Urban agriculture has a long history entwined with place creation, personal expression and activism (Steel, 2008; Cohen, 2012). Despite regulatory and design interventions that attempt to hinder urban agriculture activities, communities continue to use it as a platform for exploration, experimentation and demonstration. What is revealing about the new food practices which have emerged in the second half of 20th century and into the 21st century is their ability to influence, inspire and inform like practices. This conviviality offers innovation opportunity for change makers within this space. This discussion will trace urban agriculture’s historical narrative with a particular focus on its use as a form of activism. It will then explore the critical junctures when new practices in food have informed like practices. This paper will specifically focus on how permaculture, has informed new food practices in an urban setting as an example of cross pollination between practices. Three categories of new food practices have been identified that demonstrate how permaculture has shaped the contemporary movement. These categories are Urban agriculture as a mode of participatory activism, reciprocity and commercial endeavour. The discussion will conclude with a look at future food practice possibilities.

Keywords — urban agriculture; food practices; activism.

INTRODUCTION

New social and technical practices around food have emerged in response to major global events such as war efforts and financial crises. Interestingly, some of these new practices which have emerged have not only been informed by global developments and events, but they have also developed and evolved in response to each other. This has been seen in Australia by the emergence of Permaculture (Mollison & Holmgren, 1978).

Permaculture, or permanent agriculture, identifies opportunities to develop different forms of prosperity based not only in harmony with nature but a system that nourishes natural systems (Mollison & Holmgren, 1978). Permaculture provides both a theoretical framework and practical applications through its principles and new design opportunities which inform new food practices significantly contributing to building a new localised fair food system.

The contemporary, highly publicized versions of urban agriculture including guerrilla gardening and grafting, urban food foraging tours, city farms and bespoke community orchards and gardens, could skew a perspective on urban agriculture as something new. However, urban agriculture’s role in co-locating food and people as well as its contribution to society is much bigger than ‘simply satisfying a feel-good niche’ (Mok et al 2013).

Urban agriculture has been defined as, ‘growing fruits, herbs, and vegetables and raising animals in cities, a process that is accompanied by many other complementary activities such as processing and distributing food, collecting and reusing food waste and rainwater, and educating, organizing, and employing local residents’ (Cohen et al. 2012). There have been numerous other definitions of urban agriculture in the literature (Smit et al. 1996; Mougeot 2006; FAO 2007), however for the purposes of this discussion, we focus on horticultural activities within an urban or peri-urban setting, since food plant cultivation has been the dominant form of urban agriculture historically (Gaynor, 2006).

This discussion will trace urban agriculture’s historical narrative with a particular focus on its use as a form of activism. It will then explore how permaculture has informed new food practices. Three categories of new food practices have been identified that demonstrate how permaculture has shaped the contemporary movement of urban agriculture. These categories are Urban agriculture as a mode of participatory activism, reciprocity and commercial endeavour. This paper concludes with a discussion on future food possibilities, informed by the historical context presented. Examples cited will predominantly be from Melbourne and Victoria, Australia.

PART 1: HISTORICAL CONTEXT

The basic human need to eat and to secure access to a constant replenishment of food has fuelled human settlement and city formation. Growing reliable crops, increasing yields, and developments in storage and transportation has slowly removed humans from our daily food system (Steel, 2008). What emerged as a perverse outcome to these advantages was a class based society between those people who had to farm for food and those that could afford to pay someone else to grow food for them.

The story is common across geographic boundaries, from the 15th century English enclosure to the colonization of India - the rights to access land were restricted to those who could afford to own it, launching the notion of ‘private property’ (Patel, 2009). This process created an economic revolution but its social repercussions are profound. It is also at this point where the rift in human psyche, between living with nature and having to exploit it begins. There have been many activist attempts to ‘right the wrong’. The Diggers in 17th Century England is one of the more common examples of the uprisings where ‘radicals’, with the aim of growing food to give away to the poor, seized public land (Patel, 2009).

