

THE HISTORICAL TRANSFORMATION OF MELBOURNE'S CITY CENTRE

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ABSTRACT

The urban space in Melbourne's city centre has obviously evolved into a sustainable urban form in the process of historical transformation, under various agents of supervision over years. It is noticed the spatial growth has been consistently and intentionally directed towards sustainable development. A compact pattern of the city centre is modelled to accomplish a good city form in the modern term. This paper is dedicated to discover the process of the urban development in the context of Melbourne's city centre, by illustrating the physical transformation in a set of figure-ground maps. An investigation into the spatial structure within the Hoddle Grid – a schematic street plan dated to 1837 with alternative wide and narrow streets laid out by Robert Hoddle – is held to implement the research inquiry. Three significant morphological components, namely street, block and building form, are tracked as systematic measurement of the spatial transformation. In addition, the evolution of block subdivision has also been monitored for its continuous adaption and adjustment to the environmental disturbances. Influenced by external factors, the city blocks have been witnessed subdivision and consolidation alternatively, in response to the vibrant economic and political forces in different stages. Arising from nothing in a flat ground since 1837, the original Hoddle Grid has been proved to be the most resilient and sustainable element in the urban structure. Nowadays the city centre has been pictured as an urban entity developing in mass and volume.

INTRODUCTION

City is a complex entity that harbours the lives of people in the long term of urban evolution. In a defined area it contains the most concrete components that address the fact of contemporary reality. In the process of urban development, the physical environments transformed as a result of changing demographic profile and increasing demands in social products. As one of the most liveable city in the world, Melbourne's city centre exhibits its capacity and viability of accommodating the increasing population and providing public amenities in a delimited geographic area. In the process of rapid urban growth, the city of Melbourne preserved its architectural heritage and cultural identity under intense economic impacts. It also successfully found a self-adapted solution in dealing with the contradiction between the urban conservation and economic development. While preserving the vintage street vision inherited from the Victorian time, the city itself accommodated the profitable commercial building in the same loci. Vision and scale, the most important concerns highlighted in Melbourne's urban design, are swiftly applied in controlling the pattern of sustainable development. Therefore, this paper intends to disclose the trajectory of Melbourne's growth in terms of building and space. Through investigation on the spatial structure in the Hoddle Grid, it is found the city centre is modelled to a compact paradigm with high density developmental orientation. Under a tightly prescribed street system, buildings and blocks are contained and varied only within the strict framework. In the process of urban transformation, many conflicts are certainly raised regarding the instinct discordance between historical sustainability and economic sustainability. In one hand, the city's historical features needs to be preserved in spite of the economic inefficiency in the modern time; in the other hand, the urban blocks and buildings are in needs of upgrading for the future development. Facing the dilemma, planning authorities take the social responsibility to make a solution in both preserving the historical and cultural identity and maintaining the economic sustainability. The paper is then dedicated to explore the design principle behind in guiding the urban development and its practice on the city of Melbourne, the oldest city core and the most valuable historical area..

Within a one by half miles square primitively reserved as a town centre, street system in the city of Melbourne is organized in an orthogonal network where it spans a gently sloping valley between hills and roughly parallel to the course of the Yarra River. The street system, originally known as Hoddle Grid, is inherited from a colonial precedent. This spatial arrangement is eventually proved as being endowed a surprisingly resilience to various social changes. Although the unplanned street pattern emerged long before the sustainable issue was proposed in the late twentieth century, it is undoubtable that this kind of planning and design thinking practiced in the Melbourne city are definitely in conformity with the philosophy of sustainable development. In this paper, the evidence of urban form developing is depicted in a three-tier morphological system: street, block and building form. These three basic elements were first proposed in

M.R.G. Conzen's work (1960) to explore the developmental cycle of urban growth in terms of urban morphology. By analysing the trajectory of historical process of urban growth in line with Conzen's explanation on morphological structure, it is argued that Melbourne's growth is consistently following the principle of sustainable development and modelled towards a compact city centre. Although historical sustainability and economical sustainability sometimes conflict with each other, the compromise is reached by deliberately distributed urban space, controlled visual axis and stratified urban structure in the study area.

