URBAN GARDENING SOUTH OF THE TRACKS IN MIDDLETOWN, USA:
AN EMBEDDED QUALITATIVE GIS APPROACH

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# Table of Contents

List of Figures ................................................................. iv
Chapter I → Introduction .................................................. 1
Chapter II → Literature Review .......................................... 4
Chapter III → Case Study and Methodology .......................... 18
Chapter IV → Results ........................................................ 29
Chapter V → Discussion ..................................................... 77
Chapter VI → Conclusion ................................................... 84
Appendix A → Field Map Examples ..................................... 91
References ........................................................................ 92
List of Figures

1 → Middletown class, from Lynd and Lynd (1937) ................................. 29
2 → Percent African-American population of Muncie, Indiana ................. 20
3 → Percentage of low income households in Muncie .............................. 20
4 → Study area .................................................................................. 22
5 → Conceptual layering of five data channels of qualitative GIS methodology ...... 23
6 → Google Map of gardens in study area ............................................. 25
7 → Gardens within the pedestrian survey area ..................................... 30
8 → Raw population numbers by census block in the study area .............. 31
9 → Gardens and owner-occupied housing within the study area ............ 32
10 → African-American neighborhoods and gardening in the study area ...... 34
11 → Low-income households and gardening in the study area ............... 34
12 → Thematic summary of interviews .................................................. 38
13 → “I eat local because I can” T-shirt design ....................................... 41
14 → The parkway strip with some corn plants ....................................... 48
15 → Can the Kaiser, National War Garden Commission 1918 .............. 56
16 → Life Magazine photo by Margaret Bourke-White ............................. 59
17 → Our Food is Fighting, Office of War Information 1943 ................... 61
18 → German P.O.W. camp, Eaton, Indiana, 12 miles north of Muncie ....... 63
19 → Of Course I Can! U.S. Office of War Information, 1944 ............... 65
20 → Ball Brothers Company ad, circa 1933-1937 .................................. 70
21 → “Crying Indian” of Keep America Beautiful ................................. 75
Chapter I. Introduction

A regional study must be done by a geographer who calls the region home. It is impossible to understand the neighborhood without being a neighbor … [T]he geographer gets a piece of the neighborhood, but then the neighborhood gets a piece of the geographer. (William Bunge 1971, p. xxx)

Recently, there has been a national conversation about the failures of our food system, the ways food is produced, distributed, eaten, and disposed of (see Schlosser 2001; Pollan 2006; Kenner 2008; Patel 2008; Bloom 2010). Urban agriculture, including urban gardening, has emerged as a prominent strand in the discourse of transforming, particularly re-localizing, our food economy. Research on the general topic of urban agriculture has recently been conducted in places like Buffalo (Knigge and Cope 2006), Detroit (Pothukuchi 1999), Cleveland (LaCroix 2009), Milwaukee (Broadway 2009), and New York (Ritz 2010). While the globalized restructuring of manufacturing economies has marked many cities in the Midwest as places in decline, urban residents continue to mold the changing landscape to meet their needs and desires. Gardening is one landscape-based activity that has expanded within the new physical and social spaces left behind by a shrinking population, vacated industry and commerce, and abandoned residential properties. Though never an extinct practice, the number of people gardening in recent years in the Midwest has greatly increased (Butterfield 2009).
My spouse and I moved from Chicago into a house on the south side of Muncie, Indiana a couple of years ago. New to homeownership, and moving into a house that had been foreclosed upon and unoccupied for over a year, we set to work making the house livable and shaping the yard more to our specifications. In our latter tasks, we planted a few herbs in our yard, a couple young fruit trees and then a row of corn along the grass strip between the sidewalk and the street. We considered the corn a unique decision, but thought of it more as a beautification effort rather than some radical redesign of the landscape. By the time that the corn was waist-high, one of our neighbors informed us of her dissatisfaction with our planting. To her, the corn was an unwelcome reminder of rural life, it was unsightly, and it was even an expression of our selfishness as new homeowners. That is, she thought that we had not considered the view from her house before we modified it. Further, she noted that the corn wasn’t even on our property, since the grass strip is officially owned by the municipality. In hindsight, our assumptions about property ownership, borders, and landscaping aesthetics were a little naïve. We had migrated from Chicago where people from a broad range of social classes engage in, and major institutions support, urban gardening. Admittedly, we were more than a little naïve regarding the spatial boundaries of ‘our’ space as new homeowners.

I relate this experience because, in part, it set me on the pursuit of a better understanding of the several tensions embedded within our two-minute conversation with our neighbor: urban vs. rural, communal vs. private, lawn vs. garden, as well as class and aesthetic considerations. Underlying this clamor is a deep anxiety about space and accessibility, a common theme of urban geographical research: Who should be allowed to do what where? This question plays out continuously in our courts, zoning boards,
legislatures and neighborhood covenants, but also within our ‘private spaces’ and everyday lives.

Gardens in general, and vegetable gardens in particular, sit at the intersection of a range of human constructs that include urban land use, aesthetics, property law, social and class structure, economy, everyday life, and food. Recently, there has been a surge of interest in gardening projects, public and private, in Muncie as well as nationally. What roles do gardens play in the physical landscape and social sphere of the south side of Muncie? To approach this very general question, I more specifically set out to answer the questions, Where do people garden? According to the gardeners themselves, why do they garden? What do they do with the products of their gardens? What roles has gardening played in Muncie historically? In what ways are gardens related to broader political-economic forces at play from the local to global scales?

The last question provides a grander scale perspective on the narratives, histories, and themes addressed in the other questions. But I also hope to transcend the ‘local’ boundaries of this inquiry in another way, through a demonstration of a particular kind a methodology: embedded qualitative GIS. Below I outline the three fields to which this research might contribute, qualitative GIS, garden studies, and Middletown studies.
Chapter II. Literature review

Qualitative Geographic Information Systems

The subfield of qualitative GIS has emerged out of a series of critical debates about GIS spurred by the increased importance of GIS in academic geography and society at large over the last two decades. Responding to Openshaw’s (1991) unrestrained fervor for GIS as the “glue” to unite all of the divisions within geography because of its “explicitly naked geographicalness” (p. 622), early critics of GIS saw it as a weapon of Empire and a powerful tool for corporate power (Smith 1992; Rundstrom 1995; Goss 1995). Rundstrom considered that GIS is “potentially toxic to human diversity, notably the diversity of systems for knowing about the world” (p. 45). Goss saw geodemographic applications of GIS as employing a troubling “instrumental rationality” (p. 171) and constituting the infrastructure for state and private panoptic surveillance of the citizenry. Neil Smith criticized GIS as a battlefield technology, the contemporary iteration of the ancient practice of empires using geographic knowledge as a weapon of war. Smith, perhaps dismissively, chided the GIS community that the “time is ripe for a critical and contextual history of GIS beyond existing internalist treatments” (p. 258).

Indeed, just behind the increased sophistication of GIS technologies in the geospatial sciences in the 1990s emerged critical scholarship on GIS. This approach
considers GIS as not simply a data management and spatial visualization tool, but focuses on the social implications of GIS, reflecting on how and why researchers and planners employ GIS (Pickles 1995; also see Sheppard 1995; Pickles 1997). From GIS and Society scholarship informed by social theory grew the project of ‘critical GIS,’ which specifically examines the role that GIS plays in creating geographic knowledge and the ways in which broader social structures enroll this knowledge. To GIS and Society and critical GIS scholars, the conventional treatments of GIS research within public life as well as within the academy has tilted the use of GIS toward positivist epistemologies (Miller 1995), an “instrumental logic” (Sheppard 1995, p. 5) and internalist ethical frameworks (Crampton 1995), thereby lending support to the dominant power structure.

According to Wilson (2009), the emergence of qualitative GIS is indicative of a problematic in the GIS and Society debates regarding how best to approach critique and reformulation of conventional GIS practice. Earlier articulations of critical GIS raised the importance of critique from an “insider” perspective, mastering the conventions and developing critical and methodological innovations all within the language of the system (Schuurman 2000). Socio-behavioral studies of GIS use might fit well within such an insider’s perspective (for example, Nyerges etal. 2002) as might the use of GIS for critical human geographic research (Pavlovskaya 2004). However, science and technology studies and “ethno(carto)graphies” of GIS are couched in social theory and discussions regarding the role of GIS in “broader narratives of global capital, institutional networks, and information sciences” (Wilson 2009, p. 161) and therefore participate in discourses beyond those discussed in the technical language of the GIScience field itself.
From this insider/outsider binary emerged qualitative GIS as a kind of synthesis. While attuned to social theory and informed by feminist geographers’ notions of embodiment, situated practice, and positionality (Kwan 2002), qualitative GIS preserves much of the language and incorporates and repositions many of the practices of conventional GIS methodology. For instance, qualitative GIS seeks to address some of the methodological and epistemological shortcomings of conventional GIS practice by way of its broadening research strategies, including narrative, ethnography, video, and participant observation. Qualitative GIS grew from the “reconstructed” (Harvey, et al. 2005), critically-informed engagements with GIS to address the earlier critiques of the technology.

