

GOLD

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GOLD RUSH URBANISM: CONTINUING EFFECTS OF GOLD MINING ON THE URBAN FORM OF VICTORIAN TOWNS

Long after gold has been extracted and exported, the physical traces of mining remain in the landscape, intrinsically integrated into the towns whose development they facilitated. In this paper we use Stawell as a primary example to explore this urban condition, and a selection of other nearby towns as reference points for comparison.

The intention of this paper is to draw out clues from historical events that have direct correlation to physical outcomes in the built environment, and that continue to affect urban character today. Accordingly, the research is based primarily on drawn analysis using overlays between historic documents and current conditions. The analysis focuses on three main areas: firstly, on factors that affect the initial organisation of mining activities such as geology, industrial processes, and administrative structures; secondly on methods of land subdivision and settlement, which developed specifically in relation to conditions of the goldfields; and finally on the existence of 'holes' or discontinuities in the urban fabric related to mining processes, and the way these continue to affect the organisation of open space and public functions within these towns.

This paper looks systematically at the recurring nature of urban conditions across a collection of Victorian towns towards a theory of urbanisation specific to the goldfields – a 'Gold Rush urbanism.' In this context, goldfield towns form a set of case studies showing the potential and variations possible under certain conditions; in particular the difference between outcomes in planned and unplanned environments. In conclusion, the paper suggests ways in which this body of knowledge could be used to inform and critique current practices of planning and urban design in a local context, as well as contribute more broadly to research into the processes and morphologies of 'informal' urbanisation.

Introduction

Stawell and Stawell West are very different. [Fig. 1] In Stawell, streets are not straight, or consistent, or parallel. They dogleg, bend, expand, contract and multiple roads converge at intersections. Main Street, the heart of the town, meanders on a snaking path up towards Big Hill. At the southern tip it is broad with setback suburban houses. By Patrick Street it has narrowed and is bounded by an urban edge of shops, and by Big Hill it feels like a country road amidst a wide open, undefined and tree filled landscape. Baylis St and Church St run closely parallel with Main Street, so that many shops go through from one street to the next and it is hard to work out what is front and what is back. There are a lot of gaps in the urban fabric – not empty allotments – but moments where the recognisable urban street logic gives way. This is presented by open spaces in strange shapes and sizes. Some unexpectedly contain water bodies while others are sports fields, parks or racetracks. This part of Stawell is disorienting and its logic illusive – it is full of streets that disappear around corners or urban situations that open up suddenly to wide landscapes.

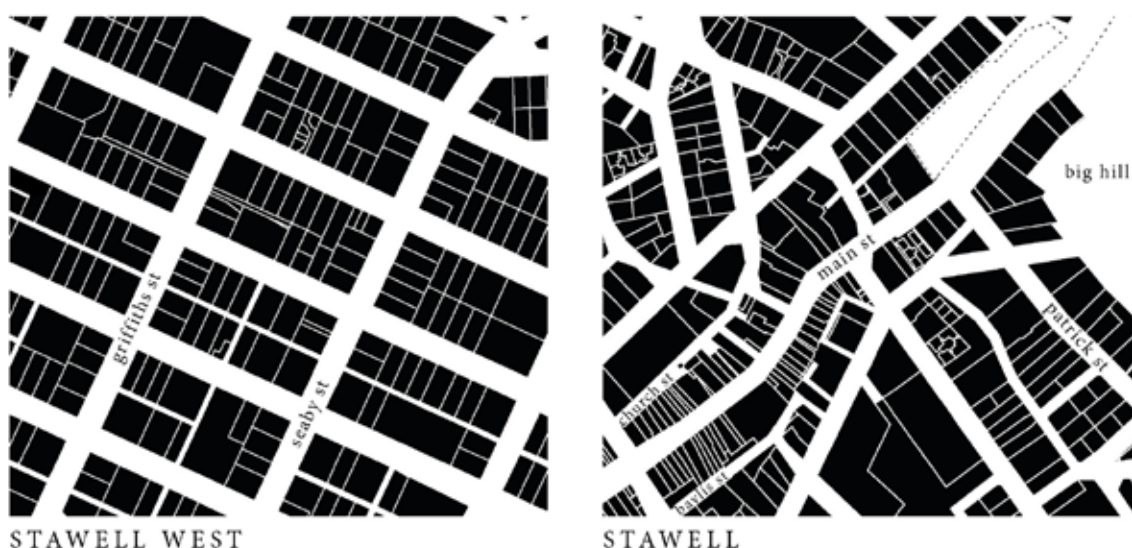


FIGURE 1 Crop of Stawell West (left) and Stawell (right) showing street patterns and land division. Image by author.

In Stawell West, however, which lies southwest over the railway line, a regular grid prevails. Allotment types repeat and seem normal, a quarter acre or a little smaller. Some allotments are not built on, but these just feel empty (rather than of a different logic). Wide and consistent streets are spaced to form blocks that seem reasonable, even familiar. About 200m in one direction, and 100m in the other with streets of 30m wide; similar to Melbourne. Walking from Seaby St to Griffiths St is the same distance as walking from Bourke St to Collins St. Freestanding buildings that once housed civic functions such as the former Shire Hall, Courthouse and Mechanics Institute float on large allotments. At the edge of town where the bitumen stops, the roads continue as vaguely visible tracks in the dirt as though the abstract grid continues onwards over the landscape.