Australia, who came to the formal agricultural development phase (globally) later, developed a new colony with a directive to not only be self-sufficient but to supply ‘the mother land’ with food as well. Governor Macquarie was particularly passionate about creating a civilization that was food secure detailed in his ‘vision splendid’ (Mason & Knowl, 2011). The new colony was ‘a land of opportunity and there was plenty of land available to exploit’ (Mason & Knowl, 2011, pp.63). Those people wealthy enough to own land, or those willing to relocate and work in order to own land quickly ‘developed the template of land acquisition and break up’ (Mason & Knowl, 2011) cultivated an influential culture of man dominating the landscape which is still present today through developer-driven subdivision (Mason & Knowl, 2011).

At the end of the 19th Century, cultivation of livestock and horticulture was commonplace in Australian cities (Gaynor, 2006). Market gardeners were established on the outer areas of the cities, particularly on the low-lying land near the edge of wetlands or rivers due to the fertile land and easy access to water for irrigation (Gaynor, 2006).

During the World Wars in the first half of the 20th Century our globally vulnerable food system was exposed. The Australian Commonwealth Department of Commerce and Agriculture launched a large-scale ‘Grow Your Own’ campaign in 1943 in order to encourage civilians to make up the shortfall in vegetables and eggs. This campaign’s aim was to encourage home gardeners to grow their own vegetables ‘as a patriotic duty’. At this time, urban agricultural initiatives were supported by governments and was perceived as ‘in line’ with what was best for the greater good, and positioned the war effort as something they could support right from their own backyards (Gaynor, 2006).
Australia emerged from the war years, riding high on the promise of a bright new future. The 1940s and 1950s saw a population explosion, the emergence of the ‘quarter acre block’, the personal automobile and convenient neighbourhood supermarkets and refrigeration (Mok, et al, 2013). For the first time, Australians could remove themselves from backyard food production, transforming this space into venues of consumption (Gaynor, 2006). People were encouraged to embrace consumerist lifestyles as a patriotic way to support democracy and equality (Press and Arnould, 2011). However, some people chose to grow their own food motivated by the monetary savings, the perceived health benefits and the satisfaction derived from being productive (Gaynor, 2006). In fact, this trend continues with one in three Australian homes still growing some of their food (Gaynor, 2006) and, in some Australian cities, 100% of certain fruit and vegetables are produced in the urban fringes (ABS 2010, 2011).

Post war life in Australia was also characterised by Southern European immigration. Despite the availability and affordability of fresh produce in Australia at this time, many migrants wanted to continue their own traditions of growing food, which were not commercially available in Australia and thus, this activity was often one among many urban agricultural activities directed toward community development goals. (Cohen et al, 2010). For migrants, building a productive garden was a symbolic act of solidifying memories from home and establishing a new space and future here. During this time, attitudes around urban agriculture diverged. ‘Growing your own’ had been the ‘right’ thing to do, free from social stigma during the war years. Post the war, growing food being was seen as alternate, a behaviour belonging to others, an activity outside of the system (Mok, et al, 2013). By 1980, most of the major international organisations had taken policy positions on the environment including the World Bank, the European Community and the Organization for Economic Cooperation and Development (McCormick, 1989). In 1987, the World Commission on Environment and Development brought the notion of sustainable development into the public debate more broadly. The resulting publication, Our Common Future (The Brundtland Report, 1992), defined the pursuit of environmental sustainability as ‘meeting the needs of the present without compromising the ability of future generations to meet their own needs’, which in turn defined the task of the broader movement to find a balance between economic activity and the environment. The challenge lay in trying to have your cake and eating it too. The search for balance has coloured the efforts around sustainable development for the next 20 years, with many new food practices finding the answer in permaculture principles.

Environmental activism underwent a renaissance in the early 21st century. Urban agriculture emerged as a first frontier for activists to get involved and ‘do’ something, due to its low barriers for involvement and particular aesthetics – an imperative element in success campaigns in a social media age. The movement became solidified in the mainstream consciousness during the Global Financial Crisis (GFC) in 2009 when parallels were being drawn between the stock market crash then and the Great Depression. New food practices emerged, informed by previous practices, in particular permaculture, fuelled by a deep desire to be independent and develop lifestyle choices which reflect self-expression.