Garden Studies

Gardens are also sites of a kind of synthesis, as Kenneth Helphand remarks,

ripe site[s] for investigation ... [to] engage the complexities and ambiguities of meaning, the intersection of ideology and creative activity, and questions of representation, through an expanded awareness of what constitutes evidence for intellectual inquiry. (Helphand 1999, p. 138 as quoted in Kimber 2004, p. 267)

Helphand is an historian of landscape architecture, so he is referring to garden spaces in general, ornamental and horticultural as well as fruit- and vegetable-producing spaces. But many have confirmed such gardens as “ripe sites for investigation” with specific attention toward the latter food-oriented definition of gardening.

The transdisciplinary, yet balkanized, “garden studies” literature has identified the multivariate roles that gardens play in human experience: as producers of important aspects of national identity (Helphand 2003), reproducers of important cultural practices
in immigrant communities (Airriess and Clawson 1994), contested neighborhood spaces (Schmelzkopf 1995), places where grassroots and state-run service bureaucracies conflict (Jamison 1985), and spaces that foster civic participation (Baker 2004; Shinew, et al. 2004) and urban ecological restoration (Irvine 1999). Crouch (2009) considers community gardening as an example of a “quietly emergent” practice of “mundane” creativity (p. 140), while Milbourne (2009) in the same collection argues that such ordinary creativities can contribute to the “regeneration” of economically depressed neighborhoods (p. 141). By contrast, Guthman (2008a) argues that alternative food networks in the United States, including urban gardening projects, often enhance or create spaces of white privilege that “reflect a delimited politics of the possible” (p. 437).

While Smith and Kurtz (2003) consider New York’s community gardens as sites of resistance to the neoliberalization pressures of the Giuliani administration, others argue that in other cases neoliberal forces can enroll organized urban gardening projects to promote individualistic notions of food procurement, protect property values and business concerns (Pudup 2008; Guthman 2008b). Recent research on community gardening in Berlin contends that city leaders enact and reinforce a neoliberal discourse while promoting community gardening projects (Rosol 2012).

Others (see Hayes-Conroy 2010) insist that the political implications of community gardening sites and school garden programs are not necessarily neoliberal, yet nor are they monolithically transformative. Similarly, for Blomley (2004) public gardening projects are not necessarily just reproducers of or resistances against neoliberal practices, but more broadly are excellent sites through which to critically examine the “slippery” notions of property and the neoliberalization of public space. Indeed, yards in
general, i.e. simply ‘garden’ in the British lexicon, have been regarded by scholars as sites of, transition, liminality, and contestation. At the domestic scale, social anthropologist Catherine Alexander (2002) has literally noted that the garden may also be a source of conflict between neighbors: quite literal seeds of conflict in the shape of weeds may float over dividing boundaries, sowing dissent between the keeper of a well-kept garden and the owner of a space that has been more abandoned to the vagaries of self-sown plants. (p. 868)

As any gardener, landscaper, or homeowner knows, plants refuse to follow the delineations of private property, and thereby can create liminal, even contested spaces (as in Schmelzkopf 1995).

Alexander’s discussion of boundaries hints at questions of scale in relation to gardens. In what ways does gardening practice extend beyond the garden? While the theoretical literature on scale in human geography is developed and tightly engaged, little of this theoretical apparatus has been enrolled in the study of urban gardening. Smith and Kurtz (2003), however, use a framework through which to understand urban gardening through the social construction of scale. For them and contemporary scale theorists, scale is not simply a ‘level’ of analysis, but a social constructed set of processes that creates these relationships in the first place. Delaney and Leitner (1997) and many others since (e.g. Peck 2002; Howitt 2003; Swyngedouw 2004; Prytherch 2007) emphasized this “constructivist” notion of scale, contending that scale “is not simply an external fact awaiting discovery, but a way of framing conceptions of reality” (p. 94-95, quoted in Smith and Kurtz 2003, p. 199). An engagement with scale as such can trace how broader political-economic projects have implicated urban gardening in the transformation of flows of capital and the construction of political economic hierarchies.
Further, with important exceptions there are few studies that incorporate GIS work into research on urban gardening. Conventional spatial-analytical GIS techniques are the methods of choice in public health research on urban food economy. For example, Baker et al. (2006) used GIS to determine city residents’ access to healthy food choices in St. Louis. By analyzing the clustering of fast food restaurants (low choice) vs. supermarkets (high choice) in relation to the race and poverty distribution by census tracts, they found that lower income white and “mixed” neighborhoods as well as African American neighborhoods of all income levels had less access to healthy food than their middle and higher income counterparts. In a similar vein, Zenk et al. (2005) utilized spatial regression analysis to show that the lowest income neighborhoods had the least supermarket accessibility and thereby least access to healthy food options. Ghiradelli et al. (2010) followed comparable methods in a recent study that found that in California many of the smaller food outlets, the sort of which were not taken into account in the previous two studies, scored well in the food quality measure. Since these smaller stores are more evenly distributed across the city (as shown via GIS), the researchers recommend focusing planning efforts at this level. Moore et al. (2008) also used a conventional GIS distance/density approach but added a qualitative survey component that sought to map the residents’ own perceptions of distance from available food sources. The researchers note that “both measures may provide complementary information,” while more needs to be done to understand how the standards of perceptions of healthy food might differ (p. 214). Even such quantitative-based spatial-analytical research sometimes explicitly points to the need for more qualitative approaches.
More specific to gardening, Voicu and Been (2008) used a conventional GIS approach to find that community gardens have had a positive effect on property values of the adjacent neighborhoods in New York City. Using census and property sales data and qualitative surveys of registered community gardens, they found that properties close to what were to become community gardens sold for much less compared to properties outside the 1,000 ft. buffer. Also, the creation of a community garden quickly improved property values in the surrounding neighborhood. Like the other empirical studies, the researchers made a case for the positive impact (in this case, property values) of their object of study (in this case, community gardens) and then recommended local institutions take this into account in city planning.

Less conventional approaches to GIS and geographical research employ other methodologies that take a more critical approach to this institutional order. Emergent online amateur cartographic practices, variously described as of map-hacking, mashups, online counter-mapping, or neogeography have proliferated in recent years via collective mapping websites like Google Maps or OpenStreetMap (see Crampton 2009 for an overview). These projects put powerful mapping technologies, and the resultant power of visual representation, into the hands of anyone with an Internet connection. At least a few examples of multi-user generated maps of edible plants in the urban landscape have cropped up. These amateur research projects are essentially GIS databases of the edible landscape of significant theoretical as well as practical value. Urban Food Maps, a project for now focused in Sydney, Australia, is simply an active Google Map, which shows the location of publicly-accessible edible plants. The tags include a reference number, a description of the plant, sometimes a photo of the site, and any relevant notes (e.g. “2068
– Blackberry, Next to the mail box of the denture clinic”) (Anich 2011). Meanwhile, activists in Baltimore are employing GPS-enabled mobile devices to map long-established community gardens that are in danger of being sold off for development (Scharper 2010). In a spirited collision of art, activism, and cultural geography, the Fallen Fruit art collective has approached the theme of the edible urban landscape through a variety of interrelated projects and actions, such as videos, interviews, happenings, studio art exhibitions, as well their “public fruit maps” (Burns, et al. 2011). Such projects demonstrated a marked qualitativeness in their execution. Interviews, videos, participant-generated maps, photos, field notes, and online maps are all important qualitative elements of these projects. These amateur projects also exude attitudes and priorities very similar to those of academic qualitative GIS: the ‘remix’ modus operandi and a motive of community empowerment.

Though surely not intended, these online, collective, participatory projects provide answers to many methodological and theoretical questions asked in academic circles. Indeed, as Wilson (2009, p. 165) notes, “[m]ashups\(^1\) […] elude our traditional ways of knowing and seeing”. More than the conventional GIScience literature, qualitative and mixed-methods GIS work point toward issues of power relations, political economy, subjectivity, exclusion, and social structures (Elwood and Cope 2009). As with these amateur and art projects, the social critique or advocacy tends to be built into the research methods themselves. Interview participants are provided more voice as creative

\(^1\) The term ‘mashup’ is applied widely to music and the visual arts, but in the more specific usage in the GIS/2 literature, mashups are “built from the code and functions of two or more different, sometimes even disparate, projects” (Miller 2006, p. 191). The Google Maps API (Application Programming Interface) continues to emerge as the most popular and accessible way to create geospatial mashups.
actors, while the researchers position themselves and disclose their roles as embedded players within the research.

For their part, Knigge and Cope (2006) provide the best example of a qualitative GIS approach that employs both quantitative and qualitative data, with a case study focused on the topic of Buffalo’s urban gardens. Integrating city spatial data on neighborhoods and community gardening with personal interviews, participant observation, field notes, photographs, and mapping, their work provides an example of a field study that aims to eliminate the boundaries between quantitative and qualitative GIS. This mashup approach seems particularly well-suited to a rich, contextual understanding of the topic, leaving the door open for a variety of forms of advocacy and activism. This is important in such a multi-faceted topic like community gardens. While the foundations of GIS centered around quantitative data and spatial analytic functions, qualitative GIS methodologies represent a turn toward more inclusive types of data and knowledge, an embedded reflexivity, greater attention toward power structures and processes of exclusion, and perhaps less tidy conclusions. Little research in the burgeoning qualitative GIS literature, however, has explored the ways in which a reformed qualitative GIS practice might transcend the technological integration of qualitative data and analysis – i.e. as a software package (Jung 2007, 2009) – and move toward the status of a conceptual framework.