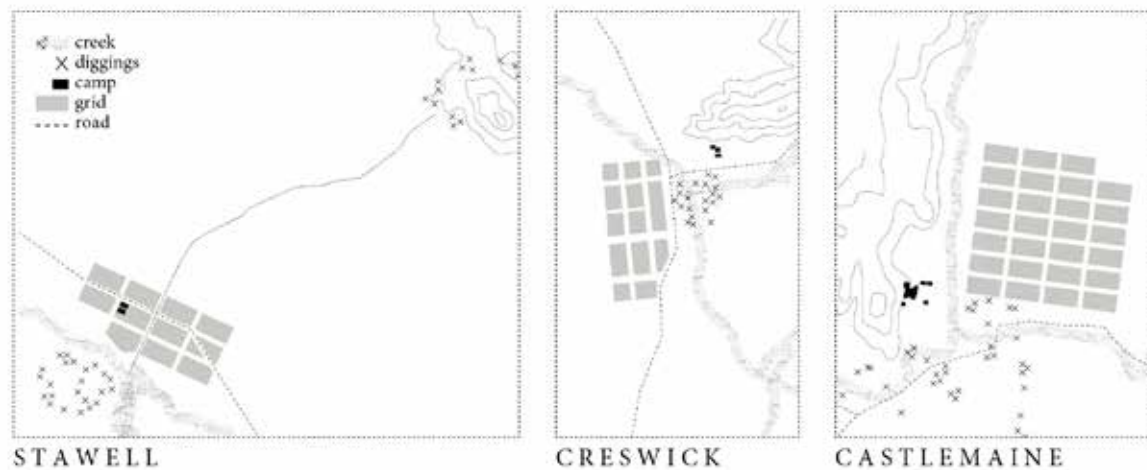


FIGURE 2 Left, the meandering Main Street in Stawell. Right, former courthouse in Stawell West. Images by Travel Victoria, licensed under a Creative Commons Attribution 3.0 License.

These two very different landscapes are part of the same town, formed at the same time in 1858 during the gold rush. Main St Stawell began life as 'Reefs,' a centre of activity that developed unplanned, facilitated by the extraction of gold from the quartz reefs around Big Hill. While Stawell West is a remnant of the site intended for the official Stawell Township. Its layout and structure are consistent with government surveying policy of that time. It is one of many towns in Victoria that are laid out on this structure, and part of a broader and comprehensive system of Colonial land division designed to control how land was used, and who could use it. Against this backdrop, goldfields towns like Reefs represent an anomaly, a kind of subversion of the system. In these places, land and people escaped, just a little, from the control and order imposed by the colonial survey. The urban structure that arose in response to this is surprising and diverse with its own set of alternative logics that have emerged in a more informal way.

In this paper, Stawell is used as a primary example to explore this urban structure, and a selection of other nearby towns such as Creswick, Ararat, Castlemaine, Tarnagulla, and Ballarat as reference points for comparison. It is not our intention to re-examine the historic circumstances that caused particular events in the gold rush. Rather it is to look for clues in these historical events that have direct correlation to physical outcomes in the built environment, and that continue to affect urban character today. Accordingly, the research here is based primarily from observations and analysis of geographical overlays between historic documents and existing conditions. Broadly this analysis can be grouped into three parts. Firstly, we look at factors that affect the initial organisation of mining activities such as geology, water flow and industrial processes, and the administrative structures that regulated them. Secondly we look at the method of land division and settlement, which was condensed and re-ordered during the gold rush, and the impacts of new tenure types such as Miner's Rights. Finally we look at the continuing existence of 'holes' in the landscape and the way these have affected and continue to affect the organisation of open space and public functions.

The gold mining history of particular towns and sites has been studied individually in depth.¹ This paper aims to look instead at the systematic and recurring nature of urban conditions across towns with the aim to develop a theory of urbanisation. This 'Gold Rush urbanism' provides a case study through which to observe, in particular, the characteristics of, and interdependencies between, planned and unplanned environments. In a local context, this has potential to inform and critique practices of planning and urban design responses. In a broader context, we conclude with a reflection on how this study can be positioned against the growing field of research into processes of 'informal' and 'formal' urbanisation and the morphologies that result from them.

Creek, Diggings, Camp, Grid

A common scene described in histories of the goldfields is the rush to new diggings.² These first rushes were usually to the alluvial flats beside a watercourse, where gold was near the surface and easy to extract. Here, mining could be done without much skill and no capital and it attracted a varied and large crowd of hopeful gold miners. Following a new rush, the establishment of a government camp was a priority, and if the rush were sustained, a township would be surveyed. The rules for laying out a town had been established by the Deputy Surveyor General in 1836-37.³ A town reserve was to be of 640 acres (1 square mile) and located astride a watercourse. An initial gridiron pattern of 30m-wide streets was to be laid out, in proximity to the water supply, but not on an area prone to flooding. Town allotments were around a quarter acre and reserves were to be singled out for public and religious purposes. In the goldfields, geology was also considered – the township did not want to conflict with mining interests. In Ballarat, Surveyor William Urquhart “carefully avoided any land to the east of the Yarrowee, where the diggers had been,” instead laying out a four block grid on a plateau to the west of the river.⁴ The camp was strategically sited within the grid, on a high point on the eastern boundary overlooking the river and the diggings to the east.

Stawell was arranged in a similar way. The site for the township was on the north side of the Pleasant Creek, elevated above the diggings on the south. It consisted of a four block grid pattern of 30m wide streets, and the police station was later located in the southwest of this grid with views over the diggings. This basic and recurring pattern can also be observed in other towns [Fig. 3].



FIGURE 3 Three arrangements of creek, diggings, camp and grid. Image by author.

The proximity between the four elements established at the opening of the alluvial diggings did not necessarily last. In fact these surface diggings were short lived, giving way by 1860 to new discoveries far below the surface.⁵ In Stawell, for example, the discovery of gold at Pleasant Creek was followed by rushes at Commercial Street to the west and Deep Lead to the north and finally by the more sustained mining at the quartz reefs on Big Hill. It was the underlying geology that drove this progression, and therefore each town developed differently and specifically. But despite the variation between places, the four basic elements of creek, diggings, camp and grid remained key elements present in each place.