Primarily concerning on the geographic representation of historical spatial structure in the scope of Melbourne city centre, this paper made a series of anatomical drawing in a chronological order. It is intended to regenerate the track of historical transformation in the morphological process, by interpreting the evolution of streets, blocks and building form in the set of figure-ground map. The feasibility is credited to Melbourne's enormous valued historical images and maps. Regrettably those materials have never been wisely organized and analysed. These graphic records are precious for tracking the way of urban consolidation.

THE CONTINUITY OF STREET STRUCTURE

The street history began with the imprint of a slightly skewed gridiron plan under British regime. The orthogonal grid is usually known as Hoddle Grid which was named after its designer. The space delineated by Hoddle Grid is the most representative area which can be taken as a convincing example to understand the historical evolution of urban space, especially when Melbourne is still young as cities go. The foundation plan of Hoddle Grid in 1837 itself has no signs of any inclination of spatial preference, but simply an evenly divided rectangular with three rows of squares by eight. It is the natural landscape and design intents later on which are either coming from governmental guidelines or market powers, give Hoddle Grid properties of hierarchy and function. These properties have been reflected in a tangible form of layout, spaces, buildings, and sometimes to physical details such as materials, signs, pavement and etc. These forms are directed towards the achievement of particular design intents and cultural conditions that are distinctive at different eras. In the sense of size, scale and displacement, the characteristic of Melbourne's city grid is unique to any urban counterparts elsewhere. Before reading the physical changes and continuities of urban texture in overall, it is noticed the pattern of street grid has been remarkably respected and followed as a fundamental structure of the city and a point of reference throughout the sequential planning stages.

The primitive backbone of Hoddle Grid consists of four east-westerly broad streets at right angles to nine south-northerly broad streets, which are 1.5 chains (approximate 30 metres) in width. Additional important element of the city's form is the regular 'Little Streets' and labyrinth of laneways that have intensified the internal circulation of blocks. Along with the original 1.5 chain streets, half chain (approximate 10 metres) parallel little streets are going through the central line of each block east-westwards (Figure 1). Down to the next level, there are numerous laneways (Figure 2) only a few metres wide, mostly 5 metres or less with regards to the plot division. In fact, the figure-ground map finely addresses the three-tier hierarchy of internal structure in Hoddle Grid: the planned and regular orthogonal grid in the first place which is spacious and visually dominant, meanwhile planned latitudinal 'little streets' running parallel to the grid between main 'streets' in a deducted width. The third tier in Hoddle Grid features a pattern of unplanned but consistent, to some extent relatively inconspicuous labyrinth of laneways within each block. This describes the way of street system of Melbourne city.

