1. Remaking the Obsolete

A building is more than it seems – Jon Goss (1988)

Buildings and the built environment have long been key objects of study for geographers. Geographic analyses of architecture and the built form have constantly challenged our understandings, and indeed, our often taken-for-granted relationships with the spaces in which we spend a large proportion of our lives (Tuan, 1974; Meinig, 1979; Knox, 1987; Jacobs, 2006; Horton & Kraftl, 2014). For Goss (1988), a building – really any building – is more than it seems: it is an object of material culture, a structure of purpose, and a physical expression of a way of life. Complicating this further is the fact that buildings have life-histories - they are conceived, develop, grow, transform, 'die' and, in some cases, are reborn (Cairns & Jacobs, 2014). This paper explores the latter phases of these life-histories and their geographies. In particular, I focus on the expanding interest in urban and cultural geography concerned with buildings and built environments that no longer suit their initial purposes; places that are remade, reimagined and, above all, reused for other functions, for other users, and for other communities.

In contemporary urban planning and development, adaptive reuse is a well-established but loosely defined practice that typically involves repurposing or "changing the capacity, function or performance" of a building for a new use (Douglas, 2006: 1). It is important to note, however, that this practice is not, altogether, new. For generations countless societies around the world have adapted and re-adapted older buildings for novel uses and new users (Wong, 2016). Early, pre-modern forms of reuse were largely *ad-hoc* projects and piece-meal designs that met the changing needs of local economies and communities. More recently, however, reuse has become a part of a systematic process of contemporary city building and a globalized practice of placemaking (Mohamed et al. 2019). Given this shift, it is not surprising that the bulk of research on adaptive reuse comes from technical sciences (e.g., engineering, architecture), experts engaging with issues of building and material efficiency, optimization, and performance. Over the last few decades, however, geographers and others in the critical social sciences have expanded the lenses through which we explore and understand adaptive reuse. Indeed, recent analyses have pushed the boundaries of debate beyond its practical and technical aspects, though important, to explore in greater depth its varied and complex social, cultural and spatial dynamics.

Considering the growing multidisciplinary work on adaptive reuse, this paper offers a narrowed focus, one that highlights the imperatives of critical scholarship to attend to the rising complexities of contemporary reuse beyond simply technical or practical purposes. I organize this review around three key themes. The first traces a central theme that underpins the bulk of geographic interest to date, namely, the role of adaptive reuse in the revitalization of cities, neighbourhoods and their local economies in response to deindustrialization. Urban geographers, in particular, have explored the relationships between reuse and the political and economic realities of contemporary urban life, most notably in the transition to postindustrialism and rise of the creative city.

The second theme explores the more recent diffusion of adaptive reuse and its enquiry outside of the postindustrial experience and the urban mainstream. Over the past decade, geographers have pointed to an evolving terrain of adaptive reuse in places otherwise regarded as the periphery. In this case, I highlight three research directions: one that explores the contexts and consequences of reusing former institutional properties and public spaces, from churches to schools; one that engages with reuse in increasingly diverse geographic contexts, including smaller

cities, rural areas, and the Global South; and one that pushes the boundaries of adaptive reuse, as practice and philosophy, to re-conceptualize the transformations of the built environment to include ideas of hybridity and mixed use.

The third theme considers the role and implications of adaptive reuse in the context of sustainability. The rise of global climate change and resource insecurity over the last decade has put a sustainability spotlight on a number of socio-economic sectors, including the built environment. As a result, adaptive reuse has received increasing attention as an 'alternative' building practice and a fundamental tool in strategies that seek to make cities and societies both 'future proof' and 'circular'.

By way of conclusion, I reflect on future directions for geographic research concerning adaptive reuse and briefly extend this discussion into the present global crisis: the Covid-19 pandemic. While the impacts of Covid-19 are vast, there are clear indications that this ongoing disaster has unsettled long-held processes, assumptions and standards of the contemporary city. These openings, as brief as they may be, not only present new directions for remaking cities but are also vital spaces for reimagining the geographic reach of adaptive reuse.

2. Adaptive Reuse and the Post-Industrial City

In the 1960s, accelerating patterns of deindustrialization in inner cities throughout Western Europe and North America resulted in vast landscapes of obsolescence (Abramson, 2016). From New York to Leipzig, the hollowing out of the built environment was among the most visible manifestations of industrial restructuring, a period marked by the abandonment of urban-industrial districts, growth of the service sectors, the reorganization of housing markets, and the increasing marginalization of the unemployed underclass (Harvey, 1989; Neumann, 2016). Factories, mills, warehouses and storage facilities, once the symbols of the power and progress of industrial capitalism, had transformed into unseemly sites of 'blight' and 'decay', the prime targets of urban renewal agendas and their armies of bulldozers and wrecking balls. In spite of widescale demolition, however, novel forms of building rehabilitation and conversion began appearing. Baltimore's Inner Harbor, Station Square in Pittsburgh and San Francisco's Ghirardelli Square represent some the earliest experiments in remaking industrial sites as new *consumptionscapes*, vital urban spaces redefined by retail, office and restaurant establishments (Sharpe, 2012). These were, by and large, vanguard developments that would come to signal a beginning of the postindustrial city.

For their part, urban scholars, especially sociologists and geographers, only began critically investigating the phenomena of adaptive reuse by the late 1970s -- a period of inner-city recolonization and gentrification in spaces experiencing acute industrial decline (Zukin, 1982; Jackson, 1985; Smith & Williams, 1986; Cole, 1987). Arguably the most conspicuous and debated forms of industrial conversions at this time was the residential reuse of industrial sites into 'living' lofts (Zukin, 1982). Focused on the warehousing district of SoHo (south of Houston Street in Lower Manhattan), Zukin was among the first scholars to critically investigate the emerging loft landscape, highlighting the complex outcomes involved in transforming the former industrial area to a thriving artist district, and later to an upscale residential market[1]. From the outset, artists were the innovators of the emerging loft trend as many in their ranks, most notably Warhol and Pollock, began targeting a growing number of relatively cheap but uniquely large industrial sites for their

[1]According to Jackson (1985: 205) the City of New York had officially condemned SoHo in 1962 as "a commercial slum with no buildings worth saving".

raw and voluminous potential (Pratt, 2012). Described as "the artistic mode of production", the eventual wide-scale appropriation of industrial loft spaces by artists accentuated, but was also contingent upon, wider shifts in local planning policies and the sociopolitical control of the city. In this sense, Zukin (1982: 256) argued that loft reuse was inherently connected to a process of urban social change and a marketable residential style in a number of North American and Western European cities which were "old enough to retain an early industrial architecture and sufficiently diversified to support an expanding middle class" (Zukin, 1982: 256).