A Two-Type Urban Structure

Even at the early stage of the alluvial diggings we can see establishment of a fundamental goldfields pattern based on two distinctive urban structures side by side, separate but linked. On the one hand was the administrative centre, sensibly designed and consistently ordered with land reserved for particular functions such as streets. On the other hand were the diggings, which were deliberately (and pragmatically) left free of the abstract structure of the grid. Here all land was left equal and unqualified – free to be claimed and free to be mined. On surveying maps, the alluvial diggings are often represented by a series of dots or smudges or strange symbols depicting little hills. The tents,

machines, people and tracks that made these places into urban environments are absent. The grid on the other hand is drawn as though streets exist, and are definable in the landscape. When looking at these maps, it is easy to imagine that the grid is a town, and the diggings an annex supported on this structure. In reality, without either buildings or cleared streets the grid remained an abstract construct – visible only on paper – while the diggings, although temporary, were a real urban environment.

Right from the start the ‘diggings town’ rivalled the ‘gridded town’ for population and commercial activity. In Stawell, the activities at the quartz reefs developed into what was a first – a separate settlement with its own name. By 1871 the township of ‘Reefs’ had a population⁶ of over 5000 while the official township of Stawell had dwindled, being simply the “abode of a handful of Government employees and a few remaining hotels and stores.”⁷ Although these two places were separated by distance and identity, they continued to be co-dependant and function as one unit. Administrative functions such as the telegraph office, post office and Shire Hall remained in the original township. Commercial activity was centred in Reefs, in proximity to the mining action and along the roads that serviced it.

Other towns show different versions of this relationship. In Ballarat, the Yarrowee River forms a clear boundary between the grid in the west and the diggings in the east. In Ararat, the diggings town and its commercial activity remained closely linked to the gridded town, with the junction between the two signalled by a kink in the main thoroughfare of Barkly Street. In Tarnagulla, the diggings town is represented by a single street where all the commercial action took place. Commercial Street as it became known, developed alongside the prosperous and sustained Poverty Reef and runs vaguely parallel to the narrow grid to the east over the creek, and the two are stitched together by various cross streets. The difference between these two types of urban structures remains clearly evident in these towns, both on maps, as well as through experience. [Fig. 3]

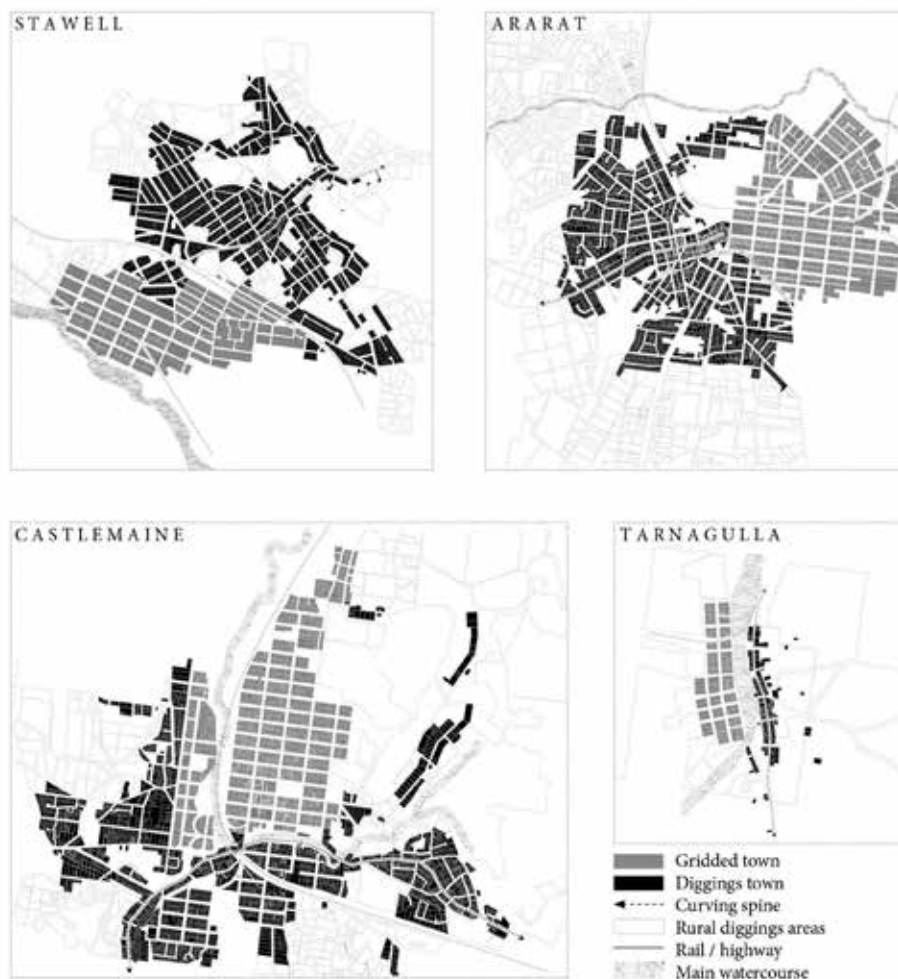


FIGURE 4 Four versions of ‘gold rush urbanism.’ Image by author.