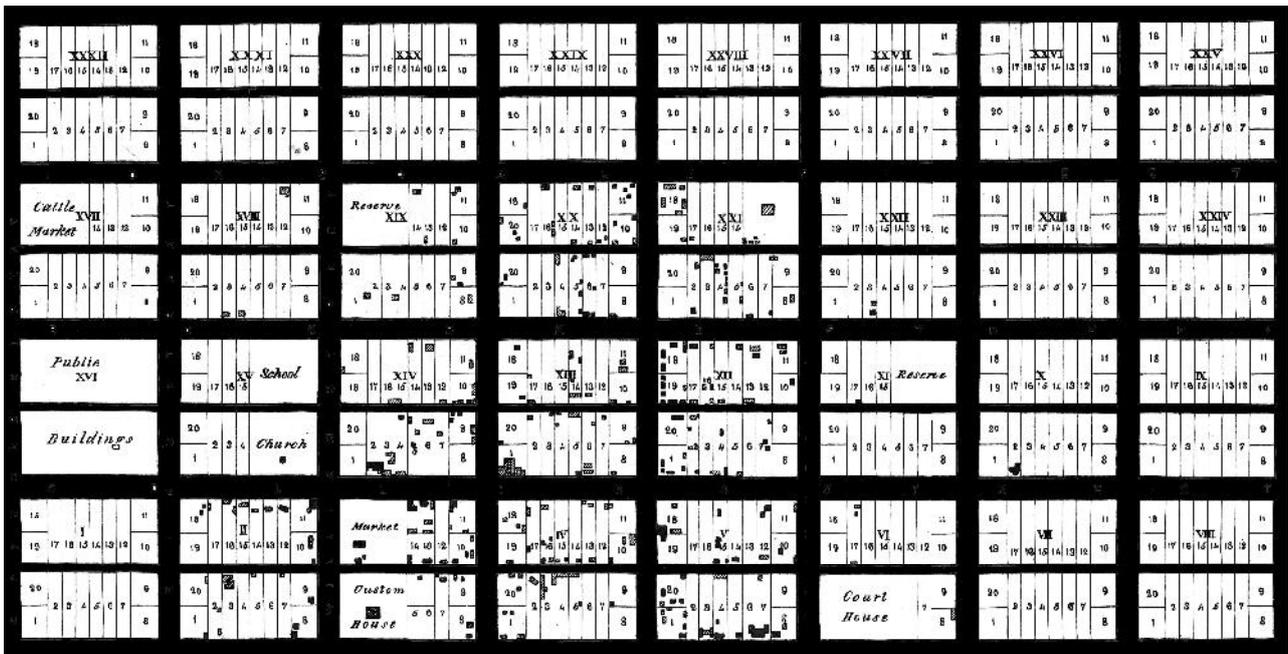


Figure 1: Plan of Hoddle Grid in 1839, showing street plan, block subdivision, public reserves and buildings.

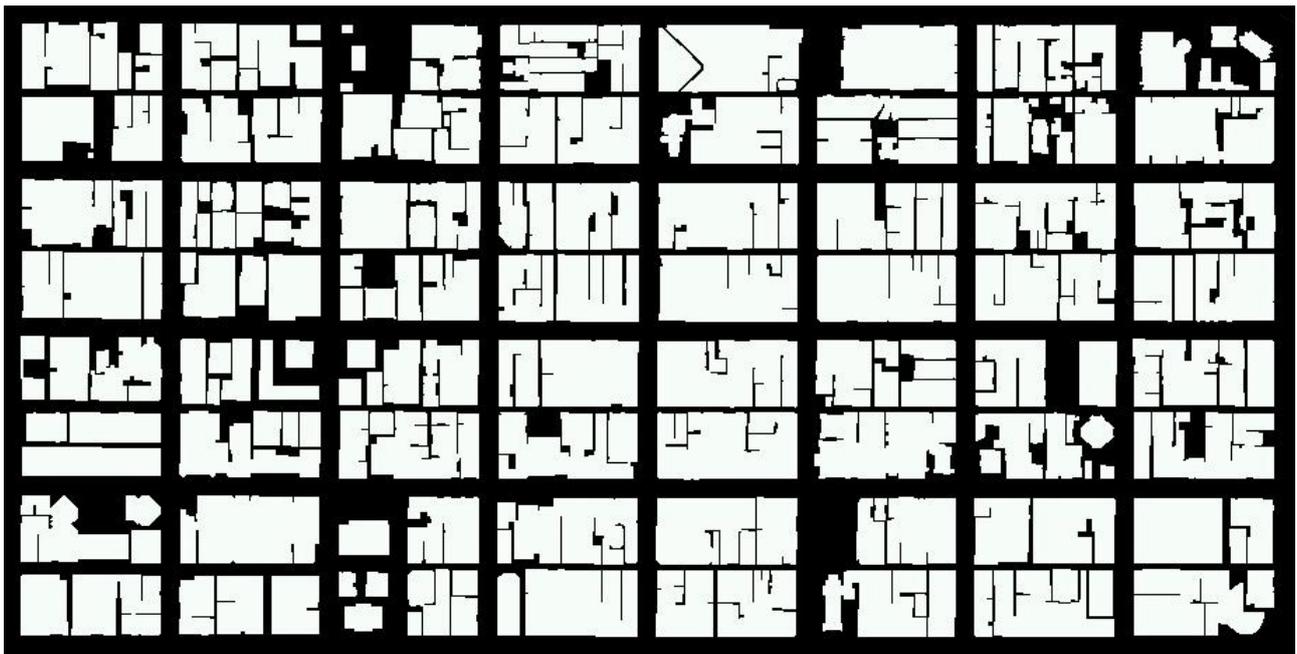


Figure 2: Evolution of Street structure in 2005, showing insertion of laneways in the Hoddle Grid.

Since the planned ‘Street’ and ‘Little Street’ system was printed onto the urban land in 1837, it survived over one and three-quarter centuries. Its pattern remains extraordinarily intact from the 19th to 21st centuries (by comparing Figure 1 and Figure 2). In one hand, it indicates how efficient of the planned skeleton is recognized and on the other hand, the power of planning control prevailed over any other force in a large extent.

