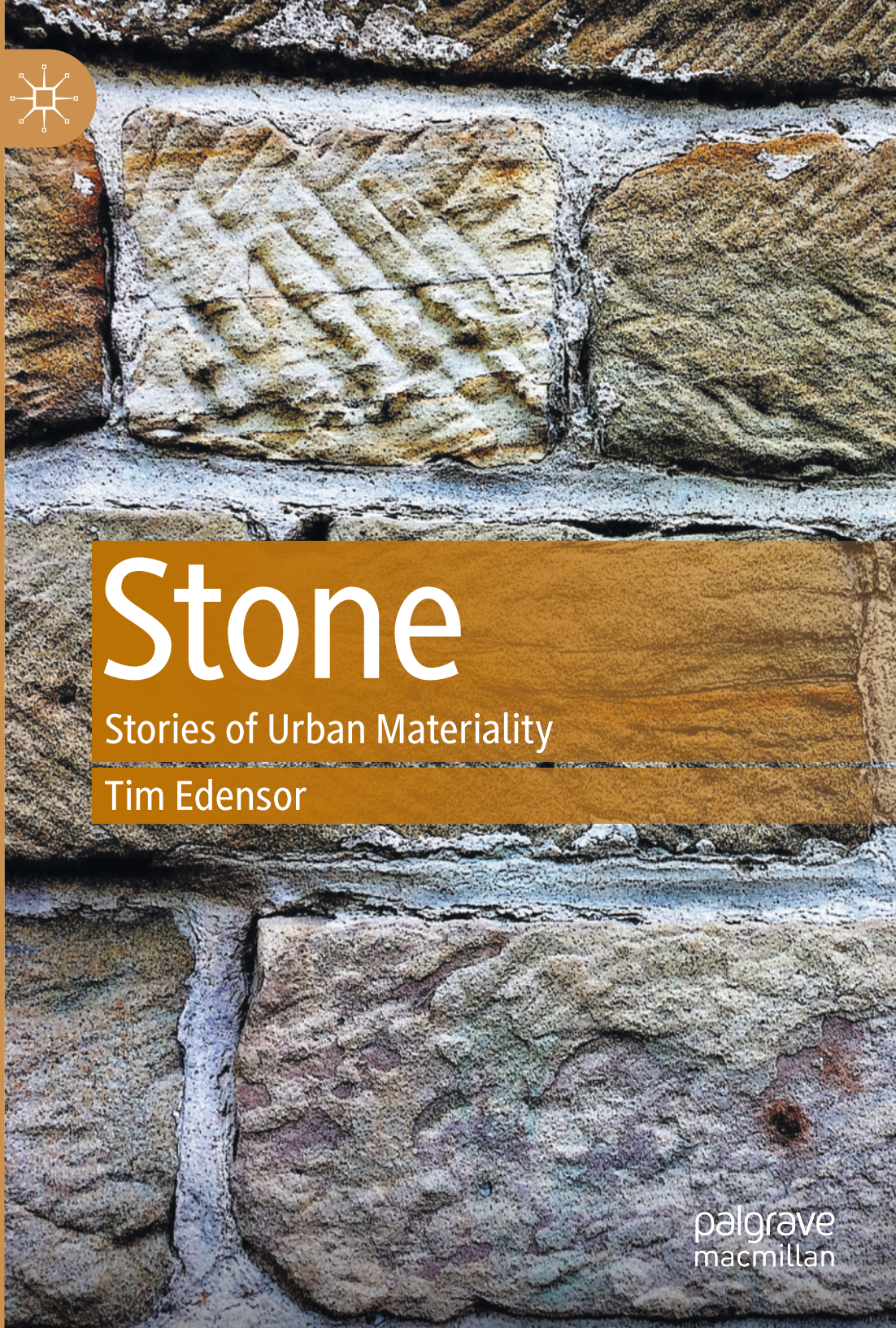
Stone
Stories of Urban Materiality
Tim Edensor
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My fascination with stone started at Manchester Metropolitan University following a discussion with colleague and friend, Ian Drew. Upon arriving in Melbourne in late 2017, I was immediately drawn to the deep dark textures of the solid, prominent bluestone, the local basalt that pervaded the built environment of the city. Since then, I have hugely enjoyed a voyage into Melbourne's stony fabric, an adventure that has taken me to many parts of the city and beyond and introduced me to a great variety of fascinating people. I have come to love Melbourne, and in many ways, this book is a love letter to the city. As with all research projects, a book could never have emerged without the friendship, help and support of a great many people.