Small scale, distributed innovation flourished in response to the GFC, with urban agriculture becoming a space where people can make a difference including supporting vulnerable groups of people, trialling new monetary and non-monetary systems of exchange, and moving produce from a place of abundance to a place of need. The awareness around urban agriculture’s ‘complementary activities’ is broadening the appeal beyond just growing food. As identified in a study on urban agriculture in New York City by Design Trust for Public Space in partnership with Added Value, ‘growing food is often one among many urban agricultural activities directed toward community development goals’ (Cohen et al, 2010). Since the post war decades, urban agriculture has been viewed as a resistance activity, away from the dominant capitalist framework of consumption (Cohen et al. 2012). The permaculture movement has broadened the scope of how urban agriculture and activism can be designed and executed, by offering principles and a framework for design. The principles of permaculture are:

• Observe and interact
• Catch and store energy
• Obtain a yield
• Apply self-regulation and accept feedback
• Use and value renewable resources and services
• Produce no waste
• Design from patterns to details
• Integrate rather than segregate
• Use small and slow solutions
• Use and value diversity
• Use edges and value the marginal
• Creatively use and respond to change

(Mollison & Holmgren, 1978)

Three significant spaces within urban agriculture have emerged which demonstrate the use of permaculture principles which have become entrenched in the movement. These are:

• Urban agriculture as a mode of participatory activism, which draws on case studies of guerrilla gardening which have leveraged their activity to bring about policy development.
• Urban agriculture as a mode of reciprocity, which draws on product service systems which are used to create...
Urban agriculture as a mode of participatory activism: Case study on guerilla gardening

Imagine, if the streets were lined with fruit trees, empty spaces were filled with vegetable gardens and we were able to live amongst a growing abundance of food. This is the underlying ideology behind guerilla gardening initiatives, that is, when food is grown intentionally on public space without permission from local authorities (Cohen et al. 2012). Activities can range from small passive gestures such as planting a neat rows of herbs on the curb side, or placing a pot plant on the pathway, to big disruptive statements such taking over strips of land near railway lines and cultivating fruit trees and raised bed gardens.

Guerilla gardening activities are prominent and highly contested across Melbourne. In a recent article from The Age (Lucas, 2015b), residents in Carlton North debated over whether growing in laneways was appropriate use of space, or not. Interestingly the council was also split over this decision between those who could see the benefits of growing food on public spaces, which includes the social connectedness, skills sharing and doing something beneficial with a space at a time when many laneways were used to collect rubbish; and the other which included the residents right to use the laneway for car access to their homes (Lucas, 2015b). In an infamous council meeting with the City of Yarra, a group of residents that were pro growing food in public spaces formed a choir to sing their argument to the councillors. To the tune of Ralph McTell’s ‘Streets of London’ (1969), a small group of activist choir sang.

’Sohow can you tell me its middle-class welfare wasting our influence, money and time
Let us take you by the hand and lead down the streets of Yarra, we can show some things which will help you change your mind.’

In the wake of this event, the City of Yarra continues to pave the way for more progressive public space management, encouraged by a proactive group of grassroots activists.

A few suburbs north east of Yarra, a project was formed called Reclaim the Curb by a group of activists to ‘take action around forgotten pieces of public space by enabling those people who use it, to reclaim it by planting it out with productive edible plants’ (Reclaim the Curb, n.d.). The collective operates on a principle of asking for forgiveness rather than permission, bypassing council and organisational bureaucracy in order to enable community scale action. The group reclaimed several sites around the City of Darebin by enabling residents of that area to ‘reclaim the curb’ through working bees and holding competitions for the best curb to be reclaimed, in which the winners received a cash prize to help them garden publically. The residents who were part of these initiatives were able to actively participate with the council to create a new open spaces management policy which made room for guerilla gardening activities.