**Middletown Studies**

Since Robert and Helen Lynd’s classic sociological study *Middletown: a study in contemporary American culture* (1929), Muncie achieved the reputation for being the
‘average’ community in the U.S. As a result, a preponderance of empirical sociological research, along with scholarly and popular commentary, has developed over the last eight decades. Originally intended as a study of the religious life, the Lynds’ research examined a broad range of social life in Muncie, under these six categories: Getting a living, Making a home, Training the young, Leisure, Religious practices, Community activities. Throughout, they highlighted the class divide in Muncie that existed between the business class in the north end of town and the workers in the south.

The Lynds’ work inspired subsequent generations of social researchers to visit Muncie and perform research to ‘update’ the findings of Middletown (1929). These updates have taken the form of books (Lynd and Lynd 1937; Caplow 1982; Caccamo 2000; Lassiter 2004) films (Davis 1982; Carlson 2000; Jones 2010), journal articles (Caplow and Chadwick 1979; Frank 1979; Bahr 1982; Igo 2005), popular periodicals (“Middletown – Ten Years After” 1934; Martin 1944, 1946; Kotlowitz 1986), Ball State University archives (Center for Middletown Studies), and a growing wealth of unpublished survey data (Middletown III and Middletown IV, see Caplow, et al. 1977-1999). While these follow-up sources offer little to no direct information on gardening, they make up a body of work which provides necessary cultural and economic context through which to better understand the role of gardening in the past and present of Muncie.

One important preoccupation of Middletown Studies is a class analysis of the community. Caplow and Chadwick (1979) credit the original Middletown (1929) as the first serious research to articulate the social divide between blue- and white-collar workers:
Members of the first group by and large, address their activities in getting their living primarily to *things*, utilizing material tools in the making of things and the performance of services, while the members of the second group address their activities predominantly to *people* in the selling or promotion of things, services, and ideas. (Lynd and Lynd 1929, p. 22 quoted in Caplow and Chadwick 1979, p. 368)

In the second major Middletown publication, *Middletown in Transition* (1937), the Lynds’ narrative of Muncie’s class inequalities included the role of Muncie’s elite, business class families. In particular, their research singled out the Ball family, thinly disguised as the ‘X family’ in the text, as the most influential set of decision-makers in the city. Indeed, the Ball family and the Ball canning jar production facilities in Muncie were central to much of the economic, social, and civic life in Muncie from the late 19th century onward (Lynd and Lynd 1937; Caplow and Chadwick 1979; Frank 1979; Carlson 2000). The Ball factories on the south side of Muncie, which processed zinc, manufactured canning and other glass jars, and produced paper packing materials, employed thousands of workers in the early- to mid-1900s, constituting the major local employer before the auto parts manufacturers grew in number and in scale. As a result of labor struggles, Ball shut down the Muncie glass factory in 1962, moving much of this production to the newly built glass factory in Mundelin, Illinois (Birmingham 1980, p. 158). This ended Ball canning jar production in Muncie, and resulted in widespread labor resentment, not to mention unemployment (p. 161). However, the Ball Corp. headquarters remained in Muncie until 1998 when it re-located to Broomfield, Colorado (Neff 2010, p. 105).
In the post-war period, Ball Corp. expanded its manufacturing base far beyond glass, metal and paper packaging materials. In *From Jars to the Stars: How Ball Came to Build a Comet-Hunting Machine*, Neff (2010) writes how Ball Corp. branched out into research and development in the 1950s, pioneering many components for the Cold War-inspired aerospace industry (see also Birmingham 1980 and Ball Corporation Aerospace Division 1982).

By the 1970s, Ball Corp. began to brand itself as a “packaging company with a high-technology base” (p. 32), having moved largely into the production of metal, glass, and then plastic *disposable* packaging. Ball Corp. officially relieved itself of its canning jar production in 1993, spinning off the jars and other minor production lines into the Alltrista Corporation\(^2\) (Ball Corporation 1993 Annual Report). Ball Corp. currently makes the majority of its $500+ million net earnings from manufacturing disposable metal beverage cans. It also manufactures glass containers, other disposable metal packaging, aerosol cans, and aerospace components. Until August 2010, Ball was a major manufacturer of plastics and plastic containers. The company now has manufacturing facilities on four continents: 34 in North America (U.S. and Canada); five in South America (Brazil and Argentina); twelve in Europe (mostly in the UK and Germany but also Serbia and Poland); and six in Asia, all in China (Ball Corporation 2010 Annual Report).

\(^2\) Wikipedia states that in 2002 Alltrista was renamed Jarden Corporation, which continues to manufacture canning jars and other home canning supplies. The jars are still emblazoned with the familiar Ball logo (http://en.wikipedia.org/wiki/Jarden). Jarden Home Brands, a subsidiary of the multinational Jarden Corporation, operates its headquarters just outside of Muncie in Daleville and also a canning jar lid factory. Combined, they employ about 200 people (Muncie-Delaware County, Indiana Economic Development Alliance).
While Ball Corp. has extricated its official business from Muncie, the Ball influence in Muncie persists in the many enduring institutions founded or funded by Ball family industrial profits, particularly Ball State University, the locally philanthropic Ball Brothers Foundation, Ball Memorial Hospital (recently renamed IU Health), and Minnetrista, a non-profit center founded in 1988 devoted to exhibitions of local natural, cultural, horticultural and artistic legacies. Ball State University (the institution supporting this research) and Ball Memorial Hospital are currently the two largest employers in the county by a wide margin, supporting a little over 3,000 and a little under 3,000 employees, respectively (Muncie-Delaware County, Indiana Economic Development Alliance). Indeed, the Ball family directed the urban growth of the Muncie by inaugurating these major institutions, and then leveraging state maintenance of them during the inter-war period. Winling (2010) tracks this process – essentially a rescaling and redistribution of urban capital toward what was then the outskirts of the city – as an early example of urban disinvestment, a process largely associated with post-war suburbanization in the urban history literature (p. 116).

By way of their canning jars, the Ball Corp. industry extracted profits from home gardeners nationally and internationally. From this consideration, the whole course of history of Muncie has been intimately tied to gardening. By examining the direction of flows of resources, people, influence and capital into and out of the Ball Corp., then, we can identify a couple different ways in which gardening, including urban gardening, has been implicated in grander political-economic projects that at first glance seem antithetical to just having a garden. One way is ‘patriotic gardening’, that is, saving resources in order to support a war. Another is through the formerly widespread practice
of home canning, an industry dominated by the Ball Corp. which eventually threw its capital toward the aerospace industry (including military contracting). More work needs to be done to understand how past and present urban gardening practices might relate to larger political-economic patterns such as these. Indeed, the unique and prominent role of gardening in Muncie is scarcely mentioned in the Middletown literature.
Chapter III. Case Study and Methodology

The well-documented history of Muncie has followed the familiar pattern of development of many other mid-sized Midwestern cities. White Euro-American frontier settlement began in the 1820s, the land divided into townships and sections via Thomas Jefferson’s Public Land Survey System (Ellis 1898). These settlers displaced an Algonquin community that had settled in the area in the previous century as a consequence of a prior displacement from New York. As a result of uncovered natural gas reserves, the late 1800s saw the region quickly transform from a collection of dispersed homesteads with Muncie as the small-town county seat into a leading industrial center. Most historical accounts portray the gas reserves as completely squandered by the turn of the century, but the foundation for heavy production in the area, centered in Muncie, had been set (Glass and Kahrman 2005). The gas boom had lured the Ball Brothers Glass Manufacturing Company to build a factory and corporate headquarters in Muncie in the late 1880s, a move that would in large part direct the future economic and political development of Muncie (Lynd and Lynd 1937; Carlson 2000).

By the time Helen and Robert Lynd began their intensive sociological study of Muncie in the 1920s, car part manufacturing and other heavy industrial concerns had transformed the town and its people. It was the character of this transformation on
everyday life that the Lynds sought to chronicle in *Middletown* (1929). Major employers such as BorgWarner, Chevy, General Motors, Westinghouse, and DelCo Remy, in addition to the Ball Bros., along with a strong union presence in many of these workplaces, provided the basis for a majority working class existence in Muncie for much of the 20th century. The 2010 census puts Muncie’s population at 70,085, but the population has been declining since before 1980. This decline matches the decline of capital investment and the number of manufacturing jobs available over the last several decades in Muncie. These demographics place Muncie squarely within the ‘rust belt’ of the public imagination (e.g. see “VP 100: Brevini Wind Factory Helps Rust Belt Town’s Economy” 2010 and Stern and Smith 2009).

A glance at the Lynds’ class-based map of Muncie (Fig. 1) and then current census maps of race (Fig. 2) and income (Fig. 3) show the persistence of the spatial inequalities of Muncie.

![Fig. 1. Middletown class, from Lynd and Lynd (1937).](image)
Fig. 2. Percent African-American population of Muncie, Indiana at the census (2010) block level.