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It has been a blast.

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Part I

Cliff

Amidst the dense groups of high towers, retail outlets and office blocks of the city centre, a short, rather obscure laneway runs off at right angles from a wide, major thoroughfare. At the end of the narrow asphalt lane, hemmed in by brick walls, a left turn leads into a cul-de-sac. On one side is the car park of a vertiginous office block; on the other, a lower wall festooned with street art. Some ten metres above the end of the lane, bridging the two sides, is a small ramshackle storage hut. It is what lies below this rickety structure that surprises.

For there is a rugged cliff bedded within strata of mudstones, siltstones, shale and sandstone, slanted at an angle of 20°: a startling remnant of the pre-colonial land upon which the settler colonial city of Melbourne has been built. Somehow it has escaped the designs of the planners and the ravages of the bulldozer.

This remnant cliff must have been connected to a larger expanse of stone that has been erased, its layered surface testifying to the marine deposition of different sediments in the Silurian era, over 400 million years ago, and to the later earth movements that tilted the subsequently solidified stony mass off its original axis. This singular relic summons

up a topography that has been irredeemably amended, with hills levelled, swamps drained, rivers diverted and vegetation stripped. Grasslands and wetlands that had been carefully stewarded over millennia have been repeatedly paved over, built upon, excavated and dynamited into oblivion by urban compulsions to build and rebuild, leaving no surface unscathed. Yet the cliff intervenes in the ongoing frenzy of planning, construction and demolition, for it helps us to imagine the grassy, muddy, rocky landscape that was here less than 200 years ago and connects us to what still lies beneath the city. It has a sensory charge that provokes an assessment about whether it could be climbed, inviting closer tactile inspection of its rough, loose, crumbling surface. Perhaps the stony realm of which the cliff was part held a symbolic significance for the Wurundjeri people who lived, worked and travelled through these fertile lands. It would have been part of a landscape that they sensed and knew intimately.

Across the city and beyond, the stone upon which Melbourne is founded has been hewn away, levelled, shifted or quarried for building. Yet another, less prominent stony vestige of this obliterated landscape lies a kilometre away on the river, where several surviving bluestone blocks are submerged under water. Before the arrival of Europeans, a small waterfall broke the Yarra's flow where a series of stones provided a convenient crossing point that served as an important Aboriginal meeting site. A juncture at which fresh water met sea water, it also provided an important source of food harvested from both salt and fresh waters; eels, crayfish, migrating fish and mussels. Following colonisation, this line of stones was perceived as an impediment to European desires to deepen the river and thereby extend access to the numerous ships that were sailing into the newly founded port. They dispossessed the traditional owners of this land and in 1883, dynamited the falls. This altered the ecology of the river, reducing its potential as a source of food, creating rapid erosion and extending the stretch of salt water 15 km upstream. Six years later, the Queens Bridge was built to reinstate the river crossing. Adjacent to the bridge are the vestigial bluestone blocks.

Fig. 1 Cliff in city centre

1

Thinking About Urban Materiality

A Cottage Built of Yorkshire Stone

I am walking through Fitzroy Gardens, Melbourne's oldest park, on a scorching late November day in 2016. Recently arrived in the city, I am seeking some respite from the blazing sun in the thick shade cast by the dense foliage of venerable oaks and elms. As I wander towards the park's Southern edge, there is a bewildering sight. Nestling amidst the trees, a privet hedge encloses a country garden behind what appears to be an English cottage. A stone stable and outbuilding are appended either side of a brick dwelling, all roofed with red pantiles. A British Union flag flutters from the roof. This is Cook's Cottage (Fig. 1.1).

This rustic home, formerly sited in the village of Great Ayton on the edge of the North Yorkshire Moors, was built by the father of James Cook, the navigator who it has been claimed, 'discovered' Australia. Wealthy entrepreneur W. Russell Grimwade purchased the cottage in 1934 and arranged for it to be disassembled piece by piece, packed into 249 cases and 40 barrels, shipped to Melbourne and reassembled. He considered that it would stand as a memorial to Captain Cook, who claimed the east coast of Australia for the British Crown before the subsequent colonisation of the country.