Guerilla gardening is one example of grassroots activism that use urban agriculture as a vehicle for engagement. This form of participatory activism operates on the premise of asking for forgiveness instead of permission for the action it takes, allowing the action to come to life, without being bombarded and dismissed by bureaucratic legislation. It energises communities because it gives them the opportunity to do something instead of just talking, not dissimilar to the permaculture movement before them, which informs their practice. Operating outside the mainstream is necessary for fringe and niche activities such as guerilla gardening, because this provides freedom for exploration and experimentation. The inspiration derived from these new food practices is amplified through appropriations and replications which ultimately create new practices incubating innovation.

Urban agriculture as a mode of reciprocity: Case study on product service systems

Urban agriculture initiatives are often criticized for their lack of yield, however many researchers cite the bigger value of urban agriculture being intangible outcomes such as the social connectedness, skills sharing and pathways to employment. This criticism, although holding true for many demonstration gardens and guerrilla gardening ventures, hasn’t stopped initiatives being developed to redistribute an abundance when there is one, and demonstrating that there is a significant amount of food being grown that can provide meaningful contributions to the community. Classified as product services systems (PSS), these initiatives operate within their communities to work with what they have on hand, and redistribute it to places of need. A PSS is an operation model that allow for the consideration of both goods and services, in which the two are integrated in such a way that allows for mutual collaboration and consumption. PSS have gained popularity, particularly through environmental researchers, as they offer a significant potential to achieve pro environmental outcomes. This is achieved as both producer and consumer approaches the design of the overall system holistically, motivated to minimize life-cycle costs and focus on the final user needs as a starting point (rather than the product hoping to fulfill the needs).

An outstanding example of a working PSS within the urban agriculture space in Melbourne is Darebin Fruit Squad. This initiative collects excess fruit from households within the council area of Darebin, and redistributes the harvest to people in need by engaging with food security organisations such as Secondbite, Darebin Food Bank, The Salvos, and the Asylum Seeker Resource Centre. Food security is a significant issue within the City of Darebin, with many of the emergency relief organisations that cater to this geographic area reporting that they find it difficult to meet the demand with fresh produce. However, Darebin produces a lot of fresh produce due to its rich history of immigrant resettlement, reflected in the variety and quantity of fruit trees still in the area. In its first year, Darebin Fruit Squad harvested over 1000kg of fruit, with the current overall count now recording over 8 tonnes of fruit in 5 years (Darebin Fruit Squad, n.d.). The initiative also works to maintain the fruit trees (pruning and fertilising) that are harvested in order to continue feeding this community.

Darebin Fruit Squad, and other PSS models largely inspired by the successful Abundance harvesting model demonstrated across the UK, have two defining features. Firstly, they operate outside of the monetary and regulatory system, that is the service is offered without payment and by volunteers. This act of reciprocity characterises the PSS initiatives that operate within the urban agriculture space, is predominantly based on permaculture principles of holistic thinking, producing no waste, the use of small and slow solutions and preserving a valuable renewable resource.

The second feature is that the initiative intentionally limits itself geographically. This is a very different approach to commercially orientated practices which would identify the demand from other areas as opportunities to scale. Some of the more established PSS initiatives such as the Darebin Fruit Squad and others including Growing Abundance and Street Harvest (both located in central Victoria) have also developed downloadable guide books for others that want to start similar projects in their area. These capacity building activities are critical steps for these projects to amplify their own initiatives but to also empower other communities.

The demonstration of PSS models in urban agriculture is an exciting example of how design thinking influenced by permaculture principles can inform a working solution to social and environmental problems and offer support services for communities.

Urban agriculture as a commercial endeavour: Case study on social enterprise

Since the UN call for sustainable development in 1992, initiatives have sort to balance economics, social and environmental interests (The Brundtland Report, 1992). One such initiative is Social Enterprise, a term applied to commercial endeavours where economic strategies are developed in order to maximize improvements in human wellbeing and positive environmental outcomes (Snit et al, 1996). Popular social enterprise examples include food box schemes and cafes with low barriers to participation for marginalised social groups.

Although social enterprise, as a business model, has been part of some business’ ethos before the call for sustainable...
development in 1992, the concept has enjoyed renewed popularity since the financial crash in 2009 (Smit et al, 1996). Social enterprise is viewed as a viable way to provide the environmental and social solutions our communities need, without waiting for government intervention.