The popularity of loft conversions ushered in new appreciation for the heritage value of older industrial buildings and a rising perception of their aesthetic qualities; sentiments that aligned closely with Jane Jacobs' (1961) clarion call for social reform and heritage conservation. The "giant scale" and raw unfinished elements of SoHo's lofts were part of their draw, but so too was an emerging "sense of adventure, an artist's ambience which still clings to living in a loft neighbourhood [and] a modern quest for authenticity" (Zukin, 1982: 67). At once, loft conversions offered (upper-) middle class consumers a direct way of expressing their rejection of the standardization so evident in mass produced commodities of the modern age, and the means to assert their distaste of the social and cultural homogeneity persistent in the serial landscapes of the postwar suburbs. This was also a process inscribed by wide-scale recapitalization of the inner city, especially as corporate actors strategically invested in obsolete buildings with emerging 'rent gaps' (Smith & Williams, 1986). For Zukin, this was an "historic compromise between culture and capital", a practice whereby capital incorporated culture to open up devalorized industrial land markets to more market forces. By the mid-1980s, this rapid recapitalization meant that artists and 'counterculture' urbanites were increasingly displaced as rents inflated beyond their means. In subsequent years, the corporatized loft-living phenomena embodied a relatively novel geography of gentrification operating beyond the traditional patterns of upscaling and displacement established in older working class residential neighbourhoods (Glass, 1964). While converted industrial facilities ostensibly 'cleaned up' the remnants of failed industrialism, these practices merged into a contemporary redevelopment playbook that remade urban space and reproduced conditions of capital growth and accumulation for a select few.

Such pressures and trends, of course, are not endemic to the American Northeast. Beginning in the 1990s, geographers and urban scholars increasingly documented the diffusion of loft living and other forms of post-industrial reuse to cities throughout the Global North (Jackson, 1995; Ley, 1996; Podmore, 1998; Heath, 2001; Bain, 2006; Lloyd, 2006; Shaw, 2006; Hamnett, 2009; Mathews, 2019). Much of this work has focused on the socio-spatial diffusion of the New York experience and its wider implications for the physical transformation and gentrification of de-industrial inner cities around the world. Podmore (1998), for instance, argued that by the early 1990s, the 'SoHo Syndrome', a shorthand for loft living, was well established in reused textile warehouses and other abandoned manufacturing infrastructure across Montreal's fashion district. Here, the SoHo trend, performed and concretized in living lofts, is embodied as social space and an aesthetic disposition that middle class urbanites in other cities use as a form of distinction. Shaw (2006) explored Sydney's encounter with the 'SoHo Syndrome' and in that city too, adaptive reuse and loft development in the core has expanded, in part, from media representations that fetishize the Manhattan lofts as character housing and reproduce the recognizable loft lifestyle. As result, these reused and highly gentrified landscapes are "generalized urbanity that pretend to hark from *elsewhere*", a space of opportunity for Sydney's middle class to live a cosmopolitan and "globally generic fantasy" (Shaw, 2006: 184).

The investigation of loft landscapes has also paved the way for the critical interrogation of industrial adaptive reuse in the rise of the creative and knowledge economy. Since the late 1980s, but especially in the 1990s, the adaptation of industrial sites into multi-use retail, market, and entertainment zones have been central to catalyzing the shift to the service-oriented creative city. The innovative reuse of harbour sites (Hoyle et al., 1988; Defilippis, 1997), rail and shipyards (Hettema & Egberts, 2019), and industrial-heritage districts (Kohn, 2010) are some of the more important examples in this regard. Many post-industrial marketplaces, like New York's South Street Seaport, are key sites of industrial heritage tourism meant to rebrand and revitalize local economies. Urban scholars, however, have repeatedly questioned the socio-political outcomes of these 'disneyfied' landscapes, leisure sites that not only reflect the ambitions of expanding cabals of property owners, developers and politicians, but also highlight the role of reuse in the making of urban 'spectacles' (Boyer, 1992; Hannigan, 1998). Indeed, the renovation of industrial heritage as convivial public stages, settings not for production but for consumption, are argued to belie more pernicious strategies that privatize public space and accelerate gentrification (Ley, 1996; Guinard, 2021).

Lastly, beyond the production of marketplaces, industrial heritage is increasingly adapted, and indeed appropriated, as key sites in the making and meaning of creative industries. Stromberg's (2019) investigation of the reuse of derelict factories and warehouses as 'chic' runways in the global fashion sector points to just how pervasive post-industrial staging has become. As "new temples of postmodern consumption" outmoded industrial settings function in a wider "cultural economy of reuse", where the converted built environment, "as object, as sign and as design", is a central means of marketing and profit-making (Stromberg, 2019: 27).

3. Beyond the Post-Industrial: Adaptive Reuse De-centered

Over the last decade, geographic research has expanded from a relatively narrowed focus on the reuse of industrial sites in large cities and regions in the Global North. Geographic scholarship on the topic has explicitly shifted its gaze to explore the diversity of reuse outside of the mainstream, in underexplored buildings and in the social and spatial 'edges' of the global built environment. In particular, this research terrain now involves critically investigating both the socio-spatial and socio-cultural contexts of reuse. While the former explores the closure and reuse of a diversity of building types like institutional properties and the impacts of reuse in different spaces including smaller-sized cities, non-urban places, and the Global South; the latter expands the conceptual boundaries of reuse to consider hybrid spaces of reuse and their role in renegotiating established meanings of placemaking. I highlight these research directions in turn.

Like their industrial counterparts, redundant institutional properties have been adapted and reused for generations (Schneekloth et al., 1992). Such properties include publicly funded and managed facilities like schools, hospitals, police/fire stations, prisons, military bases, power plants, government offices, and spaces of worship. Over the last decade, a limited but growing field of critical research has explored the contexts of institutional closures and probed the consequences of a wide-range of reuse tactics. A significant and common theme in this research highlights how closures of institutional facilities are connected to complex political-economic shifts and institutional reforms that are often grounded in neoliberal agendas that rolled-out across North American and Western European cities by the 1980s (Gilbert, 1982; Phipps, 1993, 2008; Basu, 2007; Simons & Choi, 2010; Nguyen et al. 2017). Public schools and hospitals, for instance, are among the prime targets of these urban and regional policies that foster, among other things, the

rationalization of public assets and the divestment of public-sector support in favor of entrepreneurial and private market investment. Basu's (2004, 2007) investigation of school closures in Ontario, Canada, for instance, highlights how the supposed 'ideal' neoliberal messages (i.e., efficiency, accountability, and equity of resources) expressed in the austerity policies of the Progressive Conservative government resulted in the shuttering of scores of public schools across the province. In much the same way, costly local and regional hospitals and psychiatric facilities have also been a common target of public austerity measures (Brown, 2003; Clark, 2010; Hossler, 2013; Adams, 2019). By the early 1990s, organizational reforms and the streamlining of the UK's National Health System (NHS) with market principals resulted in hospital closures across the country (Brown, 2003).

In both cases, the sale of public assets in local real estate markets, an increasingly common tactic, has resulted in a mix of reuses with varying results. From a planning perspective, reusing public assets for non-institutional functions such as housing or commercial/retail sites have sparked challenges associated with zoning and land use change. The 'rightsizing' of school districts, including closure, amalgamation, rezoning and conversion of public schools, for instance, is well known to heighten local political tensions and neighbourhood protest (Greenberg et al., 2000; Phipps, 2008; Erickson, 2013; Macmillen & Pinch, 2017). For some local residents, these changes are not only part of the erosion of educational services and access but are also wrapped up in wider feelings of the "loss of place, community and sense of belonging" (Basu, 2007: 110).