The physical layout of the original plan of Melbourne city, and the way it functions suggest a strong hierarchy of street system. Referencing to Alexander (1965), Hoddle Grid is clearly articulated and categorized in semi-lattice form, the structure of a complex fabric which represents a thick, tough, subtle and complex view and is deemed as the most viable form for an artificial city. In the original plan of Hoddle Grid in 1839 (Figure 1), blocks are evenly subdivided into regular pieces as a matter of expedience. However the original subdivision of blocks has never been strictly followed. The pattern of plots subdivision is altered enormously in a natural way though certain trace of the original subdivision still faintly visible somewhere (Figure 2).

Laneways emerged as a consequence of this natural process of plots subdivision. The formations of laneways are unplanned. It spontaneously evolved in the actual need of accessing buildings. The former laneway was known as 'Right of Way' not open to the public. Then as the influx of city population and development of building cycles, 'Right of Ways' were requisitioned and gradually shaped to the famous Melbourne 'Laneways' supplementary to the double tiers of 'Street' and 'Little Street' System. Even though unplanned beforehand, Melbourne's laneways are perfectly consistent with the texture of main grid system in four typologies (Figure 3): Cul-de-sac, L-shape, U-shape and Through laneways.

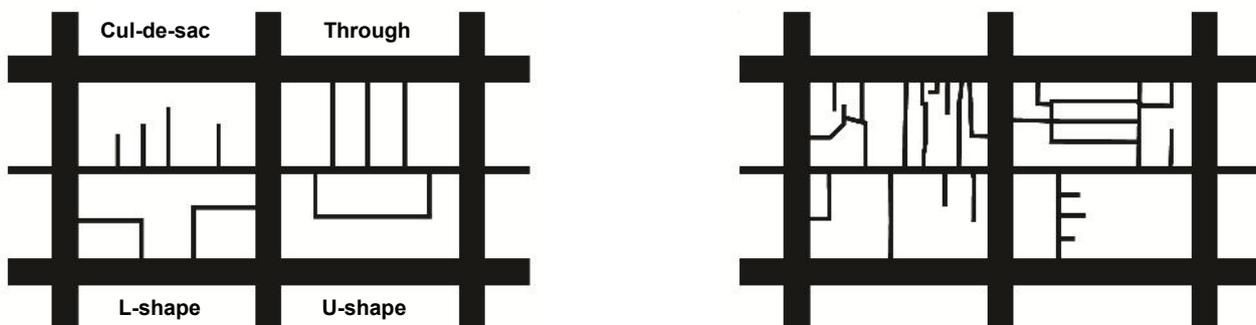


Figure 3: Four typologies of laneway (left); Hybrid pattern in actual block form 2005 (right).

BLOCK SUBDIVISION AND CONSOLIDATION

In fact the block pattern failed to retain its earlier identity as the street skeleton did. It was planned in good intention but altered over years of development. Original typology of city blocks was divided into regular pattern (Figure 4) for the convenience of quick plan and sale. Each block was further subdivided into 20 allotments each 76 perches in area. In 1839 land allotments of each block for sale were to be produced as quickly as possible to deliver to the market. Large plots for public use were reserved from beginning in Hoddle Grid mostly in elevated area. Remaining blocks were repetition of standard plots subdivision.

The development of blocks underwent a steady process of consolidation since each block had been subdivided into 20 allotments in 1837. Continuous efforts of plots consolidation have been noticed by land developer. As a consequence of recurrent amalgamation of neighbouring allotments, the block pattern in Melbourne city has been growing from scattered and fragmentary pieces to a centralized and solid mass, despite of the flow of crucial traffic routes strikes a slightly discordant note. The disruptive space for traffic flow has been squeezed up to the utmost limits of endurance to maximize the economic profits of land development. The tendency is obviously observed that city blocks started to be filled in blanks and gradually ran to solid in the process of urban evolution (Figure 5 and 6). In little more than one and half centuries, the tendency of plots consolidation to spread, from economic centre of Melbourne (instead of geometric centre) to urban fringe, crept over the whole of blocks in the city of Melbourne (Figure 7 and 8).