Fig. 3. Percentage of low income (<120% federal poverty rate) households in Muncie, 2010 American Community Survey estimate at the tract level. 120% poverty rate, based on average 2.5 persons household size = $19,999 annually. Three census tracts were excluded due to high prevalence of student housing, which results in artificially amplified poverty level.
Perhaps compounding and enforcing these inequalities, the town also is divided in terms of physical geography. The White River marks the boundary of the strongest disparities in town in terms of employment and educational attainment as well as the illustrated socioeconomic measures. On the north side: Ball State University and the neighborhoods of its middle and upper income employees, student housing, Minnetrista, and the major mall and chain store sprawl district. South of the river: downtown Muncie populated by local businesses and law offices, social service agencies, abandoned housing and factory spaces, middle to lower income households formerly dependent on manufacturing jobs. Railroad tracks act as secondary borders, drawing neighborhood boundaries, separating the historic East Kirby and Old West End neighborhoods and downtown Muncie from the more traditionally blue collar neighborhoods. It is in these neighborhoods, literally ‘south of the tracks’ (see Fig. 4) that constitutes the study area where I focused the enrollment of qualitative geographic information systems (GIS) to better understand the emerging role of gardening.
Qualitative GIS, as I have conceived it for this research, has been practiced as a series of research *channels*. Here, qualitative GIS was positioned as a mixed methods, open, exploratory framework, that is, a conceptual organization of several types of spatial data rather than the more familiar software-integrated approach to GIS.

Data collection along these five avenues took place concurrently from late 2010 into January 2012. Resonances and contradictions between data channels guided the exploration of the multiple spatialities of gardening in Muncie. In part following the qualitative GIS approach posed by Knigge and Cope (2006) as “grounded visualization,” the methodology was iterative. Continual revision of the details of the methodology
occurred throughout the study according to new insights encountered during data collection.

Below I outline in turn the five channels of data collection (Fig. 5): pedestrian survey of the study area, semi-structured interviews with gardeners, visual materials, historical/archival materials, and participant observation.

![Conceptual layering of five data channels of qualitative GIS methodology.](image)

**Figure 5.** Conceptual layering of five data channels of qualitative GIS methodology.

**Pedestrian Survey**

The study area was traversed by bicycle and surveyed via visual inspection of yards. The boundaries of the study area were in part drawn on the basis of the existence of alleys in these south side neighborhoods. Residential areas that lack alleys provide no
feasible way to survey front and back yards. Large scale maps of specific areas were printed out on which a red ‘x’ was marked if that yard (front or back) included an edible garden. For the purposes of this survey an ‘edible garden’ was defined in context on the basis of the researcher’s emphasis on *practice* over Euclidean spatial configurations. Does the space indicate that there is gardening occurring here? For example, the presence of a couple “Topsy Turvy® Planters” (brand-name hanging planters, a common gift) would not constitute an edible garden for this study, as no actual *gardening* takes place. However, garden spaces were not exclusively rectangular, tilled patches within a lawnscape; many residents plant their edible garden plants as borders along fences or garages, or dispersed among flowers and perennials in otherwise ornamental arrangements. An ‘x’ with a circle around it denoted a large garden (those that appeared to be larger than 200 ft²).

As a brief digression here, I would like to clarify the terminology I employ. The conventional term “community garden” is, I believe, inadequate, and has resulted in some confusion³ in my conversations during the course of this study. From this point I use “communal garden” as a more general term to denote any garden that is used or routinely accessed by multiple stakeholders, though this does not necessarily mean that a communal garden is accessible to all or that it is necessarily located on public property. That said, the results of this research do more to problematize the communal vs. home gardening distinction than to highlight it. In terms of practice, sharing, and public vs.

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³ Does a ‘community garden’ allow *anyone* to harvest from it? Is it managed by an official legal entity within the community? Is gardening performed collectively across the whole garden or individually in separate allotments? One interview participant did admit to being confused about the name Maring-Hunt Community Gardens, which is an allotment-style communal garden.
private access, the delineation between “communal” and “home” and between “private” and “public” is not always clear.

Communal gardens were also given a special designation on the maps of the study area. These field maps were then condensed into a Google Map mash-up that showed the distribution of gardens in the study area (see Fig. 6).

![Fig. 6. Blue tags signify the 512 home gardens, green tags are the four communal gardens in the study area.](image)

Some versions of these in-progress maps were printed out at the appropriate neighborhood resolution and shared with interviewees in order to stimulate reflections about the maps. The final Google Map result was shared on an online forum of Muncie natives to generate additional discussion (see “Historical/Archival Materials”). Unsystematic observations on the character of the neighborhoods and my experience
traversing them, including encounters, sights, smells, and sounds, were recorded in the field on the maps themselves.

**Interviews**

Interviews were also conducted with twelve gardeners who live in or near the study area. As writers Staw and Swander (1990) show in a book of their conversations with a unique array of Midwestern gardeners, people who are interested in gardening typically are happy to share their gardening experiences. For the novice interviewer, the topic of gardening is ideal terrain in which to ground social research. For this project, interview participants were questioned about their gardening practices, if their gardening practices have changed, where their knowledge of gardening was acquired, who they share their produce with, and the reasons they garden at all. However, their answers were merely points of departure for more in-depth conversations. In some cases, the annotated field maps were used to help explore themes and discuss aspects of property and place with interviewees. These interviews were audio recorded and subsequently transcribed.

**Visual Materials**

In one case, I video-recorded two family members as they talked and gardened. This recording of these individuals’ unique and efficient front- and back-yard garden spaces, were compiled into a 15 minute film displaying their practices and narratives associated with their garden spaces, becoming an important visual-spatial component within this study. In addition to the short film, other types of visual material representing gardening in Muncie were pursued. Historical photographs from the Center for
Middletown Studies, the Lost Muncie Facebook group, and other sources were collected. Digital photographs of notable gardens were taken, with homeowner permission, along with photos of community gardens during the 2011 growing season.

**Historical/Archival Materials**

In addition to the collection of new visual materials, this approach also incorporates historical and archival materials. The aforementioned Middletown Studies literature situates the contemporary mappings of Muncie’s gardening practices, while additional sources, including newspaper archives and community organization reports, offer an historical picture of urban gardening in Muncie. Along with official archives at the Ball State University and Muncie Public Library, a Facebook group known as Lost Muncie⁴ provided an active forum and vernacular historical archive of images and commentary. I participated in this forum, sharing findings from the pedestrian survey and querying others about their gardening practices. Most archival information highlighted the prominence of urban gardening practice during periods of national economic and historical crisis, namely World War I, the Great Depression, and World War II.

**Participant Observation**

As integral to this qualitative GIS approach, I carried out community gardening (in addition to home gardening) work as a co-coordinator of the Maring-Hunt Community Gardens located down the street from my home. This role positioned me

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⁴ With over 5000 members, this Facebook group describes itself as “Dedicated to what made Muncie great back in the day!”
within a group of gardeners and necessitated my involvement in a citywide network of community garden activists referred to as the Urban Garden Initiative (UGI). My experiences and observations constituted another set of ‘insider’ fieldnotes and also provided critical insights about the many intersecting nonprofit and governmental organizations that participate in various functions of urban gardening in Muncie. As a community garden co-coordinator and member of the UGI network, I contributed a modest amount of work and ideas to the growth of community gardens in the community. Within the bounds of this research, my involvement created a particular, active variety of knowledge from which to draw out further insight within other data channels.
Chapter IV. Results

The heterotopia is capable of juxtaposing in a single real place several spaces, several sites that are in themselves incompatible [...] The garden is the smallest parcel of the world and then it is the totality of the world. (Michel Foucault, “Of Other Spaces,” 1967)

The first section of these results describe the ‘raw’ data collected along the qualitative GIS channels described earlier. The channels are considered separately here, with brief notes on the resonances and contradictions in relation to other data channels. Crucial to the mixed methodology, I also describe the process of emergence of these themes. A more synthetic discussion of these emergent themes follows in the discussion (Chapter V).

Pedestrian Survey: spatial distribution of gardening in south Muncie

The pedestrian survey was conducted during the latter part of the 2010 growing season and then throughout the 2011 growing season. These data were plotted in a Google Map in order to easily embed and share these data online. The points were plotted with accuracy only at the block level; that is, the points do not accurately identify locations of individual gardens.

For spatial analysis, locations of all of the gardens were transferred via KML to ArcGIS 10. Fig. 7 conveys the spatial distribution of the 512 home gardens and four
communal gardens that were observed within the study area. Survey field notes were accrued during the course of the bicycle survey. Informal observations about neighborhood and yard characteristics, including dogs, swimming pools and fences, and encounters with people in the street were noted on the field maps as a record of my experience in the field (see Appendix A).

Fig. 7. Gardens within the pedestrian survey area, south Muncie. Small green dots are home gardens, large green dots are communal gardens.

Several factors confound a simple visual evaluation of the spatial distribution of gardening in the study area. First, population density is variable throughout the study area. We would expect that the more densely populated neighborhoods would have more gardens (see Fig. 8). Second, housing status, i.e. owner-occupied versus renter occupied, is also variable throughout the study area. We should similarly expect there to be more gardening in owner-occupied residences (Fig. 9). Further, we would not expect many
gardens on the grounds of apartments. Third, lot size was also variable throughout the study area. Though data on the size of yard space was not collected, the western and southern sections of the study area did seem to have large lot sizes compared to most of the rest of the study area. Larger residential lot sizes would logically tend to increase gardening opportunities for residences, while, conflictingly, tending to decrease population density.