A strong example of social enterprise is CERES Fair Food, a fresh organic produce box scheme which operates across Melbourne. The produce they source is from certified organic local growers. The name indicates, this business endeavours to pay the growers a fair price for their yield, while bringing in fresh, locally grown food to urban areas (CERES Fair Food, 2010). The distribution system used attempts to minimize the carbon produced through transport which is achieved through the establishment of delivery hubs in areas across Melbourne. Traditional box schemes deliver the box to each individual member. At CERES Fair Food, the boxes are delivered to designated hubs (which can be member’s front porches to custom sheds on private property) and other members local to that hub collects the box of produce themselves (CERES Fair Food, 2010). Further to this, CERES Fair Food employs people who have suffered from long term unemployment and offers them skills training in order to break that cycle and provide opportunity (CERES Fair Food, 2010).

The innovation of the CERES Fair Food model lies in its distribution methods which is fundamental to its success and contributes to the evolution of food systems. During the industrial revolution, advances in transportation and storage were fundamental in enabling people to live and work outside of the agricultural sector (Steel, 2008). New food practices within the urban agricultural sphere such as CERES Fair Food, but also food mapping and sharing initiatives, combine new and old technologies to enable more decentralised, human scale distribution system - web based systems for ordering, setting preferences, collecting and sharing geospatial data, yet old fashioned neighbourhood connections for collective harvesting and distributing fresh fruit and vegetables.

Consciously or not, the CERES Fair Food model overlaps permaculture design principles:

#1 Observe and interact
#3 Obtain a yield
#8 Integrate rather than segregate
#9 Use small and slow solutions
#10 Use and value diversity
#11 Use and value the marginal
#12 Creatively use and respond to change

The Permaculture framework fosters new models of change, informs their design, guides development of self-sustaining holistic systems, values the marginal and creative problem solving. Like the farmer clearing monoculture crop to make room to experiment, so Permaculture creates room in our thinking about, and practice of, social innovation. It is a contribution to the food movement, but also to how we think about and act on the need for social change more broadly. In complex systems language, social enterprise could be seen as the strange attractor within the new food practices space, demonstrating a new way of operating that had previously been regarded as fringe or grassroots, that the mainstream becomes attracted to and ultimately replicates. The process of replication from the margins to the mainstream takes the best of the innovation demonstrated at the fringe.

Permaculture helps us see that innovation doesn’t have to be designed to scale to bring about change, but rather prototyping, inspiring and de-risking through experimentation and failure are inherently valuable also.

PART 3: FUTURE POSSIBILITIES

The manifestations of new food practices within urban agriculture are demonstrations and prototypes of change for a new localised fair food system. A theory of change making that best addresses the movements seen in urban agriculture is Holling’s theory of panarchy. Holling describes panarchy as

… how a healthy system can invent and experiment, benefitting from inventions that create opportunity while being kept safe from those that destabilize because of their nature or excessive exuberance’ (Holling, 2009 p.190).

Holling’s panarchy theory is based on a hierarchy of levels that operate at different speeds. The slower and larger levels protect the faster, smaller cycles of innovation, which in response invigorate the slower and larger levels. This nested set of levels ranges in scales from a leaf to an inter-governmental conference. Relating this to the discussion around new food practices, the fringe activities such as guerrilla gardening operate on smaller cycles of innovation as they have the freedom and desire to experiment and explore different possibilities. Larger activities such as the social enterprise model food box schemes, operate on a relatively larger cycle but offers a different mechanism of change which is mainstreaming the opportunity to participate. Because the levels are connected, processes of growth and renewal can occur creatively at one place, but also have impact in others.

Building upon this as a possible solution to the global food system is Marion Steel’s proposal of a lattice-like framework she discusses in her book Hungry City (2008). Steel illustrates a model in which there are many producers at the top and many consumers at the bottom. However, there is no one size fits all approach. Rather, there are many different models and options for getting food from a place of abundance to a place of need. It is this model in which I see the possibilities of urban agriculture and its popularity as meaningfully contributing to a sustainable food system and encouraging pro-environmental behaviour in broader terms.