While these examples represent rich terrain for understanding post-institutional reuse, much recent work has focused on the phenomenon of converting worship spaces and religious properties to new, often private and secular, purposes (Clarke 1996, 2007; Chambers 2006; Mian 2008; Hackworth & Gullikson, 2013; Mine, 2013; Lynch, 2014, 2016; Chen, 2016; Martin & Bellamingie, 2016). Mainline religious institutions, particularly those in the Global North, have had to contend with aging populations, dwindling participation rates and wider trends of secularization that undermine not only long-term financial health but also the preservation of religious 'missions' and their built assets. With aging historic properties that require extensive financial resources to renovate and maintain, many religious organizations have abandoned or sold their properties in private real-estate markets. Church-flippers, a breed of property investors, entrepreneurs and contractors targeting worship spaces, have increasingly shaped this market through creative adaptations that often accentuate and appropriate religious aesthetics. Worship spaces of all kinds are now routinely remade into a remarkable range of uses from houses to circuses, and cabaret shows to breweries (Bresge, 2018; Merritt, 2018; Singh, 2019). To date, most research on these transformations have focused on the social, cultural and planning impacts of converting churches to premium lofts for the urban elite in global and globalizing cities (Mian 2008; Hackworth & Gullikson, 2013). Similar to but distinct from their industrial predecessors, 'church lofts' are complex spaces where religious (as opposed to industrial) heritage is a vital material and symbolic currency in the housing market (Lynch, 2016). In London's evolving loft landscape, Lynch and Pottie-Sherman (2017) note the expanding interest in church loft developments, from trendy high-income neighbourhoods like Notting Hill to edgy but up-scaling neighbourhoods like East Dulwich and Brixton. Across the city, the adaptive reuse of historic churches, often some of the more significant heritage spaces in central neighbourhoods, point to a relatively novel terrain of the privatization and gentrification of the inner-city. Here, church lofts represent "a process that is both reflecting and producing new values and new approaches to urban living" that exacerbate already existing social, cultural and spatial cleavages (Lynch & Pottie-Sherman, 2017: 181).

It is important to note, however, that the dynamics of contemporary religious practice have also shifted the ways in which some religious communities envisage and reuse the built environment. In this case, scholars in geography and religious studies have commented on the rise of the adaptive reuse of both former worship spaces and non-traditional spaces for religious purposes (Krause 2008; Iron, 2014; Cooper & Goodhew, 2017; Finlayson, 2017; Krishna & Hall, 2019). In immigrant gateway cities like London and Berlin, for instance, religious migrants seeking affordable worship space have increasingly established transnational churches in relatively unconventional places. In northeast London, Krause (2008) documents the sacred place-making strategies of African congregations in some of the city's derelict industrial lands, in storehouses, garages and industrial depots. Converting these properties to suit very different needs is not without its distinct challenges as congregations must contend with complex social, spatial and local relationships, from negotiating their place in an industrial neighbourhood to sharing the interior space with other non-religious users. But perhaps most importantly, this context of reuse highlights what Krause calls an "invisibility of the (transnational) churches in the cityscape", a case that both mirrors and reinforces the marginal status of black minority churches throughout British society (Krause, 2008: 126).

To be sure, processes like these are not exclusive to large cities nor are they limited to post-industrial properties. Krishna and Hall (2019) have explored the case of faith-to-faith conversions of vacant churches in Buffalo (NY), a city that has experienced considerable decline over the last several decades. In recent years, non-Christian faith groups (e.g., Muslim and Buddhist), made up primarily of lower income African American families, migrants and refugees, have increasingly acquired and transformed vacant historic Christian churches in a number of neighbourhoods dealing with acute population loss. The authors consider these cases as "serendipitous conservation", acts of adaptive reuse that not only save heritage buildings from vacancy and demolition but also (serendipitously) result in a revalorization of the built environment and a catalyst for neighbourhood change that support communities in need (Krisha & Hall, 2019: 497).

Overall, these research trajectories reflect a wider movement to decenter geographic research and engage with the "plurality of experiences in the so-called urban age" (Robinson, 2011; Derickson, 2015; Pottie-Sherman, 2019; Pottie-Sherman & Graham, 2019: 5). In smaller cities and rural areas, spaces 'beyond the metropolis' (Bell & Jayne, 2006), outmoded and historically valuable properties of all kinds are being reused in entrepreneurial projects and as placemaking tools for various forms of community, economic and cultural revitalization (Lugosi et al., 2010; Mathews & Picton, 2014; Reid, 2018; Goyvearts & Keere, 2020; Lynch & LeDrew, 2020). Craft breweries, a key trend in the contemporary craft economy, are among the more notable examples. While bespoke breweries continue to spring up in popular beer cities around the world (from Portland to Prague), across smaller villages, towns, and exurbs, craft brewers are adapting historic properties into spaces for creative production- and consumption-scapes. Shuttered industrial, retail and institutional buildings offer low-cost but aesthetically valuable locations for establishing craft products and identities. These are places where brewers can provide "a unique ambiance for the craft beer drinker… [as] craft beer is as much about getting creative with the space the brewery is located in as it is about creating unique beer recipes" (Reid, 2018: 9). This practice also involves establishing "deep connections to local histories" that not only mold heritage properties to serve the craft brewing identity and brand, what Mathews and Picton (2014: 338) describe as "adding consumptive value beyond the pour", but also mobilize these spaces as central vehicles in the revitalization of peripheral downtowns and main streets that have long suffered from economic decline.

The impulse to move research beyond the metropolis is also part of a wider shift in exploring the geographies of adaptive reuse beyond the Global North. While reuse is an historically global practice, critical geographic research has only recently begun to seriously engage with these issues in the rapidly changing contexts of the Global South and East (Woods, 2013; Altrock & Ma, 2014; Yung et al., 2014; Chen et al., 2016; Li et al., 2018; Rezaei et al. 2018; Yoon & Lee, 2019; Zhang et al., 2020). Across much of Asia, for instance, accelerating urbanization and infrastructural development, along with deep societal shifts in response to the complex pressures of globalization, have intensified practices of revitalization and encouraged alternative methods in building design. Beyond a wealth of technical and empirical work focused on reuse in the construction/property sector, urban geographers are exploring how reuse strategies and practices in places like China reveal unique "characteristics and difficulties" (Li et al., 2018). Key here are the ways in which reuse plays out in different urban and regulatory contexts largely defined by the 'strong interference' of state actors and powerful planning institutions that enable some reuse practices and constrain others (Altrock & Ma, 2014).

In addition to these important socio-spatial considerations, geographers are also challenging the conceptual boundaries of adaptive reuse. Here, de-centering involves expanding our understanding of what counts as reuse and engaging in debates about reuse as an 'affective' placemaking practice (Jones & Evans, 2012; Sweeney et al., 2018). While much of the reuse literature and popular planning discourse still largely conceive of adaptive reuse in singular terms, from one application or typology to the next, there is growing acknowledgement of its hybridity, flexibility, and plurality. This wider lens explores a range of mixed (re)uses where different users and uses co-habit, co-manage, or even compete for space. Worship spaces of all kinds, for instance, have commonly operated as educational and recreation centres beyond their religious functions, for both secular and religious communities (Beaumont & Baker, 2011). While not formally recognized as reuse, these plural functions underscore and arguably augment the inherent social complexities of culturally significant built environments. To this point, the conversion of churches and temples in places like Singapore, for instance, highlight an interest in supporting creative uses and ownership structures like multiple occupancy (as opposed to shifting occupancy) or the 'merger' of uses into shared spaces (Dora, 2018; Sinha, 2003; Woods, 2012). In some cases, conversions like these have resulted in 'shared or split governance' arrangements where various secular and religious communities co-exist and co-manage a building to simultaneously sustain religious functions and develop secular community operations, from performance and co-working spaces to social housing (Lynch & LeDrew, 2020; Martin & Bellamingie, 2016).