Fig. 8. Raw population numbers of each census block (2010) in the study area.
Fig. 9. Gardens and owner-occupied housing within the study area. The redder the census tract, the lower the percentage of owner-occupied housing.

These factors may account for the seeming clustering of gardens in the west and south sections of the study area. As Figure 9 suggests, owner-occupied housing, seems to account for much of the spatial distribution of gardens within the study area. Census tracts three and four exhibited the lowest owner-occupied rates and also the lowest density of gardens. This overlaps with the lowest income neighborhood (South Central) and the African-American neighborhood (Industry) within the study area. Population density also appears generally higher in the areas with higher concentrations of gardens, as shown in Figure 8. These factors suggest that gardening practices are equally prevalent across the study area among those with the best opportunity to garden, here considered as owner-occupied residences.
In aggregate, the seven census tracts that contain, and extend beyond, the study area (tracts 3, 4, 5, 13, 14, 15, and 16), 2010 American Community Survey data on housing shows that of the 8231 total households, 49.5% are owner-occupied\(^5\). Extrapolating from this figure, of 5671 residences in the study area, 2808 of them are owner-occupied.

Census data on income and race were combined with the gardens layer (see Figures 10 and 11). Keeping in mind the confounding factors of housing inequalities within the study area and population density variation, it appears that home gardening is a common, normalized practice across all the neighborhoods in the study area, at least among those who own their home. Additional data on this question would have to be collected in order to develop a deeper understanding of the spatial relationships of each of the social phenomena like race, income, and housing status with gardening practice, but these maps at least suggest that gardening is not uncommon within any of the neighborhoods surveyed.

\(^5\) According to these data, 17% of the housing in the study area is vacant. There is significant spatial variation of this figure, however, as Census Tracts 3 and 4 (the African-American neighborhood named Industry and the South Central neighborhood, respectively) each have about 27% vacant housing. Across the study area, 33.9% of all housing in these census tracts is renter-occupied.
Fig. 10. African-American neighborhoods and gardening in the study area, U.S. Census block 2010.

Fig. 11. Low-income households and gardening in the study area, U.S. A low-income household was defined at <120% of the Federal Poverty rate, average 2.5 persons per household. Census 2010.
Approximately 18% of ‘eligible’ (owner-occupied) households in the study area practice gardening. This figure was calculated for owner-occupied housing only, as it was assumed that rental housing and abandoned households were unlikely to be included in the set of potential gardening households. No discussion or analysis from scholarly literature was recovered on this question, so the validity of this assumption and hence the calculated density (gardens per owner-occupied household) are not certain. However, in many cases privacy fences obscured inspection of yards. Further, false identification of a home garden was improbable, while failing to observe an obscured garden was highly likely. That is, it is near certain that the gardens have been undercounted. This undercount of the gardens may balance the imperfect assumption that only the quantity of owner-occupier homes should be considered the total for potential gardening homes.

By comparison, the National Gardening Association survey found that 31% of homes had gardens in 2008 with 37% of the total households planning to grow a garden the following year (Butterfield 2009). Apart from this oft-cited survey and other self-reporting ways of measuring gardening activity, there is a surprising dearth of scholarship on how many people in the U.S. are active gardeners.

From these observations, it is clear that gardening is common practice with normalized participation in a diversity of neighborhoods, including white, African-American, and higher and lower poverty areas. Perhaps the variation in owner-occupied housing status in addition to population density account for the spatial variability of home gardens across the study area. Despite such barriers, most residents within the study area live less than a block away from a garden.
Interviews: narratives and themes

Interviews with one dozen gardeners were conducted over the course of the project. Five of the interview participants reside and garden within the study area defined in the pedestrian survey. Four other interview participants live in near-downtown neighborhoods, still south of the White River. Two of these four were involved in communal gardening on the south side; the other two live together just north of the study area and were the collaborators on the film “‘This Little Square of Dirt’” (see below). The other three interview participants do not live in the vicinity of the White River, but are, or in one case were, involved in communal gardening in Muncie.

These interview participants of course do not constitute a representative sample of those who practice communal gardening and/or home gardening in Muncie. The majority of the participants were chosen based on contacts I had developed as a coordinator of the Maring-Hunt Community Gardens and as an active member of Muncie’s Urban Gardening Initiative (UGI). In addition I met five of the interview participants during the course of the pedestrian survey fieldwork (see above).

It was anticipated that the interview participants would provide a wide range of stories, experiences, and motives for their gardening practices, and indeed this is what the interviews conveyed. This channel of data collection was not just a disclosure and capture of information, but also highlighted qualitative GIS as praxis. The interviews themselves further situated and expanded my role in the local urban gardening community, as I was able to promote the Urban Gardening Initiative network and share my own experiences as a gardener, especially with regard to the Maring-Hunt Community Garden. Though I did not set out to offer (or seek) gardening assistance, many of the conversations touched
upon sharing resources, tools, ideas, and organizational connections. And though the research agenda itself was not open to re-thinking or planning by the interview participants or other actors, as in participatory action research (PAR) methodologies (see Kindon et al. 2007), my participation as a researcher within the gardening sphere in Muncie did create opportunities for my participation and collaboration well beyond the scope of the research.

The seven female and five male interview participants ranged from ages 30 to over 75. All but two had grown up in Indiana. Only one of those two have lived in Muncie for less than 10 years, while seven had grown up and/or raised their family in Muncie. One participant was African-American, another had one white parent and one Asian parent, while the rest identified as white. One participant identified as gay. Of the twelve interview participants, six gardened only at their home, two gardened only at a community garden, and four maintained both home and community gardens. All names are pseudonyms.

Figure 12 summarizes the interview questions and conversations. A more detailed question-by-question summary of interview participants’ responses follows.
Q1. What do you grow?

If people don’t have anything else, they’ll have a tomato plant. Because green tomatoes are so popular in urban settings. I know I barely allow my tomatoes to ripen, I eat so many green. (Rae)

Gardeners reported growing a large diversity of edible plants, most often mentioned being tomatoes, beans (bush or pole), bell peppers, hot peppers, squash, cucumbers, onions, cabbage, greens. With one exception, all grew tomatoes, the local common denominator. All but one interview participant reported growing at least seven different food plants in their gardens. One reported growing only three different food crops since he was focusing on “starch-based type plants” (Doug). Three different gardeners were able to list over 25 edible plants that they grow regularly.

Q2. How long have you gardened? How long has this garden been around?

Mostly since youth; gardens survive as long gardeners maintain access to ground

Q3. How many months per year do you eat from it?

3-5 months; most preserved garden produce by either canning or freezing; Ball canning jars

Q4. Has the size of your garden changed?

Most have increased in size recently

Q5. Why do you garden?

Connection to place; health (exercise, nutrition, stress-relief, therapeutic); social; community; survival; preparation; community

Q6. Were your parents gardeners?

Most learned gardening from elders

Q7. Do you distribute your garden products? If so, who gets them?

Sharing with family, friends, neighbors; religious responsibility; accepting ‘theft’ of produce

Q8. Do you know of any other gardens in the area?

Not necessarily connected to other gardeners nearby; expansion into ample unused spaces

Fig. 12. Thematic summary of interviews.
Of the twelve interview participants, only three have not been gardening since their youth. Only one of those three did not have close family members who practiced vegetable gardening, though his mother and grandmother were ornamental gardeners. He (Jeff) first learned gardening after volunteering with an organic farm in the New England as part of the AmeriCorps program.

Interview participants consistently reported that their home gardens persist as long as they are living in the same location. The oldest garden that I encountered was at Grace’s home, which she had gardened every year since 1950. By contrast, Jeff had recently purchased and moved into a home with his young family and began converting his back grassy lawn into an edible garden. Cassie was the only interview participant who rented her home. At her home she practiced some container gardening, but pursued additional gardening space at a communal garden. She had previously been able to maintain a garden at a prior rental.

For most of the gardeners, the short-lived nature of some of their gardens was a result of circumstance – moving from one place to another, extreme work schedule, or living in a rental property – not an interruption in actual gardening practice or interest in gardening. For the most part, the gardeners interviewed have gardened for most of their adult life.

Compared to the home gardens discussed in these interviews, the local communal gardens have not existed for very long. The oldest of the four extant communal gardens discussed in these interviews was established in 2003. A fifth communal garden discussed, organized for faculty and staff of Ball State University, existed from the 1970s to the early 1990s. These interviews suggest that the practices of individual gardeners
persist beyond the life of the gardens themselves. Home gardeners who move their residence start new gardens, or when necessary pursue gardening apart from their home grounds.

**Q3. How many months per year do you eat from it?**

Well, we can what we can. I can can cabbage, I can can beans, I can can corn. I can can any of it. I say, you better do it or you’re going to starve. (Grace)

Interview participants ate directly from their gardens anywhere from three to five months out of the year. But almost all of the gardeners interviewed preserved their produce for the winter. Four of the gardeners primarily used freezing techniques while five of them canned their garden goods for future use. Two of the gardeners either did not grow enough to preserve or otherwise preferred not to bother with preservation. One other of the interview participants coordinated a communal garden for a men’s homeless shelter. That garden is worked by a handful of men from the shelter; all of its produce is sent to the shelter’s kitchen, so there was no opportunity for preservation.