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Fig. 1.1 Cook's Cottage, Fitzroy Gardens

This origin myth of Cook is sedimented in monuments, history books and heritage sites across the nation. Yet though revered throughout most of the time it has been present in Fitzroy Gardens, regarded as an iconic site of national pilgrimage, the cottage is increasingly controversial and contested. Cook initiated Australia's colonisation and the frequently genocidal displacement of the original inhabitants, and the cottage has more recently served as a site of Aboriginal protest. On Australia Day in 2014, the walls were daubed with the slogan, '26th JAN AUSTRALIA'S SHAME!!!'

The cottage's building materials disclose that it is the oldest European building in Melbourne. The aged quality of the stone is signified by the roughly chiselled pattern wrought by diagonal furrows, some deeply scored, others shallower (Fig. 1.2). Dressed and assembled by eighteenth-century quarrymen and stonemasons who toiled without modern mechanised tools, building the cottage would have been tough work. Its venerable textures conjure up the leathery hands of the wiry bodies that

Fig. 1.2 Worked stone, Cook's Cottage, Fitzroy Gardens

inscribed the grooves, slapped on the grainy mortar with trowel and checked that bricks and stones were appropriately aligned. The long-dead inhabitants of the cottage are also summoned up by the doorstep's gentle depression, forged by their numberless footsteps.

I visited the small settlement of Great Ayton early the next year. Roadside signs that greet the motorist refer to Great Ayton as the 'Boyhood Home of Captain Cook'. On the village green stands a statue of the

young Cook, and information boards entreat tourists to undertake 'The Captain Cook Trail' that connects the village with the towns of Marton, Whitby and Staithes. The removal of the cottage created a vacant space and the site is now occupied by a tiny park, with a low surrounding wall that contains a lawn. In the middle, there rises a 13-foot-high stone monument erected on a wide plinth. This obelisk was shipped from Melbourne where it had been fashioned by stonemasons, and an inscription reads:

> LIEUTENANT JAMES COOK OF THE ENDEAVOUR, RN, FIRST SIGHTED AUSTRALIA NEAR THIS POINT, WHICH HE NAMED POINT HICKS AFTER LIEUTENANT ZACHARY HICKS WHO FIRST SAW THE LAND APRIL 19TH (SHIP'S LOG DATE), APRIL 20TH (CALENDAR DATE) 1770

Further down, at the base of the monument is another brass plaque inscribed with the following details:

> THIS MONUMENT IS MADE OF STONE HEWN FROM THE ROCKS OF CAPE EVERARD CLOSE TO POINT HICKS VICTORIA AND IS A FACSIMILE OF THE MONUMENT ERECTED THERE. IT MARKS THE SITE OF CAPTAIN COOK'S COTTAGE REMOVED TO MELBOURNE IN VICTORIA'S CENTENARY YEAR 1934. PRESENTED BY W. RUSSELL GRIMWADE

Melbourne got the cottage; Great Ayton received a granite obelisk. An extraordinary stony transaction.

The ironstone, a form of soft, pliable sandstone used for Cook's Cottage was sourced from one of the several quarries that lie to the northeast of the village on the high land that surrounds a prominent conical hill, Roseberry Topping. Following their shaping into blocks, the stones would have been loaded onto a horse cart and transported to the building site. Yet the first quarry I came across when searching for this site was a much larger void located at a National Trust site, Cliff Ridge Wood. This quarry was a source of whinstone, a very hard dolerite, akin to basalt, that constitutes the thin band of igneous rock of the Great Whin Sill

that stretches for 40 miles across North-East England. The nineteenth-century quarry supplied whinstone to the growing industrial metropolis of Leeds to serve as the setts for its cobbled streets and a narrow-gauge railway adjacent to the quarry was constructed to transport the material.

