disciplines, but as of yet makes little use of it. We suggest that this situation should and could be remedied. To be sure, this is not meant to replace any of the aforementioned approaches; just to complement them.

Conclusion: Bridging Social and Material Aspects of Polarization

As we write this, renewed attacks to security forces by the Real-and Continuity IRA in Northern Ireland not only have animated debates about the situation of the Peace Agreement, but have also contributed to more mundane and material consequences, such as the resurgence of aggressive graffiti. Evidence such as this or, of course the Westlink Bridge, demonstrates that social (de-)polarization is not an a-spatial or a-material phenomenon. Accordingly, we would argue, more integrated approaches are needed to understand and tackle polarization that consider not only socio-political complexities, but also the material context.

³Session: “*The Built Environment and Social Practices in Contested Spaces*” (Lausanne, August 23-26, 2006).

⁴Session: “*Contested and Constructed Spaces: Battles over Territory, Identity, and Resources*” (Rotterdam, August 20-24 2008).

Hommels

Morrissey and Gaffikin

Bowcott

Neither of these variables deserves primacy. Rather, their dialectical relationship should be acknowledged and guide the analysis of concrete cases and cities where diversity is not appreciated as asset but cause for tension.

In the four literature families reviewed here, we encountered both theoretical potential and the need for more synergies in grasping the recursive or looping relationship between the material and the social in the context of (de)polarization. The war city literature tends to focus on the extreme socio-material recursive processes of the state of war, rather than on more subtle phases of (de) escalation before and after the explosion of violence. The “socio-political literature” accounts for mindset, ideology, behavior, and political grievances, but provides little or no evidence of the role of the materiality of such phenomena. The “built environment literature” (from 1970s determinism to more nuanced recent contributions) focuses on material aspects, but in some instances tends to favor fixed formulas above contextuality. Finally, the STS approach appears as a potentially suitable theoretical platform, even if it rarely deals with conflict-related issues; this and similar topics within STS should develop in parallel to STS’s increasing dedication to the built environment and cities as socio-material phenomena.

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