Land Division

In Stawell in 1861, the “whole of the reefs – as distinct from Stawell township – was unalienated Crown land held by occupants under the miners’ rights and the variation that allowed business premises to be set up for a license fee of 4 shillings a week.”⁸ The miners’ right was brought into being in the Gold Mining Regulations of 1855. This outlined new regulations relating to the size and cost of claims, and established the right to occupy Crown Land “for the purpose of residence in connection with the object of mining” and also to purchase a business license.⁹

This difference in land tenure had several implications for the built environment. All land on the diggings was available for mining and related purposes meaning that no land was protected, except by prior claim. This led to a particular lack of attention to spaces that may have otherwise been seen as public, such as streets. Makeshift roads could and did suddenly become part of mining claims as happened to Main Street when “a mining claim was taken up and pegged in a carriageway.”¹⁰ Streets and thoroughfares in the diggings were therefore non-permanent and in flux. There were also no reserves, at first, for religious or public functions, and the temporary nature of leases discouraged more permanent buildings of any sort. Miners’ rights tenure encouraged living and doing business on the diggings, rather than in the surveyed town – instead of purchasing freehold titles, people preferred the convenience and low cost of living as “squatters on government land.”¹¹

The Gold Regulations of 1855 restricted the allowable size for claims. A miners’ right claim was limited to 12x12 ft for an individual, 12x24 ft for a party of two miners and so on until the maximum amalgamation of six miners was reached. Claims on quartz reefs were granted in larger portions, “not exceeding 220 yards along the vein,” while business licences allowed “a frontage of sixteen feet six inches (5m), irrespective of depth.”¹² Ultimately, these regulations were varied by local provisions and events, and defended through the courts to differing degrees which dilutes the impact that these particular dimensions on patterns of land division.¹³ One area in which a direct correlation to physical outcomes can be observed is along the main commercial streets in the diggings areas which are lined with narrow allotments such as 51 Albert St, Creswick (5x62.5m), 110 Main St, Stawell (4.5x51m) or 73 Bridge Mall, Ballarat (3x50m). These allotments are often irregular, with dual frontage to back streets as shown in Stawell. [Fig. 1]

The rushed nature of the gold rush also condensed and re-ordered the processes through which land was surveyed, claimed, processed and documented. “Survey before selection” was once an integral surveying policy, seen as important for keeping control of squatting claims, and for progressing ideas such as systematic colonisation, which aimed to settle British immigrants on small-scale farms.¹⁴ During the gold rush, however, surveyors could not keep up with demand, and the 1865 Land Act officialised common practice by allowing selection before survey. With no plan or divisions in place to guide selection, the process of mining claims progressed in a truly bottom-up manner, with individuals deciding locally on their claim and pegging it out themselves before making an application at the Lands Board. This lack of survey had knock-on effects. The description of land on a miner’s right claim was limited to a total area and location.¹⁵ This was widely open to interpretation as well as to error, and there were many instances of overlapping claims and discrepancies as well as great variation in the shape and type of claims. This contrasts markedly from the repetition present in both the surveyor’s grid as well as the speculators estate in areas of Melbourne at a similar time. The difference between the orderliness and homogeneity of the allotments in surveyed areas compared to Miners’ Rights areas is clearly visible in Stawell. [Fig. 1]

Miners’ rights and the related businesses and residences were considered to be temporary, associated with the act of mining while it was taking place. However in effect, miner’s rights became an alternative type of tenure, which could be maintained for a very small fee and be passed on to descendants. Over time, residents and businesses campaigned for miners’ rights to be sold as freehold. In Stawell, land in the Reefs area was sold off progressively in allotments corresponding directly to existing leases beginning with Main Street in 1871.¹⁶ This also happened in Main Street in Ballarat, in both instances, preserving the distinctive pattern of allotments. In other more residential areas, miners’ rights were still commonly being transferred to crown grants decades and even centuries after they were first granted.¹⁷

Streets

In the surveyed township, the grid was an empty structure, waiting to be filled with objects that would in turn generate meaning for the streets. In towns like Reefs, no official streets existed at all – this would have been considered a restriction on the mining interests who wanted to maintain “the right to sink a hole wherever it saw a prospect.”¹⁸ What developed instead was a series of informal tracks which each had a specific relationship to landmarks and destinations that existed in the real world. Important tracks were those that connected the diggings to other towns – the way one came in. In Stawell these streets were Patrick Street (to Ararat) and Main Street (to the official Stawell township), both with a distinctive lack of straightness or consistency. These curving spine-like commercial streets occur in many gold towns. [Fig. 4] Albert St in Creswick and Commercial St, Tarnagulla are two examples. In Ballarat, Main Road, which was once the bustling centre of the Ballarat diggings on the road in from Geelong, connects to the surveyed grid through Bridge St before winding through the old diggings areas of Golden Point. The different nature of the land division along these streets greatly affected their formal character. The gridded town contained freestanding civic buildings, set back from the street and offset from boundaries. Along the curving spine, commercial buildings were squeezed into the narrow allotments, as described above, and addressed the thoroughfare with frontages and verandahs. In towns where populations have decreased, such as Tarnagulla, this difference becomes pronounced as freestanding buildings become enveloped in vegetation while Commercial Street retained the illusion of an urban edge.