It was while wandering though the green moorland that surrounds Great Ayton that I first considered the ideas explored in this book. My encounter with Cook's Cottage and the Yorkshire village from whence it came encapsulate the key themes that are discussed in this book. It discloses the origins of the stones and how they came to arrive in Melbourne. The cottage is a form of lithic memorial that endures and was installed in Fitzroy Gardens to convey ideological messages in a particular historical era, but these nationalistic, colonialist sentiments are increasingly contested and are becoming outmoded. Yet the building remains valued as an important icon and tourist attraction and as such, is carefully maintained and repaired to preserve its significance. The source of the stone was quarried at a location near to the village in which it was built, as were most structures before the advent of advanced transport networks, since when stone became a national and international commodity. The materiality of the cottage—its aged stone, brick and tiles, its worn doorstep and flagstone floors—conveys a powerful sensory and affective impression, especially in its contrast with much of the fabric of Melbourne's built environment. And the skilled engagement of those who quarried, dressed and assembled the stone of the cottage is also evident in the obvious traces of working. Finally, the cottage is increasingly mysterious and enigmatic. Despite the stories and effects that surround it, the building remains enigmatic, an uncanny relic of the time of its construction and the era when it was shipped to Melbourne, historical periods that now seem impossibly distant, unknowable. I discuss how the chapters of this book are organised around these themes at the end of this introduction.

Considering Theories of Materiality

Forged by the energies of surging magma, the collisions generated by continental drift, or the relentless layering of miniscule grains and tiny particles from marine bodies, stone is one of the most durable of the

earth's materials. Mostly formed aeons before life emerged, stone testifies to earth's cosmic origins, yet as Jeffrey Cohen (2015: 34) insists, 'stone is fluid when viewed within its proper duration… is part of a continually moving lithosphere'. Though these geological events seem rather incomprehensible, more intelligible are the enduring human engagements with lithic matter, a human-nonhuman companionship that has existed at least since the 3.5-million-year span named the 'stone age'. Over the past two hundred years, stone has circulated across space through human endeavour at an unprecedented scale.

Stone has constantly accompanied humans since time immemorial. As a building material, forming the doorstep we stand on before entering our houses, placed in garden walls, around fires, on paths and in memorials, this association is ancient, as is the recycling of these elements into later structures. In this book, I explore how stone is a key part of the massive material assemblages that constitute cities, it is quarried, transported, dressed, assembled and erodes; is maintained, replaced, demolished, disposed of and consigned to landfill; is deployed to constitute signifying forms and in itself is attributed with symbolic properties; is sensed through everyday urbanisation and comes to be intimately known by those who skilfully work with it. Finally, stone is ineffable, ancient, only partly knowable, mysterious and spectral.

The investigation takes place in and around one city, Melbourne, in the state of Victoria, Australia. A currently prosperous city of around five million people, clustered around Port Phillip Bay but rapidly expanding in all directions, Melbourne was founded as a settler-colonial city in 1835 and named in 1837. Yet the history of the terrain on which it is established has been occupied for many millennia before European colonisation, and since ancient times, stone has circulated through its environs. Over the past 180 years, these processes of circulation—through supply, building and demolition and disposal—have multiplied and accelerated to constitute a built environment of increasingly diverse materials installed at different times. Many of the processes through which stone comes to constitute the built environment resonate with those of other cities; others are more specific to Melbourne. All cities are constituted according to a unique mix of material ingredients from diverse

sources, and in an era of globalisation, Melbourne's material emergence increasingly echoes that of other cities, with supplies increasingly drawn from international sources. It is my hope and anticipation that readers will make parallels and distinctions between this particular city and the places in which they live. I expect that they will discover that all places have stony histories and geographies that are as extraordinarily rich and fascinating as Melbourne.

In embarking on this study into the rich and varied urban materiality of Melbourne, I have found it essential to refrain from adopting any singular theoretical approach. Indeed, most studies of materiality tend to adopt perspectives that draw on particular conceptual frameworks, but this does not work well in my investigation. Certain scholarly ideas are highly pertinent in exploring certain aspects of stone and yet can reveal very little when applied to other areas of enquiry. Accordingly, I have found that a broad range of ideas have proved necessary to underpin my account, and accordingly, I now consider the diverse theories about materiality that are particularly salient to this investigation, a discussion that sketches out key ideas but is necessarily brief.

First, I consider Marxian notions of urban metabolism, the textual and representational focus on objects inspired by the cultural turn, and the influential actor-network accounts that focus on the relationalities of materials. I subsequently explore assemblage thinking that focuses on the ways in which materials align or clash with each other, before considering new materialist theories of urban vitalism. This feeds into a discussion about phenomenology and post-phenomenology that explores the sensory and affective encounters that surround materials. I further contextualise the account by identifying key geological notions about lithic matter, and the ways in which the geological is entangled with the biological and the social, a discussion that is foregrounded in the current era that many refer to as the Anthropocene. I conclude by drawing on object-oriented ontologies to underline the limitations of all these theories if they are deployed as all-encompassing frameworks with which to explore materiality per se. This undergirds my conviction, explored in the final chapter, that while all the theories I discuss are useful in investigating the particular aspects of urban materiality that I investigate, they are inadequate when deployed outside of these distinctive approaches.