Beyond a diversity of functional arrangements, these examples also highlight the role of reuse in (re)negotiating established values, meanings, and emotions of places (Davidson et al. 2016). In particular, the transformation of properties with particular social and historic significance are often complex sites of emotional encounter, convergence, and entanglement. For instance, in the closure and amalgamation of 'redundant' hospitals in Montreal, Adams (2019) notes that proposed condominium reuses mar the legacy of these spaces as vital sites and symbols of public value – a privatization that rewrites "the philanthropic and quintessentially public evolution of the hospital". In these, and other examples, adaptive reuse is not merely a practical act but is also a deeply complex process that transforms the experience, meanings, and indeed 'poetics', of space and place.

4. Future Proofing the City: Adaptive Reuse and the Sustainable Built Environment

Contemporary debates and discussions about the merits of adaptive reuse have also converged around issues of sustainability (Bullen, 2007; Bullen & Love, 2010; 2011; Love & Bullen, 2009; Yung & Chan, 2012; Mohamed et al., 2017). As global, but uneven, patterns of urbanization and infrastructural development have intensified, research of all kinds has increasingly identified the built environment as both a central challenge and as a solution to meeting sustainability agendas (Cairns & Jacobs, 2016; Luque-Ayala *et al.* 2018). In terms of the former, geographers and environmental scholars repeatedly point out the significant role that buildings play in terms of energy and materials use throughout their lifecycles. Continual rounds of building construction, renovation and maintenance exact high energy demands both in terms of the upstream production of building components and in their everyday operation; complex processes that are responsible for some 40% of all energy related CO_2 emissions and fossil fuel consumption (Kraftl 2010; Mohamed et al., 2017). At the end of the lifecycle, conventional demolition practices lead to growing amounts of landfilled solid wastes and material discards that are not only notoriously costly to manage as they stress landfill capacities and natural resources, but also compromise community health, safety and wellbeing (Creba & Devlieger, 2019).

Collectively, the built environment is deeply implicated in the global climate crises and challenges related to global resource (in)security. It is perhaps not surprising then that adaptive reuse is presented as a sustainable alternative to orthodox building practices. Though some observers contend that adaptive reuse incurs high operation/maintenance costs and challenges in terms of environmental performance standards (relative to newer building stock), a growing literature increasingly highlights the role of reuse in mitigation and adaptation strategies to tackle pressing environmental issues (Bullen & Love, 2011; Conejos et al., 2016). As the popular sustainability mantra goes, "the greenest building is the one already built" (Elefante, 2007). Following the green building and low-carbon/de-carbonized city agendas (Silver, 2017; Cidell, 2019; Luque-Ayala *et al.* 2018), geographers and building experts point to the positive effects of extending the useful life of buildings, particularly as a means of improving a range of efficiencies (Love & Bullen, 2009). The role of 'embodied energy' is of particular concern as adaptive reuse, in whole or in part, 'locks' carbon in existing buildings while at the same time reduces demand for new and raw materials (Bullen & Love, 2011; Yung & Chang, 2012). The expected benefits of carbon sequestration have since driven novel research on the viability of 'low impact' and even 'net positive' buildings; properties argued to not only reduce emissions but "proactively reverse the negative impacts of development" (Renger et al. 2015: 11).

In terms of social and economic sustainability, adaptive reuse is increasingly incorporated into regional 'rightsizing' and smart growth strategies (Coppola, 2019). Throughout the American Rust Belt, in so-called legacy cities like Detroit and Cleveland, anti-blight and land-banking campaigns incorporate adaptive reuse to manage the reurbanization of core neighbourhoods around key services. This can take the form of vacant land reuse, such as rezoning for community-managed park and green space, and the adaptation and renovation of properties into more economical 'green' buildings (Schilling & Logan, 2008). Beyond the Rust Belt, reuse is also part of land-use containment strategies, often called urban growth boundaries (UGB), popularized in cities like Portland, Vancouver and Melbourne (Jun, 2004; Holden & Scerri, 2013). As greenbelts and UGBs limit suburban and exurban development, regional governments incentivise reuse, often targeting heritage-rich sites, to encourage land-use intensification and density (Yun & Chang, 2012). Such tactics, however, have been debated in larger urban regions like Portland, where some observers claim that containment strategies have contributed to rising real estate prices and affordability issues (Jun, 2006).

Finally, over the last few years, research concerning sustainability and adaptive reuse has taken a 'circular' turn (Kębłowski et al., 2020). Across China, Western Europe and now parts of North America, the Circular Economy (CE) has become a mainstream 'future proofing' agenda argued by its proponents to offer a meaningful pathway to resource efficiency and societal sustainability (EMF, 2015; WEF, 2018). In short, the CE is an agenda that replaces linear approaches to consumer goods (i.e., take-make-waste) with products and assets that are inherently durable and repairable, and available through practices of refurbishment, reuse and disassembly. Of late, CE research and its implementation have prioritized the built environment. In particular, the relatively rapid uptake of the CE, particularly in the Global North, has resulted in normative visions of *circular urbanism* and *circular cities* (EMF, 2017; Prendeville et al., 2018), part of a growing constellation of sustainable urban development models that include smart- and eco-cities. Circular Roadmaps, CE whitepapers, and Circular Cities Networks are now popular tools used by municipalities, governmental agencies and major urban stakeholders to build circularity, legitimize steps for closing resource loops, and for forging future-proofing action agendas across urban activities. A formative part of this strategy involves intervening in the process of urbanization through, for example, promoting sharing/platform economies that optimize building utilization (e.g., AirBnb) (Hobson & Lynch, 2016), enabling digital infrastructure and management to encourage material flows and efficiency (e.g., design for deconstruction) (Creba & Devlieger, 2019), and supporting 'cradle-to-cradle' building renovation and widescale adaptive reuse (Foster, 2020; Foster & Saleh, 2021; Kaya et al. 2021).

In cities like Amsterdam, a global CE leader, adaptive reuse policies are increasingly embedded in novel CE frameworks that position reuse as a driver of the "spatial redevelopment" and preservation of built cultural and heritage assets (Kaya et al. 2021: 2). A key departure here is the reframing of adaptive reuse from a relatively isolated sustainability practice and technique to part of a systematic or "nexus" strategy that not only values but supports a wider transdisciplinary approach to urban sustainability and building adaptation (Foster, 2020).