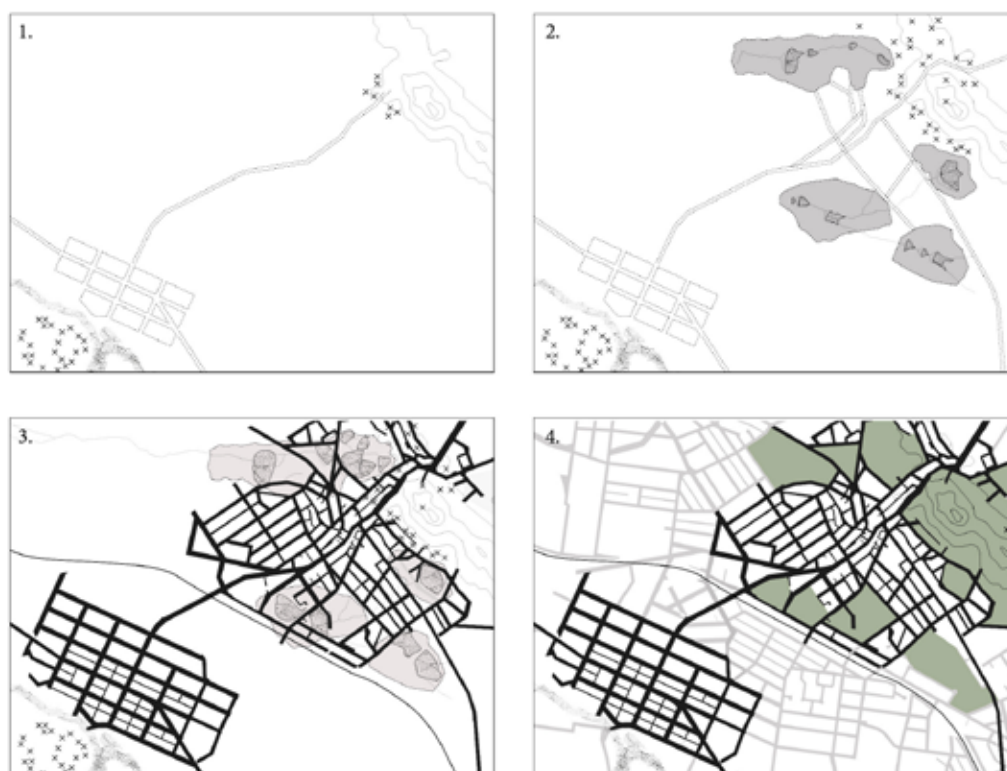


FIGURE 5 Photos of Tarnagulla. Left, the Uniting Church amidst encroaching bushland. Right, Commercial Street retains the illusion of an urban edge. Left image by author. Right image by Travel Victoria, licensed under a Creative Commons Attribution 3.0 License.

Within the towns the landmarks were excavations – holes made from mines or for tailing dams and water reserves. These points formed early landmarks in the landscape of Reefs, and each required tracks to get to and fro. In particular, aggregate drawn out of the mines had to be transported to crushing mills for processing. In Stawell, Victoria St, St George St, Wimmera St, Grant St, La Mont St and Newington St all led to crushing mills of the same name. Mapping the tracks to and from these landmarks of goldfields towns helps to give logic to the current street layout of towns, making a kind order from what otherwise might seem random. [Fig. 6]

Given the right to occupy land as well as to conduct business, the construction of buildings was allowable and prevalent. Buildings could be constructed anywhere on claims without reference to frontages, access, or building function. The opportunistic and unplanned system of tracks formed a key structure of the urban fabric, guiding the location of temporary, and then not so temporary, shops and residences. As tracks and thoroughfares became more defined by a built edge, there was mounting pressure from businesses for them to be protected. In Stawell, this was an elongated process as there was division between those who wanted streets proclaimed, and those that considered it against the mining interests.¹⁹ Streets, therefore became official in a piecemeal way, Main St and Patrick St at first, then Wimmera St, Scallan St, Church St and Clemes St followed.



FIGURE 6 The development of Stawell over time. Image by authors.

The effect of proclaiming streets after they had been established, as happened in the goldfields towns, was a bit like selection before survey – there was no consistency in width or arrangement, and there were many discrepancies, particularly between the surveyor's intention and reality on the ground. At Ararat, a survey taken at this crucial moment reveals the confusion on Barkly Street. [Fig. 7] The outcome of this was a compromise: Barkly St follows the organic and winding course shown on early maps, however many buildings on the north side of the road were later moved in order to establish the boundaries of the wider street. In Ballarat and Stawell, allotments along their respective Main Streets were sold 'as is,' preserving the narrow widths and distinctive allotment patterns.



FIGURE 7 Crop of map: *Township of Ararat*, Office of Lands and Survey, Melbourne 1860. Sourced from State Library of Victoria, out of copyright.

Gaps in the Urban Fabric

As discussed above, significant organisers of the goldfield towns were the holes created for mining and related functions such as tailings dams – which influenced the arrangement of streets and buildings. The locations of these industrial sites were themselves organised around elements of the natural landscape. Initial small claim mining sites were located on the surface, often along waterways. These created a kind of accelerated erosion, characterised by a “mass of shallow holes and hummocks of dirt.”²⁰ Examples of these landscapes can be seen all over central Victoria, including in Stawell on the site of the initial pleasant creek diggings. Deeper mining required vertical shafts and tunnels rather than open pits, however the structural integrity of the landscape was often destroyed and many underground mines were later exploded for safety reasons. The location of these deeper mines followed the logic of buried quartz reefs and ancient alluvial beds. Along these veins, mining leases were arranged in a chain not unlike allotments on a street.

Processes such as sluicing and quartz crushing also required excavation, for dams to retain and re-use water in order to separate gold from mullock. Topography was important in the positioning of these large voids and they were strategically located along gullies or paths of water. This could result in a chain-like pattern of interconnected holes. The logic of these underlying geological, alluvial and topographic systems can be recognised through the remnants of the industrial processes described above. In Stawell, mining leases developed along the quartz reefs of Big Hill, and dams were arranged in interlinking chains along gullies. [Fig. 6 & 8]