Enveloping Expansion

Viewing the wide streets along the periphery of streets block without expedition into the back of blocks, a stunning street vision from the outside would be very likely beyond your imagination even dated back to the early days. The images of street vision in the nineteenth century obviously indicated a continuous block shell had been enclosed the blocks. As early as in 1853, the surveyed block plans had suggested the sequential movements of buildings were starting from the front of street blocks. A strong linear sight of street lines was conceived. Buildings did not proceed to the back of allotments in each block before street lines had been filled up and blocks were well-enclosed. In the rare case that buildings set back, like cathedral did in the early days, a fence (or plinth-and-fence) would mark the street edge in front. The block plans in the period of 1839 to 1888 clearly addressed the progression of invasion of buildings into blocks and the transformation of Hoddle Grid from a bare surface to a well-covered ground. In 1888, with the reinforced street frontage, for the first time, we see the complete picture of Melbourne city in Mahlsted's block plan. Until then the Hoddle Grid fulfilled the primary phase of development as an established city centre and stepped into a prolonged period of self-improvement. Chronologically the evolution of the blocks typology is a constant movement of block (plot) enclosing in the units that divided by the boundary of traffic roads.

Erosion of Urban Text

The city was growing fast. The fragmental pieces of plots were undergoing continuous consolidation. Large footprint of buildings in the city disclosed the process of industrialization. Under the protection of street shell, the mass of buildings amalgamation was hidden behind the solid lines. It is unnoticeable if not looking into the back of streets. In conjunction with the massive consolidation, open space increased that served as yards and sheds for the needs of factories was also detected in the figure-ground map mostly in pair with where the mass footprint. Mass and void characterized the city at the turning of 19th century when the actual form had been transformed by the first industrial revolution. Growing number of people were looking for a way to escape the city by the advent of industrial revolution. And fortunately, Victorian enterprise offered them a solution that would change the face of the Victorian city. Tram, Train, as well as omnibus, people had been put forward multiple choices for consideration. Before the invention of technology like this, people really had to live in the inner city within walking distance of their work. But once had alternatives shuttling in and out of town, people started moving out to suburbs. To them it was liberation. City residential thereafter came down to lose possession of land in the campaign. Starting from 1980s, the solidity of urban footprint eroded in some extent by comparing the figure-ground maps in 1923 and 1983 (Figure 6 and 7). Thinking of the advent of automobile since 1960s, it is not surprising that the city was transformed again to respond to the demand for plenty of parking land in the city centre. Life changed as well as the city pattern.



Figure 4: Figure-ground Map, Block pattern in 1853.



Figure 5: Figure-ground Map, Block pattern in 1895.