It is important to note, however, that while the linkages between adaptive reuse and the CE show considerable promise, there remains much ground left to explore. Though the CE has gained tremendous popularity over the last few years, urban and cultural geographers (Gregson et al. 2015; Hobson, 2020; Kębłowski et al. 2020) have pointed to a number of lingering questions in its conceptualization and implementation, including for instance, its tendency to overprivilege technological approaches to the built environment at the expense of wider socio-political issues. For some, the CE aligns too closely with ecological modernist approaches which claim that market mechanisms and the environment "can be effectively and efficiently combined to produce a form of sustainability" (Hobson & Lynch, 2016: 17). In other words, the CE prioritizes the implementation of digital infrastructure and green technology less as a radical intervention and more as an opportunity to 'adapt capitalism' to the new realities of resource scarcity and climate crises (Kębłowski, et al. 2020). As cities adopt the CE agenda, further research will need to not only engage with the practical and technological aspects of reuse, but indeed, critically explore how reuse, reframed and reclassified as 'circular', impacts social, cultural and political aspects of communities and their local citizens.

5. Concluding Reflections

This review examines the contemporary geographic analyses concerning the patterns, processes and socio-politics of adaptive reuse. The trajectory of recent critical research on reuse is largely

built upon decades of rich scholarship in urban geography and environmental studies, fields of work that have explored not only the complex relationships between urban-economic change and the built landscape but also the implications of remaking the obsolete across increasingly diverse cultural, economic and spatial geographies.

Given the mounting pressures of global climate change and resource (in)security, but also the constant demand for places and spaces that are authentic, convivial, and profitable, there is every indication that adaptive reuse will continue in one form or another. Present and future geographic scholarship must then remain attuned to the ongoing and emerging directions in reuse, several of which are worthy of outlining.

First, there is a need for future research to attend to the rising diversity of typologies of building closure and reuse. In this review I have highlighted a constellation of building types that have captured the attention of geographers over the years, from obsolete industrial buildings to abandoned worship spaces. Though comprehensive, this is not an exhaustive list as patterns of reuse (and re-reuse) respond to the ebbs and flows of building closures that result from changing social, political and economic imperatives. Entirely novel spatial typologies, indeed geographies, may emerge as local and regional communities adjust to new (global and local) pressures.

Second, and related, there is a need to fold discussions of adaptive reuse with emerging perspectives on the economically dynamic, pluralistic, but relatively divided city and society. While the growing volumes of technical and design literature push the boundaries of creativity and explore the steps to achieving greater sustainability through adaptive reuse, it remains vital for geographers to investigate critical but pressing socio-spatial questions. What does contemporary adaptive reuse do? Who gets to decide? For whom does reuse work? Such questions necessarily engage not only with the practical and material, but also with the deep social, cultural and political implications of the 21st century city. Historically, the renewal and revitalization of the built environment, including adaptive reuse, have been wielded as tools to reimagine and remake places: some that reflect the identities and values of local communities, and others that operate to reassert control, power and profit for a select few (Abramson, 2016; Lynch & Pottie-Sherman, 2017). Key here then is research that questions the role of reuse in exacerbating the punitive dimensions of community and neighborhood change, including its role in deepening social and spatial inequalities; fueling novel rounds of privatization and gentrification; and, furthering the peripheralization of vulnerable, often neglected, communities.

Finally, and perhaps most urgently, research on the geographies of adaptive reuse should consider the challenges, opportunities and impacts of this practice in times of crises. There is little debate that widescale and systematic reuse of the built environment has followed key moments of upheaval and socio-political change, from deindustrialization to climate change, and now, ostensibly, to the Covid-19 pandemic. To be sure, the pandemic is cataclysmic – a vast and spatially uneven event that continues to transform society (Bailey et al. 2020). Though the actual consequences of the pandemic will not be fully realized for some time, a number of recent accounts point out that adaptive changes to cities and towns and their infrastructure are vital (Bereitschaft & Scheller, 2020; Bailey et al. 2020; Coucleis, 2020). At the forefront of the debate are concerns over density and the spatial organization of the city. In the last few decades, the 'back to the city' and New Urbanist movements have placed an emphasis on live-work-play lifestyles which flourish in walkable, accessible and service-rich neighbourhoods. The needs for social distancing and the risks of disease transmission have, almost overnight, flipped the script. Discussions in urban design and development now, for the time being at least, center on the possibilities of counter-urbanization, de-densification and the expansion of functional urban public space. What then does

this mean for adaptive reuse? In the short term, adaptive reuses will likely need to re-engineer and incorporate safety that follow, among other things, social distance protocols – clear cost and structural challenges. In the longer term, given the number of building closures (i.e., sales, evictions, abandonments) and the costs of new construction, it is likely that older outmoded buildings, especially those connected to retail and hospitality sectors, will be targets for reuse. If trends in suburban and exurban 'flight' continue, it is possible that reuse will accelerate outside of urban centres and thus transform communities in the periphery.

While significant, I believe a more pressing question lies beyond these issues, namely, how might adaptive reuse play a more pivotal role in supporting local communities in need? At the forefront are new cases of reuse that make way for social enterprise and neighborhood development, projects that are re-making shuttered buildings into spaces for community engagement, learning, and affordable housing (Lynch and LeDrew, 2020; National Trust for Canada, 2020). More recently, adaptive reuse has also become part of a response to the Covid-19 crises as closed malls and theatres are being redeployed for pandemic related vaccine campaigns and community health functions (Kavilanz, 2021; Patino, 2021). Though temporary, these openings are vital examples of how reuse can operate to better serve and reflect local communities on which they depend. Now and into the future, geographic research will be needed to explore what these new opportunities, contexts and geographies mean for the future of reuse.

References

Altrock, U., & Ma, H. (2014). Regeneration of derelict industrial sites in Guangzhou and Shenzhen. In U. Altrock, & S. Schoon (Eds.). *Maturing megacities: The Pearl River Delta in progressive transformation* (pp. 191–220). Dordrecht: Springer.

Abramson, D. (2016). *Obsolescence: An architectural history.* Chicago: The University of Chicago Press.

Adams, A., (2019) Demolish or Reuse?: Learning from the Montreal Children's Hospital, *ARQ: Architecture & Design Quebec,* 189*,* 24.

Bailey, D., Clark, J., Colombelli, A., Corradini, C., De Propris, L., Derudder, B., et al. (2020). Regions in a time of pandemic. *Regional Studies*, *54*(9), 1163–1174.

Bain, A. L. (2006). Resisting the creation of forgotten places: artistic production in Toronto neighbourhoods. *The Canadian Geographer, 50*(4), 417-431

Basu, R. (2004). The rationalization of neoliberalism in Ontario's public education system, 1995–2000. *Geoforum* 35.5, 621– 34.

Basu, R. (2007). Negotiating Acts of Citizenship in an Era of Neoliberal Reform: The Game of School Closures. *International Journal of Urban and Regional Research*, *31*(1), 109–127.

Beaumont J., & Baker, C. (2011) *Postsecular Cities*. London: Continuum.

Bell, D. and Jayne, M. (eds.). (2006). *Small cities: urban life beyond the metropolis*. London: Routledge.

Bereitschaft, B., & Scheller, D. (2020). How Might the COVID-19 Pandemic Affect 21st Century Urban Design, Planning, and Development? *Urban Science*, *4* (4), 56.

Boyer, C., (1992). Cities for Sale: Merchandising History at South Street Seaport, in Sorkin, M., (ed.) *Variations on a Theme Park: The New American City and the End of Public Space*, New York: Hill & Wang.

Bresge, A. (2018, August 19). Canadian churches are being converted into cabarets, record stores and more. *Huffington Post*. https://www.huffingtonpost.ca/2018/08/19/church-flipping-revival- stratford_a_23505035/

Brown, T. (2003). Towards an understanding of local protest: hospital closure and community resistance. *Social & Cultural Geography*, *4*(4), 489–506.