Moreover, in grasping these limitations, it is imperative to acknowledge the many unknowable, ineffable and inexplicable elements of materiality that we confront, but also allow ourselves to speculate freely about these mysteries, conjuring conjectural narratives from the traces and propositions that haunt such encounters.

Marxian perspectives on materiality have been dominated by a focus on the commodity status of matter and things, and the central notion that contemporary urban space is overwhelmingly produced by capitalist interests. Heynen et al. (2006) consider that the extent to which capital accumulation relies on non-human or 'natural' resources has expanded and deepened as capital seeks more ways to turn things and places into commodities. In the city, the embodiment of capitalist social relations, this reaches its most pervasive extent as the material environment is endlessly reproduced by the accelerating metabolic transformation of nature by labour and technology. Oil provides energy and bitumen for road surfaces, iron ore is transformed to provide the primary ingredient for steel, stone is metabolised into building blocks, bricks, aggregate for roads and concrete.

Critically, this distribution of metabolised 'natural' substances is inevitably unequal since it is undertaken through specific forms of control, ownership and appropriation. Particular materialities, building forms and other assemblages are thus allocated across the city in highly uneven and spatially differentiated ways. Accordingly, urban form is conceived as a reflection of the political and economic dynamics of urban space—yet things could be otherwise under differently configured social relations, for instance, under socialism. At present though, the 'spatial fixes' wrought by strategic capitalist investment that are manifest in the built environment, such as suburbanisation, gentrification and business districts, suggest a durable urban landscape, although this is always liable to be replaced through subsequent capitalist processes of creative destruction. Recent accounts contend that contemporary formations of urban materiality emerge as modes of organising capital accumulation shift, arranged through a more extensively scaled space of global flows (Otter 2010), privatisation and the devolution of supply to independent contractors (Tsing 2013). Other recent accounts emphasise how processes of urban metabolism have depended upon hubristic

notions that infinite natural resources can ceaselessly supply economic and spatial expansion, assumptions that have advanced the global environmental crisis.

This overwhelming focus on capital power neglects to consider how religion, nationalism, gender, ethnicity and age might also constitute powerful influences upon the production of the built environment. For instance, in an Australian context, a key influence on shaping human-non-human engagements has been a highly racialised colonialism, wherein settler colonialist thought articulated notions that 'if some humans were not transforming nature in a productive way, other humans had the right to take over and maximize the environment's output' (Cipolla 2018: 62), a culturally specific meaning of 'productive' that diverges from Aboriginal conceptions. A privileging of abstract capitalist processes means that cities and their material composition tend to be conceived as epiphenomena of deeper, larger forces, and thus lose their specificity. Moreover, the implication that objects are located in the city at the whim of capital and lack any agency of their own perpetrates a profoundly anthropocentric assumption that the material world is passive. The foregrounding of processes of urban metabolism does focus on transformation of 'natural' into 'cultural' matter. However, such an analysis has little interest in the material changes that take place before this moment or in anything that happens after the arrival of metabolised matter into the city. As I discuss below, these limitations have been substantively addressed by post-humanist conceptions that emphasise the agencies of objects, and their relationships to each other and to people.

Despite these evident limitations, it is essential to consider how material has been extracted, transported, transformed, assembled and removed to understand how the built environment emerges. Accordingly, Marxian material analyses are very useful in foregrounding the dominant power of those able to arrange material flows and hence shape the built environment, as well as highlighting radical global inequalities in the distribution of material resources. These themes recur throughout this book.