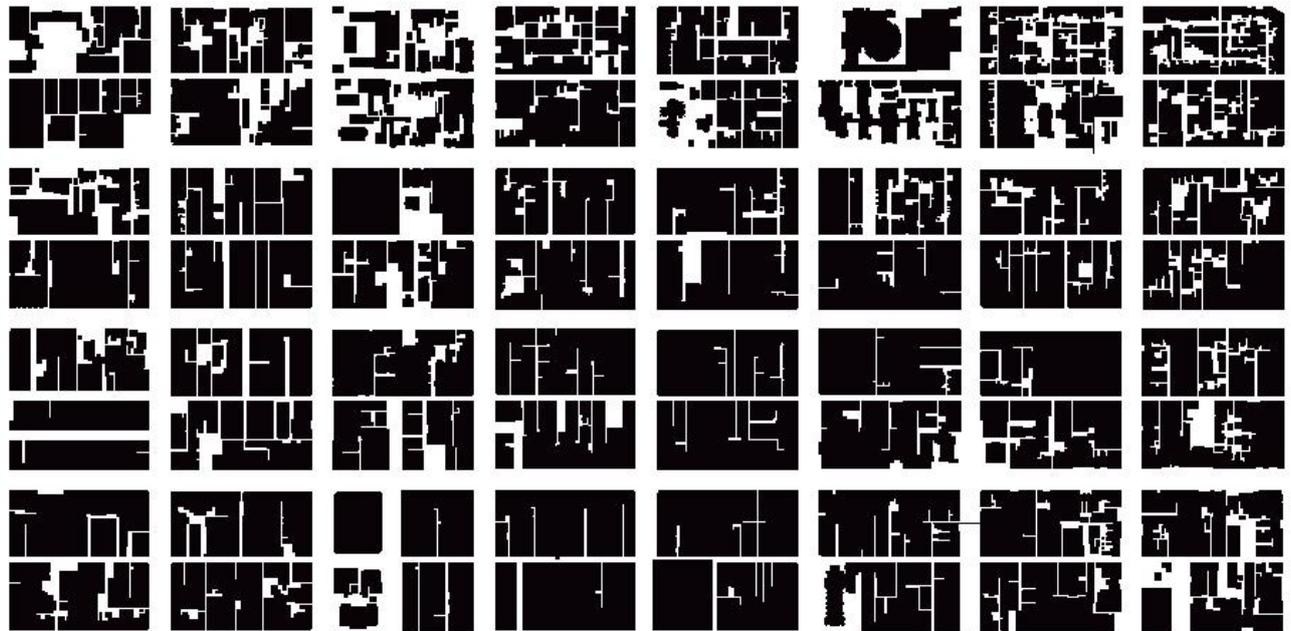


Figure 6: Figure-ground Map, Block pattern in 1923.

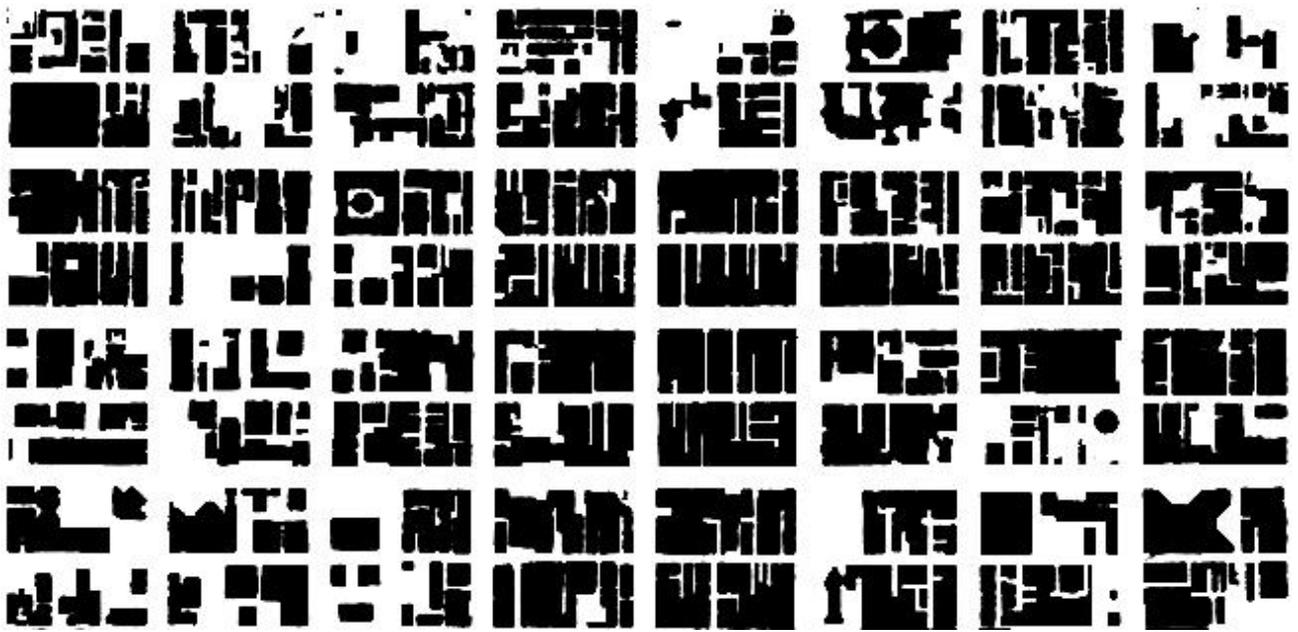


Figure 7: Figure-ground Map, Block pattern in 1983.



Figure 8: Figure-ground Map, Block pattern in 2005, Queen Victoria Village highlighted in red.

Mega-structure

The erosion of urban text wasn't lasting for long. The city was quickly amalgamated even more intensive within the next two decades. In this period the city was conceived as an inseparable entity in the strategic planning controls. A detailed operative planning scheme, known as IDO (Interim Development Order) enacted in 1982 was exerted specifically on central area in the late twentieth. Mega block (Figure 8) with massive building footprint tended to be the dominant typology where there was possible to acquire land. Massive development is remodelling the city into a mass and volume picture. In the conflicts of conservation and progression in the era of post-modernism, the city tried to reconcile historical traces to the ideology of modern society in its own way.