Bullen, P. A. (2007). Adaptive reuse and sustainability of commercial buildings. *Facilities*, *25*(1/2), 20–31.

Bullen, P. A., & Love, P. (2010). The rhetoric of adaptive reuse or reality of demolition: Views from the field. *Cities*, *27*(4), 215–224.

Bullen, P. A., & Love, P. (2011). Factors influencing the adaptive re-use of buildings. *Journal of Engineering, Design and Technology*, *9*(1), 32–46.

Cairns, S. & Jacobs, J. (2014). *Buildings must die: A perverse view of architecture*. Cambridge, Mass: MIT Press.

Chambers, P. (2006). Sacred landscapes, redundant chapels and carpet warehouses: The religious heritage of South West Wales. In W. Keenan & E. Arwek (Eds.), Materializing religion: Expression performance, ritual (pp. 21–32). London: Routledge.

Chen, J., Judd, B., & Hawken, S. (2016). Adaptive reuse of industrial heritage for cultural purposes in Beijing, Shanghai and Chongqing. *Structural Survey*, 34(4/5), 331–350.

Chen, N. (2016). Secularization, sacralization and the reproduction of sacred space: Exploring the industrial use of ancestral temples in rural Wenzhou, China. *Social & Cultural Geography*, 18(4), 530-552.

Cidell, J. (2009). Building green: The emerging geography of LEED-certified buildings and professionals. *The Professional Geographer*, *61*(2), 200-215.

Clark, C. M., (2010). Reuse of Historic Naval Hospitals, in Brebbia, C., Hernandez, S., and Tiezzi, E., (eds.), *The Sustainable City VI: Urban Regeneration and Sustainability,* Wessex, UK: WIT Press. 457-470.

Clark, J. (1996). The Impact of Church Closure on Australian Popular Culture. *Journal of Popular Culture*, 147–163.

Clark, J. (2007). This special shell: The church building and the embodiment of memory. *Journal of Religious History*, 30(1), 59–77

Couclelis, H. (2020). There will be no Post-COVID city. *Environment and Planning B: Urban Analytics and City Science*, *47*(7), 1121-1123.

Cole, D. 1987. Artists and Urban Redevelopment. *Geographical Review*, 77(4):391–407.

Conejos, S., Langston, C., Chan, E. H. W., & Chew, M. Y. L. (2016). Governance of heritage buildings: Australian regulatory barriers to adaptive reuse. *Building Research & Information, 44*(5-6), 507–519.

Coppola, A. (2019). Projects of becoming in a right-sizing shrinking City. *Urban Geography*, *40*(2), 237-256.

Cooper, A. P., & Goodhew, D. (2017). 'Resacralising' secular space: new churches in a northern city, 1980–2012. *Journal of Contemporary Religion*, *32*(3), 495-511.

Creba, A., & Devlieger, L. (2019). Deconstructing Research: A Reverse-Engineering Methodology and Practice. *Architectural Design*, *89*(3), 96–101.

Davidson, J., Bondi, L. and Smith, M. (2016). *Emotional geographies*. Abingdon, UK: Routledge.

Defilippis, J. (1997). From a public re-creation to private recreation: The transformation of public space in South Street Seaport. *Journal of Urban Affairs*, *19*(4), 405-417.

Derickson, K. D. 2015. Urban geography I: Locating Urban Theory in the 'Urban Age'. *Progress in Human Geography* 39 (5): 647-657.

Dora, V. della. (2018). Infrasecular geographies: Making, unmaking and remaking sacred space. *Progress in Human Geography*, *42*(1), 44–71.

Douglas, J. (2006), *Building Adaptation*, London: Butterworth-Heinemann.

Elefante, C. (2012). The greenest building is... one that is already built. *Forum Journal*, 27 (1): 62-72.

EMF (Ellen MacArthur Foundation). (2015). *Growth Within: A Circular Economy Vision for a competitive Europe*, online: www.ellenmacarthurfoundation.org/assets/downloads/publications/EllenMacArthurFoundation_Growth-Within_July15.pdf

EMF (Ellen MacArthur Foundation). (2017). *Cities in the Circular Economy: An Initial Exploration*, online: www.ellenmacarthurfoundation.org/assets/downloads/publications/Cities-in-the-CE_An-Initial-Exploration.pdf

Erickson, A. (2013). After the School Closings, the Real Estate Mess, *Bloomberg CityLab*, online: https://www.bloomberg.com/news/articles/2013-04-08/after-the-school-closings-the-real-estate-mess.

Finlayson, C. (2017). Church-in-a-box: making space sacred in a non-traditional setting. *Journal of Cultural Geography*, *34*(3), 303–323.

Foster, G. (2020). Circular economy strategies for adaptive reuse of cultural heritage buildings to reduce environmental impacts. *Resources, Conservation & Recycling*, *152*, 104507.

Foster, G., & Saleh, R. (2021). The Adaptive Reuse of Cultural Heritage in European Circular City Plans: A Systematic Review. *Sustainability*, *13*, 1–15. http://doi.org/10.3390/su13052889

Gilbert, S. (1982). Adaptive re-use of public-school buildings: the community/school concept. *Journal of Law and Education*, 11(3), 361–84.

Glass, R. (1964). *London: Aspects of Change*. London: McGibbon and Kee.

Greenberg M, Lowrie K, Solitare L, Duncan L. (2000). Brownfields, toads, and the struggle for neighborhood redevelopment—a case study of the state of New Jersey. *Urban Affairs Review*, 35(5), 717–33.

Gregson, N., Crang, M., Fuller, S., & Holmes, H. (2015). Interrogating the circular economy: the moral economy of resource recovery in the EU. *Economy and Society*, *44*(2), 218–243.

Goss, J. (1988). The Built Environment and Social Theory: Towards an Architectural Geography. *The Professional Geographer*, *40*(4), 392–403.

Goyvaerts, S., & Keere, N. V. (2020). Liturgy and Landscape—Re-Activating Christian Funeral Rites through Adaptive Reuse of a Rural Church and Its Surroundings as a Columbarium and Urn Cemetery. *Religions*, *11*(8), 407.

Guinand, S. (2020). Re-arranging public-private partnerships: The case of South Street Seaport New York. *Journal of Urban Affairs*, 1-17.

Hackworth, J., & Gullikson, E. (2013). Giving new meaning to religious conversion: Churches, redevelopment, and secularization in Toronto. The Canadian Geographer, 57(1), 72–89.

Hannigan, J. (1998). *Fantasy city: pleasure and profit in the postmodern metropolis*. London and New York: Routledge.

Hamnett, C. (2009). City Centre Gentrification: Loft Conversions in London's City Fringe. *Urban Policy and Research*, *27*(3), 277–287.

Harvey, D. (1989). *The Urban Experience*, Baltimore: Johns Hopkins University Press.

Heath, T. (2001). Adaptive re-use of offices for residential use: the experiences of London and Toronto. *Cities*, *18*(3), 173-184.

Hettema, J., & Egberts, L. (2019). Designing with maritime heritage: adaptive re-use of small-scale shipyards in northwest Europe. *Journal of Cultural Heritage Management and Sustainable Development*, *10*(2), 130-142.