The identification of the material world as laden with power has also been integral to the approach to materiality articulated by adherents of the *cultural turn*, which emerged partly in response to what

were regarded as reductive Marxian explanations that solely focused on the forces of capital and class. Cultural theorists conceived the city, for example, as akin to a text that was replete with meanings that had been encoded into space by the powerful. These power-laden strategies also imposed meanings shaped by gender, religion, age and ethnicity, as well as class, that were imparted via architectural styles, commemorative forms and institutional infrastructures. Cities were now studied in terms of symbols, languages and imaginaries, producing a rather radical form of dematerialisation. As with Marxist analyses of the city, urban materiality (Duncan 2005) and landscapes (Cosgrove et al. 1988) were primarily conceived as a product of power, a site of its reproduction, and a backdrop for social action, including contestation. For meanings were not typically regarded as fixed or passively consumed but were available for decoding by different people in different ways.

Though an important corrective to reductive understandings of materiality, such accounts have been critiqued because of their overemphasis on the textual and symbolic. As I discuss below in more detail, materiality is construed as passive and lacks a phenomenological impact in the world—it is merely there to be read; material agency and sensation disappear. Tim Ingold (2010: 2) claims that the modern cleavage between nature and culture is reproduced through such textual perspectives; they reiterate a 'hylomorphic model of creation' wherein form is imposed 'by an agent with a particular end or goal in mind, while matter - thus rendered passive and inert - was that which was imposed upon'.

The last two decades have witnessed an eagerness to repudiate this excessive focus on the representational, textual and significatory qualities of things. However, this has tended to throw the baby out with the bathwater, neglecting the reproduction of ideological and symbolic material forms and the ways in which they inscribe cities with meaning. A quick historical review of how stone has been imbued with powerful meanings underlines this symbolic importance across time and space. Certain stones, massive in size or peculiar in shape, have been considered to have been intentionally shaped by the hands of the divine. Mark Smalley (2018: 10) points to how such stones may also be construed as 'shapeshifters that morph between states of being at the uncertain edges of our dreams', as they spring to life or contain those who have been

turned to stone. For instance, the Black Stone, installed at the centre of the sacred *Kaaba* in the Great Mosque of Mecca is revered as an ancient, possibly supernatural relic bestowed by Allah, and those who kiss the limestone Blarney Stone near Cork, Ireland, hope that it will grant them loquacity. Smaller stones are also held to contain magical and supernatural properties, as recorded in medieval lapidaries that itemise the healing properties of certain stones. Belief in such properties is evidenced in the elusive alchemical gem known as the Philosopher's Stone believed capable of turning lead into gold and producing the elixir of life, and the Japanese *kanju* and *manju*, fabled jewels that were believed to grant their owner control over the tides.

A nuanced account of how material elements in the landscape might be read is provided by Veronica Strang (2014: 140), who attempts to align the phenomenological with the symbolic, contending that material properties 'provide consistent cognitive stimuli and phenomenological experience and encourage recurrent ideas, values and practices'. These properties resonate in cultural interpretations across time and space, so water, for instance, Strang (ibid.) argues, has especially salient qualities that promote particular readings:

> Water's core meanings as a life-generating, life-connecting source; as the basis of wealth, health and power; as a transformative medium; and as a metaphorical base for concepts of movement and flow, recur so reliably in different cultural and historical contexts that there is little choice but to conclude that its material properties are relationally formative

In considering stone, properties of endurance, hardness, primordiality and malleability similarly resonate across cultures. The multiple properties and sensory effects of material elements thus engage 'not only with a complex array of cognitive and sensory processes, but also with all the specificities of particular cultural and historical contexts' (Strang 2014: 167).

The symbolic qualities of stone are especially salient to my analysis of lithic monuments, forms installed into urban landscapes to convey particular meanings and celebrate particular people, events and institutions. Stone memorials certainly possess a material force, have

been assembled according to particular procedures, serve as fixtures around which everyday activities flow and have shifting material constitutions over time. However, I consider that the most pressing analysis of these stone objects focuses on discerning their meanings. Though the meanings of commemorative forms may become obscure, contested and supplemented by numerous other monumental installations, as has occurred in Melbourne, their production revolves around transmitting nationalist, colonial and subaltern significations, as I discuss in Chapter 5.

Perhaps the most influential and controversial group of conceptual perspectives devoted to the analysis of material culture have been those grouped around network thinking, and especially *Actor Network Theory* (ANT). These ideas have importantly emphasised that things are relational and have agency within the relationships in which they are enrolled. All things, whether human or non-human, are conceived as 'actants' capable of mediating with each other in a network (Latour 2005). Thus, ANT sees agency as a distributed achievement, emerging from associations in which things 'rely on the continued (re)enactment of a set of constitutive relations to subsequently act and afford' (Anderson and Wylie 2009: 320). Things do not stand alone but gain their function and meaning from their relationships with other entities within a larger network.