The topic of canning was prominent in many of these conversations. Even one of the interview participants who did not practice canning wore a shirt that declared “I eat local because I can” (see Fig. 12). As discussed in prior sections of this document, the practice of canning has loomed large in the economic development of Muncie. At the local level, however, interview participants stated that the Ball Corp. canning jar factory and corporate headquarters, both south of the White River in Muncie, did not have a direct impact on their home canning/preservation practices.
According to Lillian, who grew up in the Shedtown neighborhood on the south side of Muncie,

Ball was a presence, but it wasn’t really a factor of why you canned. I think if anything the Ball factory came from folks who were preserving their food, and they [Ball] decided they’d make a business out of it.

For Grace, who has lived in the same house, and has gardened her yard continuously, since 1950, the Ball factory in town “had nothing to do with what I done. We worked in the fields, we canned.”

But for those who had family members who were employed in the local canning jar factories, the local impact of the canning jar production was more immediate. Rae remarked that her father “worked at a glass factory all his life, 47 years, in Dunkirk. Ball eventually bought it but it used to be Kerr’s [canning jar company]. He made Ball jars, so that was handy.”
Though seasonality abbreviates the growing season in Indiana, gardeners extend the edible life of their gardens by preserving their surplus fruits and vegetables, primarily via canning and freezing. The broad social and economic impact of the Ball Bros. company and their iconic canning jar is felt throughout Muncie, but local practitioners of canning were not spurred into action by this corporate presence.

**Q4. Has the size of your garden changed?**

In almost all cases, interview participants noted the recent increase in the size of their garden spaces. Grace, who has gardened her backyard every year since 1950, stated that her garden has recently “gotten bigger. This is the best year I’ve ever had.” Communal garden spaces have likewise expanded recently. Maring-Hunt Community Garden expanded from nine 8’ x 25’ plots to the current 24. Within the course of the field study, five new communal gardens were founded. Individual gardeners, with one exception, all reported that their gardens have increased in size recently. At least three of the communal garden participants had limited space on their home grounds and thus sought out additional gardening space at a communal garden. Maude, for example, rented two plots at the Maring-Hunt Community Garden in addition to gardening in her backyard. Another gardener, Cassie, lived in a rental house and lacked permission from the owner to plant an edible garden in the lawn. She likewise obtained gardening space at a communal garden.

**Q5. Why do you garden?**
The question of personal motives for gardening elicited the largest diversity of responses from interview participants. Of course, each gardener professes multiple reasons as to their motives for gardening, but what each chose to highlight in his/her narrative reflected particular rationales derived from personal histories.

A couple gardeners emphasized the visceral qualities of digging in the dirt and the relationship of this practice to feeling at home. Meg said that she’s a gardener because it makes me happy. I like to grow things. Wherever I go, in a tiny apartment in the city, I will figure out a way to grow things, it’s good for my soul […] I breathe out carbon dioxide. It’s symbiotic. Plants and people should be together.

Cassie moved to Muncie from the Pacific Northwest, and discussed how gardening helped her adapt to her new home:

My first year I was here [in Muncie], I was so depressed but the garden has made a big difference […] I literally had to dig in the dirt to find what I love about here. And now I do. I love this landscape. But I had to find my way into it, and gardening helped me find my way into it.

Gardening for health was also a recurring theme in the interviews, but the concept of ‘health’ was itself dependent on individual circumstances. Rae lived in Kentucky before she moved back to Muncie. Health problems arose for her after re-settling in Muncie. In Kentucky, she says that

I didn’t eat any preservatives, nothing that was unnatural. Shopped at Whole Foods, but shopped very little. Didn’t eat meat. I miss that. I don’t feel as good since I’ve gotten off that diet. It’s very hard financially to support that habit here. Very hard.
These conditions and her resultant physical mobility troubles motivated her to design and maintain a raised straw-bale garden in her front yard, a design that minimized the need for difficult physical labor. For Maude, gardening was simply “a stress reliever [...] It gives me something to do that’s not related to work. And it’s exercise.” Grace provided similarly individualistic reasons for gardening in response to my question (which belie her later comments about her “tithe,” see below), saying simply that gardening “means food for one thing, life, and exercise.”

Other gardeners highlighted the social relationships that develop as a result of gardening. Neighborhood and community interaction – with non-gardening neighbors and passersby as well as nearby fellow gardeners – took a central importance for many gardeners, communal or otherwise.

Malvina, who was the only interview participant who got paid to garden – as part of the staff of a non-profit devoted to after-school activities for children – observed that gardening was an important part of the mission of this community-conscious non-profit organization. She listed three priorities of the garden as related to the after-school program,

One, food goes back to [the main building] to be prepared for snacks. Two, food goes home to families. Three, food goes to the farmers’ market to publicize their program, not to raise money. It’s a donation, so we usually come out ahead.

Not counting the farmers’ market distribution, Malvina estimated that the garden products reach about 70 families. She also went on to note the importance of the use of the garden by surrounding non-gardening community members:
the neighborhood tends to adopt the space. They might not be willing to participate in the labor. One man who jogs by says, I made this part of my walk because I love coming by here and seeing what’s growing.

While the after-school program understood gardening as providing educational experience for the children, the homeless shelter saw the potential for “therapeutic value” in their communal garden, though this potential has not yet been realized. As Ross stated in our interview,

I think nature and plants are rehabilitative. It’s nice to connect with dirt and the ground. I think there is a therapeutic value to it, as well as product from it, and we try to enhance that all we can. I can see it getting used for several more years here [...] As long as space is available, of that size, I think we’ll try to put it there. I have to have a guy who wants to here. I don’t really have time or staff to do it. I’d be willing to invest a little in it to keep it going.

In contrast, Doug, who was the only gardener who did not grow tomatoes, articulated his reasons for gardening on the basis of three factors he described as “economy, sociological, and survival.” His reading of the comparative historian Arnold Toynbee’s A Study of History (1972) informed his view that the end of Western civilization is approaching.

People don’t want to work anymore. Toynbee said that is one of your biggest indicators, that is one of the last things that’s going to happen. People will become lazy, apathetic, and next thing you know, they’re slaves.

For Doug, gardening is one way to prepare for the impending crash and burn of the economy and the “just-in-time delivery system” for food. But as the last sentence of the quote makes clear, Doug considers gardening as not just food security, but political
security. The more he is able to sustain “survival” through hard work, the less vulnerable he is to authoritarian control. Doug recommends that we

get those [survival] skills now. Can you imagine trying to grow a garden after it’s all went to hell? You know, I’m trying to do it without any man-made fertilizers, any type of chemicals or anything like that because they’re not going to be available to us. Again: fossil fuels. You got two main groups right now; one group that says the world is going to last as long as humanity lasts. And you got another group called the Peak Oilers. I tend to side with them at this point.

Doug was not the only gardener who cited economic reasons for gardening. Ralph also stated that he gardened primarily for food, “things I know I’ll use,” though he communicated none of the “survival” concerns expressed by Doug. Grace was the only other gardener to somewhat echo Doug’s survivalist concerns, but only when talking about canning. “I say you better do it, or you’re going to starve.”

Lillian and Reginald, a mother-son gardening dynamo, narrated their motivations for gardening as a middle way between “being prepared” and intra-neighborhood relations. Reginald said that

I try not to dwell on the preparedness aspect of it. You’ll hear all kinds of people going off on this – preparedness. I try not to obsess on that aspect of it. But if my entire family were here, we could sit in the house and survive for three to four weeks […] I don’t forget preparedness either. It’s a nice little byproduct.

Lillian later articulated a detailed vision for what a neighborhood gardening community could be. Each household would garden the “wasted spaces” in front of their houses, referring to what landscape architects call the “parkway strips,” which are located between the sidewalk and the road (see Fig 13). These grass strips are a legal gray area with regard to property rights since they are technically owned by the municipality but
are expected to be maintained by the corresponding household. Lillian reimagined these ubiquitous and mundane spaces as a terrain for neighborhood gardening and food sharing. This treatment of the parkway strips demonstrates the liminality of these spaces.

The notion of liminality was popularized by anthropologist Victor Turner (1974) to denote transitional periods in the production of social roles, in other words, rites of passage. The concept of liminality has since been enrolled spatially to describe the transitional, or perhaps geographically marginal, quality of particular types of spatial practice (e.g. see Shields 1991; Preston-Whyte 2004 which both discuss beaches as the liminal spaces). The parkway strips that sit in front of residences in many neighborhoods on the south side of Muncie are liminal spaces, too. Lillian proposes that we put these liminal spaces to work, intentionally ignoring the legal ambiguities of these areas, but instead re-imagining and re-inscribing residents’ practice in relation to these spaces.