Hobson, K. (2020). From circular consumers to carriers of (unsustainable) practices: socio-spatial transformations in the Circular City. *Urban Geography*, *41*(6), 907–910.

Hobson, K., & Lynch, N. (2016). Diversifying and de-growing the circular economy: Radical social transformation in a resource-scarce world. *Futures*, *82*, 15–25.

Holden, M., & Scerri, A. (2013). More than this: Liveable Melbourne meets liveable Vancouver. *Cities*, *31*, 444-453.

Horton, J. & Kraftl, P. (2014). Cultural Geographies: An Introduction, Abingdon UK: Routledge.

Hossler, P. (2013). The privatization of the Milwaukee Clinical Campus: A case (study) for geographic approaches to medical services. *Geoforum*, *49*, 81-90.

Hoyle, B., Pinder, D., and Husain, M. 1988. *Revitalising the waterfront: international dimensions of dockland redevelopment*. Toronto: Belhaven Press.

Iron, C. (2014). Religion to Religion: A Case Study for the Adaptive Reuse of Church Buildings by Non-Christian Religious Groups in Ontario, Canada. In Sauvé, J. and T. Coomans, (eds.) *Le Devenir Des Eglises: Patrimonialisation Ou Disparition*, Quebec City: Presses de l'Universite du Quebec. 93–114.

Jackson, P. (1985). Neighbourhood change in New York: the loft conversion process, *Tijdschrift voor Economische en Sociale Geografie,* 76, 202– 215.

Jackson, P. (1995). Manufacturing meaning: culture, capital and urban change. In Rogers, A. and Vertovec, S., (eds.), *The Urban Context: Ethnicity, Social Networks and Situational Analysis*. New York: Berg Publishers Limited, pp. 165-188.

Jacobs, J. (1961). *The Death and Life of Great American Cities*, New York: Vintage.

Jacobs, J. M. (2006). A geography of big things. *Cultural geographies*, *13*(1), 1-27.

Jones, P., & Evans, J. (2012). Rescue Geography: Place Making, Affect and Regeneration. *Urban Studies*, *49*(11), 2315–2330.

Jun, M. J. (2004). The effects of Portland's urban growth boundary on urban development patterns and commuting. *Urban Studies*, *41*(7), 1333-1348.

Jun, M. J. (2006). The effects of Portland's urban growth boundary on housing prices. *Journal of the American Planning Association*, *72*(2), 239-243.

Kavilanz, P., (2021). Vaccination megasites pop up in empty malls, CNN, Jan 15, online: https://www.cnn.com/2021/01/15/business/malls-vaccination-sites/index.html

Kaya, D. I., Dane, G., Pintossi, N., & Koot, C. A. M. (2021). Subjective circularity performance analysis of adaptive heritage reuse practices in the Netherlands. *Sustainable Cities and Society*, *70*, 102869. http://doi.org/10.1016/j.scs.2021.102869

Kębłowski, W., Lambert, D., & Bassens, D. (2020). Circular economy and the city: an urban political economy agenda. *Culture and Organization*, *26*(2), 142–158.

Knox, P. (1987). The social production of the built environment architects, architecture and the post-modern city. *Progress in human geography*, *11*(3), 354-377.

Kohn, M. (2010). Toronto's Distillery District: Consumption and Nostalgia in a Post-Industrial Landscape. *Globalizations*, 7(3):359–369.

Kraftl, P. (2010). Geographies of Architecture: The Multiple Lives of Buildings. *Geography Compass*, *4*(5), 402–415.

Krause, K. (2008). Spiritual Spaces in Post-Industrial Places: Transnational Churches in North East London 1. In Smith, M.P. Eade, J., (eds.), *Transnational Ties* (1st ed., pp. 109–130). London: Routledge.

Krishna, A., & Hall, E. (2019). Serendipitous conservation: faith-to-faith conversion of historic churches in Buffalo. *Journal of Urbanism: International Research on Placemaking and Urban Sustainability*, *12*(4), 496–521.

Ley, D. (1996). *The New Middle Class and the Remaking of the Central City,* Oxford: Oxford University Press.

Li, Y., Chen, X., Tang, B. S., & Wong, S. W. (2018). From project to policy: Adaptive reuse and urban industrial land restructuring in Guangzhou City, China. *Cities*, *82*, 68-76.

Lloyd, R. (2010). *Neo-bohemia: Art and commerce in the postindustrial city*. Routledge.

Love, P., & Bullen, P. A. (2009). Toward the sustainable adaptation of existing facilities. *Facilities*. 27(9/10), 357-367.

Lugosi, P., Bell, D., & Lugosi, K. (2010). Hospitality, culture and regeneration: Urban decay, entrepreneurship and the 'ruin' bars of Budapest. *Urban Studies*, *47*(14), 3079-3101

Luque-Ayala, A., Marvin, S., & Bulkeley, H. (eds.). (2018). *Rethinking urban transitions: politics in the low carbon city*. London: Routledge.

Lynch, N. (2014). Divine living: Marketing and selling churches as lofts in Toronto, Canada. Housing, Theory and Society, 31(2), 192–212.

Lynch, N. (2016). Domesticating the church: The reuse of urban churches as loft living in the post-secular city. Social & Cultural Geography, 17(7), 849–870.

Lynch, N., & LeDrew, R. (2020). Adaptations on the edge: post-secular placemaking and the adaptive reuse of worship spaces in Newfoundland. *Social and Cultural Geography*, 1–21. https://doi.org/10.1080/14649365.2020.1737961

Lynch, N. & Pottie-Sherman, Y. (2017). Urban spatialities beyond gentrification and gated communities. In Bain, A. & Peake, L. (eds.) *Urbanization in a Global Context: A Canadian Perspective*. Toronto: Oxford University Press Canada.

Mathews, V. (2019). Lofts in translation: Gentrification in the Warehouse District, Regina, Saskatchewan. *The Canadian Geographer/Le Géographe canadien*, *63*(2), 284-296.

Mathews, V., & Picton, R. M. (2014). Intoxifying gentrification: brew pubs and the geography of post-industrial heritage. *Urban Geography*, *35*(3), 337–356.

Martin, G., & Ballamingie, P. (2016). Faith missions and church redevelopment in Ottawa, Ontario. *Canadian Journal of Urban Research*, 25(1), 80–87.

Mcmillen, J., & Pinch, T. (2018). Saving Schools: Vacancy, Ruin, and Adaptive Reuse in Detroit. In Kurath, M., Marskamp, M., Paulos, J., and Ruegg, J., (eds.) *Relational Planning: Tracing Artefacts, Agency and Practices*, London: Palgrave MacMillan.

Meinig, D., (1979). (ed). *The Interpretation of Ordinary Landscapes: Geographical Essays*, New York: Oxford University Press.

Merritt, J. (2018). America's epidemic of empty churches. *The Atlantic*. Nov. 25, https://www.theatlantic.com/ideas/archive/2018/11/what-should-america-do-its-empty-church-buildings/576592/

Mian, N. (2008). "Prophets-for-profits": Redevelopment and the altering urban religious landscape. Urban Studies, 45(10), 2143–2161.

Mine, T. 2013. Adaptive Re-Use of Monuments: Restoring Religious Buildings with Different Uses. *Journal of Cultural Heritage,* 14 (3), S14–19.