In considering networks of stone supply and distribution, analysis can usefully identify how suppliers and places of extraction, transport links, politicians, entrepreneurs and state actors, procurers, builders and masons all become entangled and connected. Such a network perspective underpins an exploration of the complex processes through which stone arrives in the city to constitute its emergent material fabric, as I explore in detail in Chapter 2. Network thinking also facilitates analysis of how specific processes of maintenance and repair are enacted, as discussed in Chapter 4, and how quarrying, demolition and disposal become enrolled in the making of the urban environment, as explored in Chapter 3. Moreover, we can identify how networks of supply, labour, transport and construction that enrol multiple actors are of varying stability and duration and emerge at diverse spatial scales. Indeed, the focus of ANT approaches to providing 'an explicitly spatial account of how

relations in an assemblage are drawn together and stabilised' (Müller and Schurr 2016: 218), with reference to 'regions, scales, distance and topologies', is pertinent to much of my investigation into Melbourne's stone. This perspective also provides 'a better understanding of the relational achievement of bringing what is far away close and making the close-at-hand appear far away' (ibid.: 221). An orientation to the importance of the network is accompanied by other approaches that investigate the provenance of objects that become part of everyday life. Notable here is the 'Follow the Thing' methodology that critically examines how and why particular commodities arrive in retail outlets and homes, with questions about environmental justice, labour conditions and pricing brought to the fore (Cook 2004).

Network analysis further encourages exploration of how networks change and become differently constituted, revealing how successive technological innovations have made significant advances to the shaping of urban materiality (Müller and Schurr 2016). As Chris Otter (2010: 45) notes, at certain historical junctures, 'specific materials have played a pivotal role in constituting particular forms of western urban systems: wood and stone in the medieval period, iron and coal in the early industrial period, and steel and glass in high modernity'. Over the past few decades, these have been supplemented with 'the emergence of entirely new synthetic substances – polyester, polystyrene, Bakelite, celluloid, Teflon, superalloys' (ibid.: 54). This has created increasingly materially variegated urban environments, augmented by the growing diversity and hybridity of building types (Kärrholm 2013).

There are clearly great advantages in adopting network perspectives in analysing urban materiality, and yet there are key limitations. Most obviously, the relational ontology deployed by ANT produces reductive and rigid conceptions about objects. In circumscribing their network roles, such approaches fail to give sufficient weight to the specific properties of things, as I discuss below with reference to the notion of the assemblage. Furthermore, ANT rarely focuses on how distinctive forms of power shape who has access to material resources and which alliance of actors are able to create the networks that are organised to build urban environments. This neglect of power is compounded by a focus on how networks are forged and sustained by managerial, scientific and technical procedures, minimising how these practices operate

to the advantage of particular groups. Though ANT acknowledges the energetic work that continuously goes into the sustenance of rendering networks stable and coherent, there is a lack of focus on such procedures, namely the key activities of repair and maintenance. Finally, ANT's flattened ontology also minimises the sensory, affective and creative dimensions of human engagement with materialities, although recent accounts have placed greater emphasis on the fluid, multiple and dynamic qualities of networks and the things enrolled within them (Mol and Law 1994). In this book, I adopt a broader conceptual use of networks that is not strictly oriented around ANT to explore the connections that ceaselessly constitute urban materiality.

Assemblage theory is concerned with how separate material elements are brought together to compose a building, and once established, allow it to cohere or conversely, fall apart. The emphasis here is on how these components bring their own distinctive 'properties' to the assemblage and how these properties align or react with each other in accordance with their 'capacities'. Following Gilles Deleuze, Ian Shaw (2012: 621) insists that all objects are characterised by their differential capacities to affect and be affected by other things: 'they force themselves upon each other – reducing, reshaping, channelling, annihilating, eroding, fusing, scouring, electrifying'. A focus on the capacities of these elements—the ways in which they are affected by and affect each other—attends to the shifting qualities of a building assemblage over time and stresses how all things emerge in accordance with these often unpredictable relations (DeLanda 2006). As Chris Dittmer (2014: 387) contends, while 'the properties of a material are relatively finite', the capacities are key since they 'they are the result of interaction with an infinite set of other components'. Karen Barad (2007) demurs, stating that there is no such thing as an independent property for this is always dependent on the other things that it affects or is affected by, that this is invariably relational. However, Veronica Strang (2014) maintains that material properties do pertain and possess identifiable consistencies. For instance, granite is durable and difficult to work with mallet and chisel, soft sandstone exhibits a granularity that can be sensed through touch and bricks are able to be manually manipulated and readily piled on top of each other. Such lithic constancies endure over time irrespective of cultural contexts.