One house might just decide that all I’m going to grow are pear trees and then I’ll share all my pears with my neighbors. Then one house on another corner might say, I’m just going to grow apple trees, or something like that. Then you’ve got fruit growing and you’ve got produce growing. People can just take their little basket and start at one corner, walk down, turn, and go up the street on the other side.
Jeff succinctly summed up the multiple concerns and motivations expressed by him and other gardeners this way:

[Gardening is] the only way I see to be able to live affordably and a healthy lifestyle, especially for my family […] it’s exercise, it’s educational, it’s therapeutic. And it puts me out in the community more which is kind of a dying art. You know it’s pretty easy to be inside and be on a laptop, on the internet, watching TV or even reading a book. And I think a lot of good things happen outside when you’re amongst each other and in the community.

Gardeners expressed a wide variety of reasons for gardening, from individual health and exercise to neighborhood involvement to basic survival. These discussions scaled from the personal and community levels and sometimes beyond to broader the broader economic implications.

Q6. Were your parents gardeners?
As noted above, of the twelve interview participants, only three have not been gardening since their youth. Of these three, only one did not have immediate family members who maintained home vegetable gardens. His (Jeff’s) mother and grandmother arranged flowerbeds every year and kept plants in the home as involved hobbies. Jeff described these activities as where he “picked up the green thumb mentality.”

One other interview participant grew up as a “military brat,” often moving from place to place. Though Doug did not learn to tend a garden until he was an adult, his early experience with his grandparents informed his current practice. He remembers, “in the garden with my grandmother, that’s where I learned what rhubarb tastes like. Every time you wanted a snack, you go out to the rhubarb patch.”

A few of the interview participants did not learn gardening until adulthood, but they all connected in some way to the cultivation practices of members of their families’ previous generations.

Q7. Do you distribute your garden products? If so, who gets them?

With one possible exception, each of the gardeners shared the fruits of their gardening efforts. Gardeners described sharing as largely taking place through informal networks of family members, friends, and neighbors. Two of the communal gardens were more systematic about distribution. One garden, coordinated by a men’s homeless shelter and mission, supplied all of its garden produce to its kitchen. The other, which was a component of a children’s after-school program, sent most of its produce home to the students’ families.
Doug noted that he would share his produce, but he consumes all of what he produces. He went on to describe that he perceives his neighbors to lack an interest in gardening and produce. Nine of the interview participants described sharing directly with family members. One of these nine, Grace, described sharing produce in spiritual terms: “Yeah, whenever you give it, to me, that’s your tithe. ‘Give and it shall be given back to you’.”

Many described the occurrence of what euphemistically could be termed ‘passive’ sharing to take place, that is, the phenomenon of passersby taking from the garden without asking the gardener. This was described especially, though not exclusively, in relation to communal gardening spaces. This normalized, yet unintentional, distributive practice of these gardens is a characteristic of liminal spaces, as described above. Just as the cultivated parkway strip speaks to a liminality between public and private, the prevalence of the practice of ‘passive sharing’ indicates a similar marginality of practice in relation to gardening spaces.

Meg noticed that many neighborhood residents “helped themselves” to the communal garden which she managed. But she stated that providing neighborhood access to the garden was part of the reason that the garden was started. Jeff similarly characterized the distribution from the communal garden that he was involved with:

If I’m out there harvesting I definitely make it a point to, if anybody’s outside, say hey, ‘Do you want some of this or some of that?’ I’ve always done that year after year. And frankly, a lot of the food gets taken when I’m not there, which I’m fine with to a certain degree. It’d be nice to have help, but it’s inevitable and that’s part of the reason we grow the food.
Rae spoke about how she tolerates neighborhood access to the space of her home (front yard) garden almost as if it is a communal garden:

I’ve had a lot of people ask me, do your vegetables get stolen? I’ve never had the problem once. I’ve always said that if someone takes my vegetables, then obviously they need ‘em, and that’s fine, but I’ve never had a problem people gathering my crook-necked yellow squash!

Gardeners described both active and passive sharing and distribution practices and were largely tolerant of free access to their gardens by passersby. In most cases, sharing was one of the reasons why home gardens exist. Similarly, all of the communal gardens discussed were important sites of informal sharing, a practice which was perhaps amplified by the liminality of these gardens.

**Q8. Do you know of any other gardens in the area?**

Interview participants were asked to remark on other gardens located nearby theirs. In many cases we both observed maps of the neighborhood surrounding their garden and discussed past, present, and future gardening possibilities. These maps were Google Map printouts, including when possible (aggregated) data from pedestrian survey data collection. These conversations elicited reflections on how gardening fit into neighborhoods at the block level and in some cases provided context from which to imagine future gardening spaces, possibilities and implications.

Despite the apparent prevalence of gardens observed during the pedestrian survey, many interview participants (Maude, Cassie, Ralph, Grace and Doug) noted that few, if any, other households on their blocks do much gardening. Both Grace and Maude
remembered gardens down the block from where they live, but those gardens’ cultivators died and left their property to descendants who apparently who have no interest in gardening.

Rae noted that many people do have gardens around her neighborhood, “they are trying to supplement their diets because everything’s so expensive now and they remember the taste of their childhood and they want to go back there again.” The maps and conversations regarding neighborhood spatialities of gardening practices triggered not just spatial, but temporal observations on the character of neighborhood gardening.

Coordinators of different communal gardens, Jeff, Ross, Meg and Malvina, all imagined expanding their gardens into other spaces available near their current projects. Lillian, though not involved with a communal garden, imagined and articulated in great detail her vision of her neighborhood gardening the “wasted spaces” along the street.

**Archival Histories: gardening trends in “America’s Hometown”**

Interviews suggested that at the household level, preservation (canning, freezing) extends the temporal use of gardening, while sharing with family, friends and neighbors extends the garden spatially. Local gardeners exhibited a range of overlapping, but diverse motivations for gardening. While the pedestrian survey provided evidence for the ordinariness of gardening on the south side of Muncie, interview participants often referenced a past with even more active neighborhood gardening. Meanwhile, communal gardeners strongly envision a spatial expansion and more widespread adoption of their gardening activities in the future.
The archival perspective on the role of gardening in Muncie’s past complicates and broadens this picture. The quality of the historical record on this topic locally has largely dismissed the individual voices from the past. However, this admittedly incomplete process of examination of archival sources contributed information on the broader political and economic implications of gardening in Muncie. These varied spatio-scalar conceptions of urban gardening practice can be knitted together from the pedestrian survey, gardener interviews and this historical research.

Intersecting with the theme of economic survival touched upon in many of the interviews, the archival record primarily addresses gardening in Muncie during times of crisis, namely World War I, The Great Depression, and World War II. These historical periods are particularly clear examples of the rescaling of urban gardening that occurred by mandate from the top-down authoritative structures of government (city, state and federal) allied with industry. The Ball Bros. (later Ball Corp.) was intimately involved in gardening projects throughout its history in Muncie.

Urban gardening in support of World War I

The Delaware County Council of Defense published a report in 1919 summarizing the local achievements of organizing in support for the war. This report states that

So extensive and so successful were the [local war garden] efforts that special tribute was paid to the workers by the officials of the National War Garden Commission at Washington. Muncie and Delaware County in fact held first place in the Nation in the demonstration in most effective fashion of the practical side of the food substitution and conservation program. (p. 38)
The Ball Bros. provided some of the funding for war garden committee organizers (p. 39). The extent of the organization of these committees is borne out further in the accounting tasks accomplished by the war garden campaign:

In 1918 [...] 7,050 war gardens were planted in the county. Products to the value of $44,650 were used in homes largely taking the places on the domestic menus of such foods as wheat, pork, and beef, which later were being shipped abroad as war supplies. Products to the value of $2,350 were sold out of these gardens in the year. On the conservation side, and continuing the substitution of preserved fruits and canned vegetables for wheat and meats, the war gardeners in 1918 canned products for home use worth $9,400 and sold canned vegetables and fruits to the value of $940. The net profits for the season were reported to be $38,803.21. School gardens in 1918 numbered eighteen, each containing one sixtieth of an acre or twenty one acres in all. Vacant lot and other gardens numbered 5,790 comprising 684 acres. A total of 705 acres were cultivated by loyal gardeners old and young. Boys and girls to the number of 1,948 enrolled for the movement and 1,128 completed their season’s work and reported the results. (p. 38)

Interestingly, this report comments that war garden organizing built upon already existing, pre-war garden projects. Local school administrators and faculty were organizing gardens for student-driven cultivation on school grounds. The Delaware County Council of Defense found this pre-existing organization to be “fertile ground […] for the proper utilization of all vacant lands and lots for the raising of vegetables to be substituted for certain war foods” since the people of Muncie and the county already were informed as to the practical phase of the proposition and were organized to enter upon the work and to enlarge the scope of their already existent plans. (p. 38)
That is, the broader, nationalistic organizational structure stepped in at the local level to reshape and redirect the existing gardening projects. ⁶

These gardening practices throughout Muncie and Delaware County during the War reflected the national campaign to promote gardening. This government propaganda effort was the first of its kind in the United States. The official government propaganda organ, the Committee on Public Information – described by Noam Chomsky (2001) as successfully “turning a pacifist population very quickly into raving anti-German fanatics” (p. 151) – aggressively promoted gardening and canning as a way to fight the enemy and support the troops. It is significant that images of the canning jar, exhibiting the typical Ball jar design of the era, were prominent in many of the propaganda images (see Fig. 14).