The initiatives outlined in this paper demonstrate the power of ideas to inspire different modes of practice in which to explore innovation in methodology and ways to create change at a variety of scales. The increase use of technology, in particular social media, will grow in its importance to communicate, demonstrate and amplify activities, which will influence other endeavours unlimited by geography. However geography itself will continue to be a determining factor in the indicative scope, as local, decentralised activities are fundamental elements in new food practices.

Urban agriculture’s appeal for the ground engagement is its ability to offer tangible actions to address global problems that are nature based. With an increasingly urban population, nature based interactions are becoming vital in understanding our place within natural cycles and to contextualise the value of environmentally friendly behaviour.

Could urban agriculture heal the psychological rift we are experiencing from our detachment from co-existing with nature caused by the industrial revolution? A community of change makers thinks so. But if nothing else, gardens grown good citizens. They teach people cooperation, teamwork, new skills, seasonal flows, ecological cycles, waste management and the value of food, to name just a few. Whether it be a publicly funded community garden or regular folks gardening in their backyard, the satisfaction gained from this type of engagement and the positive civic behaviour it encourages is worth the cultivation of.

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ABS, 2011, 7121.0 – Agricultural commodities, Australia, 2009-10. Australian Bureau of Statistics, Canberra, Australia
The economic realities of Australia’s regional cities create distinct post-industrial regeneration challenges when compared to their metropolitan counterparts. As regional cities have relied primarily on manufacturing industries and their workforces, when such operations cease the predominantly working-class populations, who typically have lower household and disposable incomes and levels of education and training, are ill-equipped to support or staff new industries immediately. Further, the economic instability, lower profit margins and the expense, red-tape and slow pace of undertaking medium to large-scale construction projects in regional cities make it difficult to attract development investment that is immediately. Further, the economic instability, lower profit margins and the expense, red-tape and slow pace of undertaking medium to large-scale construction projects in regional cities make it difficult to attract development investment that is immediately. Further, the economic instability, lower profit margins and the expense, red-tape and slow pace of undertaking medium to large-scale construction projects in regional cities make it difficult to attract development investment that is immediately. Further, the economic instability, lower profit margins and the expense, red-tape and slow pace of undertaking medium to large-scale construction projects in regional cities make it difficult to attract development investment that is typically relied on to trigger urban regeneration. Combined, the lack of sufficient skilled workers and private investment makes it difficult to realise the replacement of manufacturing activities with knowledge or creative industries (Hack, 2014). Few suitable or suitable for regional cities. Facilitated by clever manipulation of ambiguous aspects of planning and building regulation, minimal start-up costs and low overheads, networks of smaller service and civic operations appeared in underused domestic and commercial properties adjacent to industrial precincts. To further understand the relationship between planning, built space and small-scale economic activity suggested by the alternative configurations in the case studies, and to test their broader applicability, design research-based methodologies were adopted in the speculative application of the identified semi-legal, bottom-up approach to Corio, Geelong the former home of nationally significant car manufacturing plants. By studying the manoeuvring tactics deployed in Newcastle and Hobart, and applying the lessons learnt to the design of mixed-use typologies in Corio, this paper demonstrates that distinct urban strategies, that may enable appropriate stimulus in similar contexts, exist in regional cities.

**Keywords** — Regional cities; urban regeneration; hacking; design research.

**INTRODUCTION**

The economic realities of Australia’s regional cities create distinct post-industrial regeneration challenges when compared to their metropolitan counterparts. As regional cities have relied primarily on manufacturing industries and their workforces, when such operations cease the predominantly working-class populations, who typically have lower household and disposable incomes and levels of education and training, are ill-equipped to support or staff new industries immediately. Further, the economic instability, lower profit margins and the expense, red-tape and slow pace of undertaking medium to large-scale construction projects in regional cities make it difficult to attract development investment that is typically relied on to trigger urban regeneration. Combined, the lack of sufficient skilled workers and private investment makes it difficult to realise the replacement of manufacturing activities with knowledge or creative industries (Hack, 2014).