The newly established Queen Victoria Village (highlighted in Figure 8) took the site of original Queen Victoria Hospital in 2002. It is a high-density, mixed use precinct containing retail, business and living spaces. Owing to strict height limits along the Swanston Street axis, the building remains low-rise structure facing Swanston Street, with two skyscrapers erected at the back. In line with Melbourne's historic lanes and arcades, the

ground level space was specifically designed as shop-filled laneways named after the figures in medicine as a memorial to the past hospital. Obedience to the landform, vertical entrances in difference levels through Swanston and Russell Streets increase the permeability and diversity to the complexes. Multi-level design started to a new direction for city buildings. The concern of design is no long solely for buildings, but all-around considerations between building and space, to conceive an environmental friendly community for people to stay and play.

BUILDING FORM

Civic Monumentality

The systematic hierarchy indicated in the placement of Civic Buildings. Buildings in the high ground implicated the loci of power centre. Supreme Court, Public Library, Mint, Church, School and public reserves were aligned to the contours descending from hill down to sea port in accordant with the building relevancy to governance. The Stability of buildings has a strong connection with the elevation of location as well. The underpinning information has been clearly delivered by the placement and constancy of building form through time. The group of civic buildings, for an instance, obtained preeminent positions and imposed greatest visual impacts. It sustained the test of time when the rest of city demolished and progressed. Whereas less dictating and unspecified land, such as those reserved for school and rail yard, were removed from reservation list and converted to other usages soon after. With the Hoddle Grid, they constitute the invariable pattern of the city, the eternity reminding the past reign of British colonial authority. The street names after the royal family and governors in England, deliver the historical heritage from the British Empire far away.

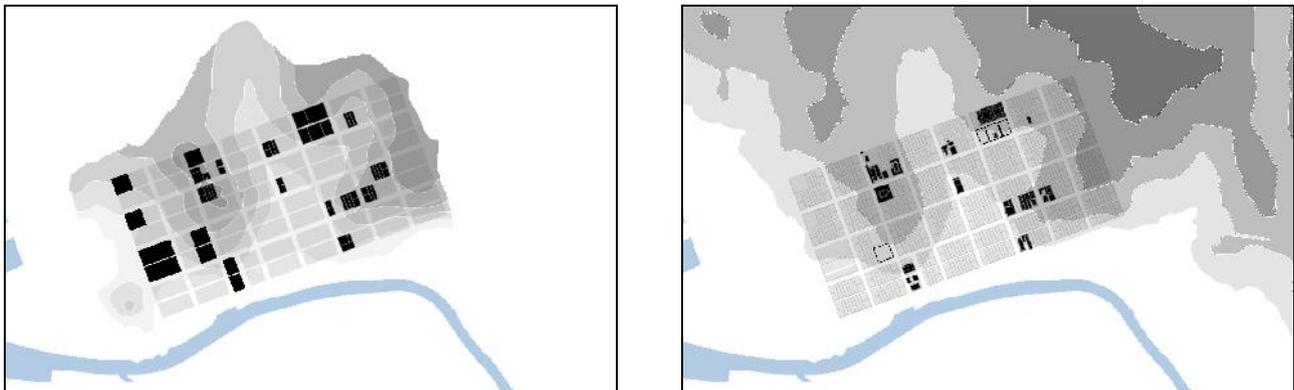


Figure 9: Public reservations in 1837 (left, 5m contours); Survived reservations in 2005 (right, 10m contours).

City Height: Quantum Leaps

It took about 50 years after establishment of Melbourne for buildings to start to rise. The one-to-three storeys skyline dominated exceptional of spires and chimneys till 1877, a 5-storey building was first sighted in the Dove Plan of Melbourne on north side of Little Flinders Street (later: Flinders Lane) nearby Swanston Street, diagonally opposite to the site of St Paul Cathedral. It remains in 1880's Bird View of Melbourne with an additional 5-storey building seen on west-north corner of Bourke and William Streets. The next turning point of city height identified in 1888. When the Mahlstedt's Map made in 1888, from the plan a 7-storey building was laid on south of Collins Street by close to Elizabeth Street. A 10-storey building, Finks Building that was Melbourne's tallest when built on the corner of Flinders and Elizabeth Streets entered onto Melbourne in 1888. But it was shortly transcended at the time of completion by a 12-Storey building. The Australian Building office block was Australian's tallest on the corner of Elizabeth Street and Flinders Lane completed in 1889 for the Australian Property Investment Co.