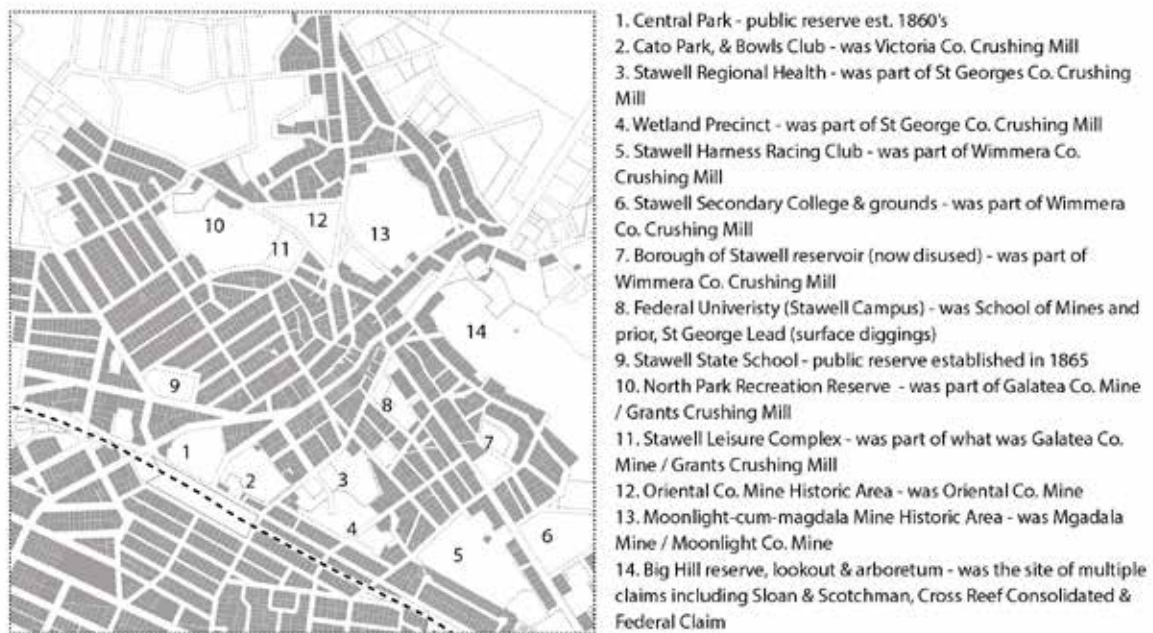


FIGURE 8 Left, view to Town Hall over Cato Lake. Right, view over terraced dams from Big Hill. Images by Travel Victoria, licensed under a Creative Commons Attribution 3.0 License.

Following these industrial processes, sites were left environmentally degraded and structurally unsound. Mining claims over these kind of sites were not renewed and reverted in Crown control. This is markedly different to the business and residential claims that were transferred over time into freehold title. The physical characteristics limited the uses that these sites could be put to and remediating them was costly and difficult. Many historic mining sites in Victoria even now remain unremediated.²¹ One simple way dealing with their specific limitations was to make a water body and many goldfields towns have lakes in and around their central main streets. Cato Lake is one example of this at the south end of Main Street in Stawell. This was transformed after community pressure from the tailings dam of the Victoria Crushing mill and at one time served as the town's Olympic Swimming Pool. Calumben Park and St Georges Lake in Creswick, as well as Daylesford Lake are similar. All were formed by the purposeful collapsing of multiple underground mines and also became outdoor swimming spots. In Bendigo, the ornamental Lake Weeroona was formed on the site of the alluvial diggings. Other holes became rubbish tips, such as White Flat in Ballarat. Many more were filled with earth and repurposed as open space such as North Park Recreation Reserve in Stawell.



FIGURE 9 Catalogue of public spaces in Stawell, on the area of the 'diggings town'. Of the fourteen spaces surveyed, all but two have a past history of mining activity. Image by authors.

Ex-mining sites suit functions as described above: they are larger than allotments around them; they are environmentally and structurally degraded so they can not be used for residential purposes; and they are often by default in public ownership or control. These traits allow them to act like Crown reserves, setting land outside of the property market until it becomes useful for the community. Fig. 9 catalogues public open spaces in Stawell north of the railway line, on the site of the diggings town. Of the fourteen open spaces noted in this area, only two smaller ones (Central Park and the State School) were reserved in advance. On each of the others, historic maps show different mining activities. For example, St Georges crushing mill and dams have become the Stawell Wetlands as well as the car park for Stawell Regional Health, while the Wimmera crushing mill has become the Harness Racing Club and the grounds of the Secondary College. These sites are integrated right into the town, as the mines were to the diggings town; streets lead to them, as they did to crushing mills; and the arrangement of public functions in an unseen way follows the logic of local geology and water, as did the processes of mining. When we overlay the figure of the urbanised allotments onto the geological map of 1887 in Stawell, the chains of linked dams and the clustered mining sites are clearly visible in the gaps and anomalies of the urban form. [Fig.10] This overlay makes sense of the surprising, illusive, and 'hole-y' urban form of Stawell.