Assemblage thinking is especially useful for investigating how buildings, as kinds of material assemblages, are processes, always emergent; at a larger scale, it is an approach that is able to acknowledge 'the spatially processual, relational and generative nature of the city' (McFarlane 2011: 650–651). Things continuously change: one component 'can be working to territorialize the assemblage at any given moment, and soon thereafter exercise a capacity to deterritorialize it' (ibid.). An emphasis on emergence underpins a processual perspective that accentuates fluidity, adaptation and conjoining rather than determinate form, and an ongoing tension between stabilisation and destabilisation. Things can be disassembled and reassembled, things from other assemblages can be incorporated into new assemblages, or assemblages can cohere or fall apart without any human intervention. A long-stable building may become characterised by 'excess, flux, and transformation' (McFarlane 2011: 654), calling for innovation and improvisation, or demolition. A once territorialised entity may suddenly become deterritorialised but may subsequently be reterritorialised by changing its function and material composition. These aspects are especially salient to the focus in Chapter 2, in which I focus on the continuous reassembly of Melbourne through the importation of lithic matter to construct buildings, and in Chapter 4, where I consider how practices of repair and maintenance attend to the disruptions and eruptions that periodically emerge in one stone building.

The spatial contexts of assemblage theories tend to focus on the local compilation of materials brought from elsewhere to constitute a particular assemblage; they may therefore neglect to acknowledge larger power structures. However, Colin McFarlane (2011: 655) counters such assertions, suggesting that 'the urban assemblage is structured, hierarchised, and narrativised through profoundly unequal relations of power, resource, and knowledge'. As such, an assemblage approach can foreground how forms of material inequality and processes of accumulation and dispossession are continuously produced, replaced and contested. Such a perspective can attend to 'why and how multiple bits-and-pieces accrete and align over time to enable particular forms of urbanism over others' (ibid.), for instance, perhaps identifying the unequal relations that inhere in architectural practices, contractual negotiations over stone supply, and government regulatory policies about quarrying. This can

also foreground the shifting political ideas that influence how cities are materially assembled, from colonialist and welfarist strategies, to globally transmitted ideas about culture-led regeneration. But at a smaller scale, the urban might also be reassembled by migrant cultures or oppositional groups who engage in creative practices that produce material forms in space.

The popularity of assemblage thinking has emerged along with a theoretical perspective usually labelled the *new materialism* that further critiques notions that matter is inert and seeks to realign human relationship with vital non-human things. Jane Bennett (2010) emphasises that materials are not static entities that passively wait for human intervention to catalyse them but are inherently active. Matter is unpredictable and shifting, 'turbulent, interrogative and excessive' (Anderson and Wylie 2009: 332). As Latham and McCormack write (2004: 707), emergent materials produce a cityscape that 'is an ongoing outcome of the interaction between a myriad of small-scale self-organizing processes that are not determined by a central controlling or decision-making unit'. This decentres the human decisions that have been integral to the assembly of a building while acknowledging them, in favour of foregrounding the complex human-nonhuman relations that continuously emerge irrespective of human practices. Such issues are explored in Chapter 4 where the agencies of component materials in an esteemed building instigate human practices of repair. A new materialist focus also questions the status of the separate object, the thing that seemingly stands apart from all else, by accentuating its processual becoming. Tim Ingold (2010: 3) considers that though it may stand before us 'as a fait accompli, presenting its congealed, outer surfaces to our inspection and seems to be defined by its very "overagainstness" in relation to the setting in which it is placed', a thing is 'a knot whose constituent threads, far from being contained within it, trail beyond, only to become caught with other threads in other knots'. In a question pertinent to this study, he rhetorically asks,

> Surely, you will say, the stone is an object. Yet it so only if we artificially excise it from the processes of erosion and deposition that brought it there and lent it the size and shape that it presently has