Mohamed, R., Boyle, R., Yang, A. Y., & Tangari, J. (2017). Adaptive reuse: a review and analysis of its relationship to the 3 Es of sustainability. *Facilities*, *35*(3/4), 138–154.

National Trust for Canada, (2020). Making Reuse the New Normal: Accelerating the Reuse and Retrofit of Canada's Built Environment, Nov. 5. Online: https://regenerationworks.ca/wp-content/uploads/2020/12/E_Making-Reuse-the-New-Normal-Report-FINALV2.pdf

Neumann, T. 2016. *Remaking the Rust Belt: The postindustrial transformation of North America*, Philadelphia: University of Pennsylvania Press.

Nguyen, N., Cohen, D., & Huff, A. (2017). Catching the bus: A call for critical geographies of education. *Geography Compass*, 11(8), e12323–13.

O'Sullivan, F. (2016, September 29). The strange saga of London's Battersea power station, where pigs once flew. Atlantic Cities. https://www.citylab.com/life/2016/09/londons-recent-past-collides -in-apples-new-uk-headquarters/502037/.

Patino, M. 2021. The Architecture of Mass Vaccine Distribution, *Bloomberg CityLab,* online: https://www.bloomberg.com/news/features/2021-01-22/the-architecture-of-covid-vaccine-distribution.

Phipps, A. (1993). An institutional analysis of public-school closings in Saskatoon and Windsor. *Environment and Planning A*, 25, 1607–26.

Phipps, A. (2008). Reuses of closed schools in Windsor, Ontario. *Socio-Economic Planning Sciences*, *42*(1), 18–30.

Podmore, J. (1998). (Re)Reading the "Loft Living" Habitus in Montréal's Inner City. *International Journal of Urban and Regional Research*, *22*(2), 283–302.

Pottie-Sherman, Y. (2019). Rust and reinvention: Im/migration and urban change in the American Rust Belt. *Geography Compass*, *14*(3), e12482.

Pottie-Sherman, Y., & Graham, N. (2020). Live, Work, and Stay? Geographies of Immigrant Receptivity in Atlantic Canada's Aspiring Gateways. *Geographical Review*, 1–37. doi.org/10.1080/00167428.2020.1804301

Pratt, A. (2012). 'Factory, studio, loft: there goes the neighbourhood?', in Baum, M. and Christiaanse, K. (eds) *City as Loft: Adaptive Reuse as a Resource for Sustainable Development*, Zurich: gta Verlag, 25–31.

Pratt, A. (2018). Gentrification, Artists and The Cultural Economy, in Lees, L., & Phillips, M. (eds). *Handbook of gentrification studies*. Cheltenham UK: Edward Elgar Publishing. 346-62.

Prendeville, S., Cherim, E., & Bocken, N. (2017). Circular Cities: Mapping Six Cities in Transition. *Environmental Innovation and Societal Transitions*, 26, 171–194.

Reid, N. (2018). 'Craft breweries, adaptive reuse and neighbourhood revitalization', *Urban Development Issues,* 57, 2018, 5-14.

Renger, B. C., Birkeland, J. L., & Midmore, D. J. (2015). Net-positive building carbon sequestration. *Building Research & Information*, *43*(1), 11-24.

Rezaei, N., Rasouli, M., & Azhdari, B. (2018). The attitude of the local community to the impact of building reuse: Three cases in an Old Neighborhood of Tehran. *Heritage & Society*, *11*(2), 105-125.

Robinson, J. (2011). Cities in a world of cities: The comparative gesture. *International journal of urban and regional research*, 35(1), 1-23.

Schilling, J., & Logan, J. (2008). Greening the rust belt: A green infrastructure model for right sizing America's shrinking cities. *Journal of the American Planning Association*, *74*(4), 451-466.

Schneekloth, L. H., Feuerstein, M. F., & Campagna, B. A. (Eds.). (1992). *Changing places: Remaking institutional buildings*. New York: White Pine Press.

Sharpe, S. (2012). Revitalizing Cities: Adaptive Reuse of Historic Structures. *Mid-America College Art Association Conference 2012 Digital Publications*. Paper 18. online: http://digitalcommons.wayne.edu/macaa2012scholarship/18

Shaw, W. S. (2006). Sydney's SoHo Syndrome? Loft living in the urbane city. *Cultural Geographies*, 13(2), 182–206.

Simons, R., & Choi, E. (2010). Adaptive Reuse of Religious Buildings and Schools in the US: Determinants of Project Outcomes. *International Real Estate Review*, *13*(1), 79–108.

Silver, J. (2017). The climate crisis, carbon capital and urbanisation: an urban political ecology of low-carbon restructuring in Mbale, *Environment and Planning A*, 33 (4), 1477-1499.

Singh, G. (2019). 'Updating the social contract around historic places of faith', *Municipal World,* 129(5), pp. 5-8.

Sinha, V. (2003). Merging 'different' sacred spaces: Enabling religious encounters through pragmatic utilisation of space?. *Contributions to Indian Sociology*, *37*(3), 459-494.

Smith, N., & Williams, P., (eds) (1986). Gentrification of the City, New York: Routledge.

Stromberg, P. (2019). Industrial Chic: Fashion Shows in Readymade Spaces*, Fashion Theory*, 23(1), 25-56.

Sweeney, J., Mee, K., McGuirk, P., & Ruming, K. (2018). Assembling placemaking: Making and remaking place in a regenerating city. *Cultural Geographies*, *25*(4), 571–587.

Tuan, Y.F. (1974). *Topophilia: A study of environmental perception, attitudes and values*. London: Prentice Hall.

Wong, L. (2016). *Adaptive reuse: extending the lives of buildings*. Basel: Birkhäuser.

WEF (World Economic Forum). (2018). Circular Economy in Cities: Evolving the model for a sustainable urban future. http://www3.weforum.org/docs/White_paper_Circular_Economy_in_Cities_report_2018.pdf

Woods, O. (2012). The geographies of religious conversion. *Progress in Human Geography*, *36*(4), 440-456.

Woods, O. (2013). Converting houses into churches: the mobility, fission, and sacred networks of evangelical house churches in Sri Lanka, *Environment and Planning A,* 31(6), 1–14.

Yoon, J., & Lee, J. (2019). Adaptive Reuse of Apartments as Heritage Assets in the Seoul Station Urban Regeneration Area. *Sustainability*, *11*(11), 3124.

Yung, E. H., & Chan, E. H. (2012). Implementation challenges to the adaptive reuse of heritage buildings: Towards the goals of sustainable, low carbon cities. *Habitat International*, *36*(3), 352-361.

Yung, E. H., Chan, E. H., & Xu, Y. (2014). Community-initiated adaptive reuse of historic buildings and sustainable development in the inner city of Shanghai. *Journal of Urban Planning and Development*, 140(3), 05014003.

Zhang, X., van Gorp, B., & Renes, H., (2020). Beer as Cultural Lubricant: Brewing Tsingtao, Regenerating Qingdao, in Wise, N. & Jimura, T., (eds.) *Tourism, Cultural Heritage, and Urban Regeneration*, Springer: Switzerland AG.

Zukin, S. (1982). *Loft living: Culture and capital in urban change*. New Jersey: Rutgers University Press.