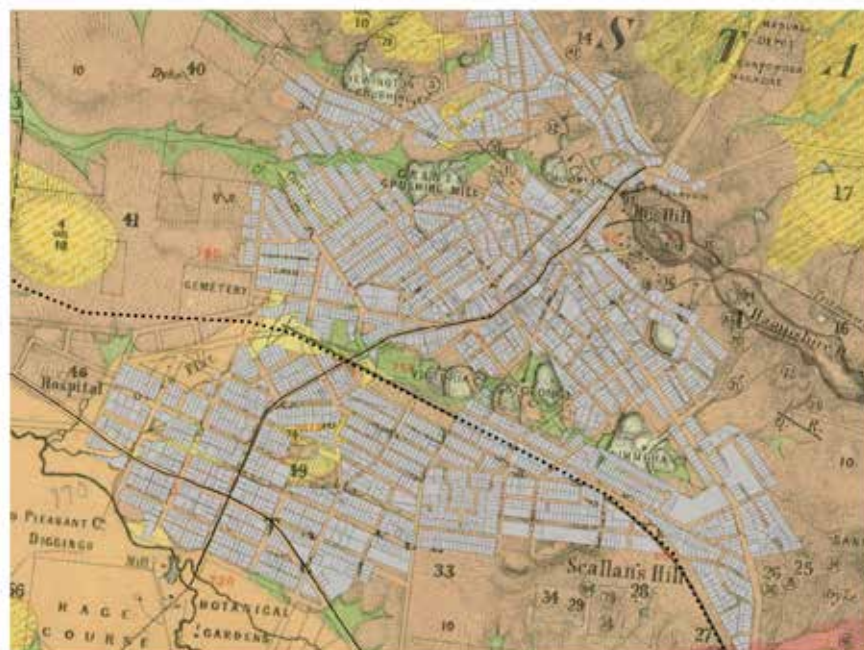


FIGURE 10 Overlay of geological survey with current day allotments, Stawell. Image by authors. Underlay image part of map: Taylor, Norman, and E. R. Morns, *Victorian Goldfields Geological Maps 1:31 680*, (Mines Dept, 1878). Sourced from the State Library of Victoria, out of copyright.

Conclusions

The collection and comparison of several gold rush towns to the primary example of Stawell shows that characteristics of these towns are not 'one offs,' but rather variations on a theme. Each one was formed through a similar process of urbanisation, with urban structure evolving through a series of repeating logics. The two type urban structure, the curving spine, converging streets, varied allotment patterns, and the correlation of public spaces to sites of ex-mining are key elements of 'Gold Rush urbanism.' These patterns are also visible in the town structures of Bendigo, Maryborough, Beechworth, Daylesford, Clunes and many others. Within this extensive catalogue are towns in all stages of growth and decay – ones that never boomed, ones that boomed and then bust, ones that boomed and then kept on going. Whether used in planning for growth in regional centres, or to understand the potential impacts of shrinking towns, this catalogue can be posited as a resource for nuanced planning responses to towns in this region.

There is potential for this research in a wider context. As a whole, these towns provide a unique case study of a particular recurring urban structure as it evolves over time, how it changes in response to particular conditions and the kinds of urban characteristics that it creates. In goldfields towns the intrinsic relationship and close co-existence of two types of distinct urban structures brings the specific characteristics of each into sharp relief. On the one hand, this allows us to observe and document patterns in the unplanned diggings towns and bring them together into a category of 'Gold Rush urbanism.' On the other hand, it allows us to reflect back on its planned counterpart, the colonial land survey, not as a generic or default condition but as something that was established (and continues) to control and order the way in which people interact with the land.

Libby Porter argues that the colonial system of land division provides the origins of our current planning system.²² Certainly the instructions for the first survey required much more than a simple documentation of existing conditions, what we might think of as a 'survey' today. As they categorised land to be either sold or reserved, surveyors set in place the structures instrumental in the dispossession of indigenous people from their land.²³ The survey attempted to regulate and control new settlers, from the squatters down to the convicts. In the size of allotments, the spacing of towns and adherence to an abstract grid, the survey embodied a set of ideals and preconceptions relating to contemporary notions of an ideal rural based on the "concentration of enterprise and people within a properly formed social structure and limited geographical boundaries."²⁴ It was in the colonies that "Europe found new opportunities ... to try out experiments of town layout, land use formation and patterns, that were not available at home."²⁵

This argument follows that colonies such as Victoria, more than in other places which were urbanisation occurred over time and in a piecemeal way, have inherited a planning system based on the aspiration of a comprehensive abstract plan for land use administered through centralised authority. Against this backdrop, urban structures that grew out of the diggings reflect an alternative urbanism with its own set of interesting and potentially useful and desirable characteristics born from a context with less regulation, less order and less control. Without advocating for a system without planning, this paper suggests that planning could learn from a study of the positive circumstances present in these existing 'hybrid' urban environments.

Goldfield towns were inherently 'mixed use,' bringing together residential, industrial and commercial activities into a varied built environment with surprising adjacencies. This mixed use remains today – the difference in allotment type and size helps this to continue over time. We have demonstrated the usefulness of ex-mining sites over time which act to 'leave out' land from the speculative property market. This unaccounted and un-zoned land becomes an abundance resource over time to fulfil the needs of communities in the future; not only for expected or repeating uses such as public open space, but also for uses that are unforeseen and unusual. These spaces, as well as the streets and their corresponding built form have a unique connection to both natural and historic landscapes. They reflect a process of urbanisation that developed organically, as a manifestation of the way people like. This results in unexpected and often picturesque characteristics, which give an alternative and delightful experience for the urban explorer and inhabitant. These elements of *gare reminders* , „be ive; limiting

The discussion of the differences between planned and unplanned environments evident in these towns suggests a comparison to current bodies of knowledge on 'informality' and the urban structures associated with this research. Informality can be defined simply as practices or activities that are unregulated by the state.²⁶ This definition decouples informality from a particular place or socio-economic condition, positing it rather as a way of acting or behaving which is not necessarily illegal, but instead represents actions that had not been foreseen by the state, or those that exist in

the ambiguity of the law. While informal urbanism reaches its most extreme conditions in rapidly developing nations, many scholars now study informality as a phenomenon that co-exists with planned environments in many cities to different degrees, for example the work of Vinit Mukhija and Anastasia Loukaitou-Sideris in California.²⁷ Goldfields towns represent an interaction and co-dependant relationship between formal and informal urban processes. The administrative grid, and the basic regulations regarding size and type of claims represent formal structures. But on the diggings, the actions of individuals in selecting and laying out their claims to suit their own requirements; the positioning the location of shops and houses; the development of streets through collective use; and the existence of public spaces by default, all suggest practices which fall into the category of the informal. In this context the goldfields offer a case study of informal practices and their urban consequences.