Although the building technology already reached 12-storey at that time, it is not common that buildings higher than 3-storey were found in the city. Since 1888 continuous 4-6 storey street wall had only been built up in certain blocks between Collins and Flinders Streets, with Little Flinders and Collins Streets façade mostly between Swanston and Elizabeth Streets where it was controlling city skyline taking full advantage of proximity to Port and Stations. In 1905, an average of 6-level street façade constantly lined up both sides of Little Flinders Street in between Swanston and Elizabeth Streets. The city height in this segment is almost double in comparison with the dominating skyline of 1 to 3 storeys in the rest of city. Both height and density in this block are rather intense compared with the other part of city. Debate about building height regulation

was raised in the beginning of twentieth century and in 1916, Melbourne adopted 132 feet (approximate 40.2 metres) height limit following the application of similar codes in several US cities.

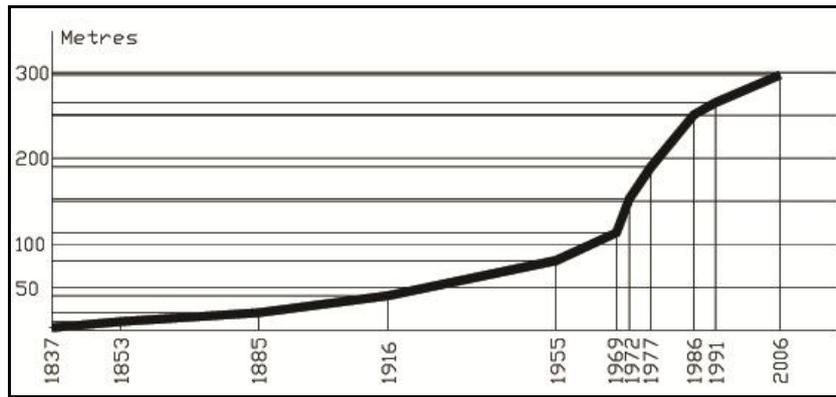


Figure 9: Indication of building height increasing from 1837 to 2006.

CONCLUSION

By the detailed spatial analysis on street, block and building form, it is evident that the logic of spatial arrangement in the history of Melbourne is following the steps of sustainable planning. Attributed to the regime of British Empire, colonial power imposed on the form of Melbourne city in the early of the nineteenth century and produced a force of clarity and order through the implement of Hoddle Grid that has been kept intact till today in more than one and half centuries. To some extent, Hoddle Grid was founded as the originality of Melbourne and without doubt, constitutes a key element of the urban tissue in the city centre. Under the dictated framework, Hoddle Grid implicates a highly recognised structure of street network with strict and legible hierarchy. This hierarchical articulation subsequently configured the scale and disposition of blocks at the street level, where buildings positioned and rearranged in groups through time to time. The logic of building arrangement surrendered to the rules played by power and economy. High land along the elevated contours has been reserved in the first year of settlement for Civic Buildings and these monumental reservations formed as part of the eternity of the structure of the city together with the supreme Hoddle Grid. With the variation of buildings, the changing face of building arrangement led to a derivative of Buildings and laneways, making up two variable elements in the urban tissue.

With the purpose of establishing a sustainable environment in various stages, the city is built upon intentions of human beings and always reflecting the aspiration of people who live in it. With the interim development of technologies and design theories, the city proceeded to fit emergent ideas and immutable regulations through which authorities manipulate the face of city in effective. Although the confliction existing between historical sustainability and economic sustainability, the guideline of city design in the late 20th and early 21st centuries dedicated to seek for solutions. By strictly controlled visual axis and layered historical element in vertical dimension. Consistently with the aim of sustainable development, the current city centre is going towards a paradigm of balancing the different requirement to preserve the social sustainability. Certainty instead of accident, the shaping of city is a true expression of contemporary social values under the control of mind. The urban form is determined by the multiplicity of political, economic and cultural recognition. It is definitely possible to manage the space by urban coding.

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