The research here details the systemic nature of informal logics that bring about a recurring urban morphology across towns. This morphology has some elements that are specific to individual conditions, as well as others that transcend the particularities of context. This suggests that comparisons with other instances of informal urbanisation would be useful. One striking example of this is the work done by Kim Dovey and Ross King which studies the recurring arrangements of urban fabric around infrastructure, both natural (such as topography) and artificial (such as transport corridors), in developing nations.²⁸ They show that urban fabric responds to the limitations and opportunities offered by these particular physical structures by developing specific and recurring patterns of built form. This is a fundamental characteristic studied above in relation to goldfields towns.

Dovey and King call for a more detailed morphological analysis of informal settlements and the processes through which they emerge.²⁹ Mukhija and Loukaitou-Sideris suggest that practitioners and students in developed countries need greater knowledge of informal urbanisation. This is important, they argue, not only to understand “the persistent significance of urban informality in developing countries” but also to enable an understanding of the informal elements within developed cities and how planning and urban design policy may adapt and learn from these.³⁰ In this context, Gold rush urbanism provides an interesting and controlled case study of the interaction of informal / formal environments, one with a thorough catalogue of versions and variations for review and ample source material for study.

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Endnotes

- 1 For example for Stawell we have referred to: Robert Murray and Kate White, *The Golden Years of Stawell* (Stawell: Town of Stawell in conjunction with Lothian Publishing Company, 1983). For Ballarat: Weston Bate, *Lucky City: The First Generation at Ballarat, 1851-1901* (Carlton South: Melbourne University Press, 2003).
- 2 For an evocative, fictional description, see Henry Handel Richardson, *The Fortunes Of Richard Mahony* (London: Heinemann, 1917), 7-10.
- 3 Surveyors Board of Victoria, *Survey Practice Handbook Victoria / Surveyors' Board, Victoria* (Melbourne: Surveyors Board, 1994), 62-68.
- 4 Bate, *Lucky City: The First Generation at Ballarat, 1851-1901*, 25.
- 5 See Geoffrey Blainey, *The Rush That Never Ended: A History of Australian Mining*, 5th ed., (Melbourne: Melbourne University Press, 2003), 60.
- 6 Weston Bate, *Victorian Gold Rushes* (Fitzroy: McPhee Gribble Publishers Pty Ltd, 1988), 56.
- 7 Murray and White, *The Golden Years of Stawell*, 29.
- 8 Murray and White, *The Golden Years of Stawell*, 29.
- 9 Victoria Premier (1855-1857: Haines), and William Clark Haines, *Gold Mining Regulations: Under the Act of Council 18 Vic. No. 37*, (Melbourne: John Ferres, Government Printer, 1855).
- 10 Charles Edward Sayers, *Shepherd's Gold: The Story of Stawell*, (Melbourne: Cheshire, 1966), 52.
- 11 Sayers, *Shepherd's Gold: The Story of Stawell*, 42.
- 12 Victoria Premier and Haines, *Gold Mining Regulations: Under the Act of Council 18 Vic. No. 37*, 3.

- 13 Bate discussed this in relation to Ballarat in Bate, *Lucky City: The First Generation at Ballarat*, 1851-1901, 91.
- 14 See Michael Williams, "Smaller and closer is better: Australian Rural settlement 1788-1914," in *Australian Space, Australian Time: Geographical Perspectives*, ed. Joseph Michael Powell and Michael Williams, (Melbourne: Oxford University Press, 1975), 67-75.
- 15 For example see <https://victoriancollections.net.au/items/53daffce9821f513b8858a57>.
- 16 See "Government. A Sale of Crown Lands," in *Pleasant Creek News*, September 7, 1871.
- 17 See Bate, *Lucky City: The First Generation at Ballarat*, 1851-1901, 91.
- 18 Murray and White, *The Golden Years of Stawell*, 29.
- 19 See "The News. Reefs, Tuesday, July 28," *Pleasant Creek News*, July 28, 1868.
- 20 Brian McGowan, "Mullock Heaps and Tailing Mounds: Environmental effects of alluvial goldmining," in Iain McCalman, Alexander Cook, and Andrew Reeves, *Gold: Forgotten Histories and Lost Objects of Australia* (Cambridge, Melbourne: Cambridge University Press, 2001), 344.
- 21 Corrine Unger, Alex Lechner, Vanessa Glenn, Mansour Edraki, and David Mulligan. "Mapping and Prioritising Rehabilitation of Abandoned Mines in Australia," *Life of Mine*, no. July (2012): 259-65.
- 22 Libby Porter, *Unlearning the Colonial Cultures of Planning* (Surrey: Ashgate Publishing Ltd., 2010).
- 23 Porter, *Unlearning the Colonial Cultures of Planning*, 51.
- 24 James Jupp, *The Australian People: An Encyclopedia of the Nation, Its People and Their Origins* (Cambridge; New York; Oakleigh, Vic.: Cambridge University Press, 2001), 29.
- 25 Porter, *Unlearning the Colonial Cultures of Planning*, 50.
- 26 This concept is discussed in Alejandro Portes, Manuel Castells and Lauren Benton, *The Informal Economy: Studies in Advanced and Less Developed Countries*, (Baltimore: Johns Hopkins University Press, 1989), 12.
- 27 Vinit Mukhija and Anastasia Loukaitou-Sideris, *The Informal American City: Beyond Taco Trucks and Day Labour* (Cambridge: MIT Press, 2015).
- 28 Kim Dovey and Ross King, "Forms of Informality : Morphology and Visibility of Informal Settlements," *Built Environment* 37, no. 1 (2011): 11-29.
- 29 Dovey and King, "Forms of Informality," 28.
- 30 Vinit Mukhija and Anastasia Loukaitou-sideris, "Reading the Informal City : Why and How to Deepen Planners' Understanding of Informality," *Journal of Planning Education and Research* 35, no. 4 (2015): 444-54.