During this moment of crisis, gardening practice served state and industrial interests to a large extent. Gardening initiatives were organized and funded through powerful actors from the top-down, while already existing, more community-based organizational structures, such as the school gardens, were absorbed and amplified by these priorities.

⁶ From 1890 until World War I was the period of the first major urban gardening movement in the U.S. Gardening at home, in schools, and on vacant lots was promoted by volunteer associations as beautification of the urban landscape, education for children, development of civic responsibility, and relief for unemployed workers. See Lawson (2005) for an authoritative account of this period.
Urban gardening during the Great Depression

After the First World War and into the 1920s, Muncie experienced a period of sharp industrial growth, particularly automobile and automobile parts manufacturing. The Ball Bros. factory persisted as a major employer in Muncie as the Ball family itself further distinguished its role at the forefront of business and civic leadership. Sociologists Robert and Helen Lynd (1937) described the Ball family’s influence in the 1920s and into the 1930s as a “manorial control system” (p. 95). In an oft-repeated (and contested) quotation, one of their informants remarked
If I’m out of work I go to the X plant; if I need money I go to the X bank, and if they don’t like me I don’t get it; my children go to the X college; when I get sick I go to the X hospital; I buy a building lot or house in an X subdivision; my wife goes downtown to buy clothes at the X department store; if my dog stays away he is put in the X pound; I buy X milk; I drink X beer, vote for X political parties, and get help from X charities; my boy goes to the X Y.M.C.A. and my girl to their Y.W.C.A.; I listen to the word of God in X-subsidized churches; if I’m a Mason I go to the X Masonic Temple; I read the news from the X morning newspaper; and, if I am rich enough, I travel via the X airport. (p. 74)

The Lynds worried that the Balls’ “hereditary […] wealth offers Middletown the possibility of increasing class stratification” (p. 100).

The long entrenched practice of gardening in the city indeed played a role in the Ball family’s influence, not least of which being the basis for consumer demand for canning jars for home preservation of garden produce. Further, the Ball Bros., individually and as an industry, promoted gardening (and its practical companion, canning) during moments of national economic crisis.

Though this is rarely highlighted in historical accounts, gardening was promoted as an economic survival strategy for ordinary people during the Great Depression. As during World War I, the Ball family was intimately involved in municipal organizing in Muncie during the Great Depression. Also like World War I, Muncie received national recognition for its local gardening organizing in the early 1930s.

The Lynds’ first Middletown (1929) study offered no direct information about gardening, except a footnote that surmises that with the rise of consumer auto transport, the role of home gardening became less prominent:

The large back-yard garden has either disappeared altogether or is considerably more limited in size and content. Among working class families, smaller yards, less home canning, lack of winter storage space for food, time spent riding and tinkering on the car, movies, and similar factors have been responsible for the
decline of back-yard gardening, while among the business class families the high cost of labor, increased preoccupation of the camp, the tendency of a few families to move in summer to a cottage at the Lakes ninety miles distant, are additional factors operating in the same direction. (95n)

The second book about Middletown by the Lynds, *Middletown in Transition* (1937) did note the importance of local gardening initiatives during the Depression, describing backyard gardening and canning preservation as undergoing a “revival” as a “personal thrift” practice, in part at the urging of the “booming depression business” of the Ball Bros. (p. 250).

In the midst of deteriorating social conditions in Muncie during the Great Depression, which were documented in a *Life Magazine* (1937) spread (Fig. 15), the Ball Bros. helped found the Community Garden Association for Muncie as a strategy to combat unemployment and hunger.
A second generation member of the Ball family and then treasurer of the Ball Bros. company, E. Arthur Ball chaired the county unemployment committee, and collaborated with local political bodies, the Muncie Real Estate Club, Muncie Public Schools, and garden clubs in order to provide each unemployed family with a plot of land on which to grow a garden. Muncie was “so far as can be determined, the first city to undertake a program of this kind” (“Plan Gardens for the Needy” 1931). Indeed, the project was regarded by the Hoover administration as so successful that it was dubbed “the Muncie plan” and, at least as stated by a Chicago Tribune reporter, was said to have locally “entirely removed any need for a dole” (Potter 1931).

As during World War I, an impressive accounting of this program was undertaken by its organizers: 1,056 home and vacant lot gardens were counted in Muncie; only four of the families involved in the project failed to grow enough to adequately feed
themselves; 120 quarts of canned vegetables per family were produced from the program and distributed for winter storage. The Community Garden Association saved the city an estimated $25,000 in poor relief (Potter 1931).

Here, gardening and preserving was an act of survival for many; at the same time, gardening was promoted by allied local industry and government in order to keep the burden of social welfare squarely on the backs of those most in need.

_Urban gardening in support of World War II_

Garden organizing in Muncie during World War II followed a similar pattern as previous periods of crisis. The Ball family was involved in organizing committees and there was widespread recognition of Muncie’s success in these efforts. Government propaganda of greater sophistication encouraged the planting of “victory gardens” as a virtual act of violence against overseas enemies, that is, “our food is fighting” (see Fig. 16).
This sentiment played out locally in the mobilization of gardening for the war effort. The “Nutrition New Letter” of the Delaware County Civilian Defense Council stated that “food is considered our ammunition” (Scrapbook 1945). The Victory Garden Committee report for 1943 describes how large tracts of land in the city, including areas administered by the Middletown Gardens housing development, the City Park Board, the Kenmore subdivision, and Ball State Teachers College, were divided into plots for individual family cultivation in exchange for a fee around two dollars. The report is effusive about the success of these gardens and includes quotes from satisfied participants, for example,
“All my spare time in the summer has been spent on the golf course, but never again” (1945).

Though this report provides only the merest trace of the spatial distribution of these gardening projects in Muncie – which unfortunately the World War I and the Great Depression sources consulted do not provide at all – most of the formal Victory Garden Committee organizing appears to have been concentrated on the north of the White River in Muncie. The four committee members’ addresses reveal that two resided on the north side of Muncie and two east of town in the county (1945).

With the exception of the south side Middletown Gardens location, the other places mentioned all served north side, white Muncie residents. Indeed the ‘testimonial’ section of the report includes north side, business class signifiers (e.g. the golf course), highlighting, at least in this source, the participation of the middle class in the victory garden program. It is possible that the south side residents, including the bulk of the working class residents as well as the African-American population, were regarded as requiring less instruction in vegetable gardening projects.

Another local manifestation of the relationship between gardening and World War II was the prisoner of war camp located twelve miles north of Muncie outside of Eaton, Indiana (see Fig. 17). During the 1944 and 1945 seasons, hundreds of young German prisoners of war were forced to harvest tomatoes and work at the canning factories within a 50 mile radius (“Eaton Prisoner of War Camp” n.d.). Once again, national organization of war-related activities dictated a modified local cultivation and preservation practice, implicating the Muncie-based canning jar industry.
Crisis, gardens, and the Ball Bros.

An historian of the Ball Corp. has stated that a captivating aspect of the fruit jar business in its early days was that the sales did not suffer from downturns in the economy. On the contrary, in hard times, housewives turned of necessity to the home canning of garden fruits and vegetables. Thus, during the economic hardships caused by the severe panic of 1893, when businesses everywhere were faltering, the Ball Brothers’ Glass Manufacturing Company shouldered ahead, prospered, and grew. (Birmingham 1980, p. 75)

The same could also be said for the other periods of social and economic upheaval discussed above. As late as the mid-1970s, a period of economic recession, Ball Corp. reported that consumer sales of their canning jars reached “an all-time high, leading to
Ball’s decision to expand capacity and add to its line of consumer products” (Ball Corporation 1974 Annual Report). Before the 1976 growing season, a Ball Corp. vice president told *U.S. News & World Report* that “about 41 per cent of all American households will do some home canning in 1976, up from 37 per cent a year ago” (“Grow It Yourself” Craze Getting Bigger Than Ever” 1976)\(^7\).

Archival sources suggest that urban gardening organization in Muncie exhibited tight organization and garnered national recognition during historical moments of crisis. The Ball Bros. canning jar industry was consistently bound up within these organizations that promoted urban gardening. The Ball family’s entrenchment did not just take place at the local level of civic affairs, but also at the national and international level, where the production and sale of canning jars funneled capital back into the projects of manufacturing more jars, exercising political influence, and broadening class stratification.

Government propaganda during both World Wars vigorously promoted canning as a patriotic responsibility (see Fig. 18), clearly illustrating the alliance between state and industry during these crises. This alliance manifested in Muncie as urban gardening projects that were tightly organized with a high degree of Ball family involvement. Gardening during these times was a duty and a survival strategy. What follows in the summaries of visual data collection and my own thoughts as a participant observer is a vastly different discourse regarding urban gardening practice.

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\(^7\) The article also reports that a Gallup Poll found that 51% of U.S. households were planning to have a garden in 1976. Like the National Gardening Association survey (Butterfield 2009), this is a self-reported figure. Did 51% actually follow through with these plans?
Visual Materials: the inscriptions of gardening practice

“This Little Square of Dirt”

The short movie “This Little Square of Dirt” constitutes the primary element of the data collection of visual materials. I draw on Garrett’s (2011) call for greater utilization of digital video for geographic research. Digital video, he argues, is a research tool.

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8 This movie began as a class project for Dr. Patricia Gilson’s course in Visual Anthropology at Ball State University, fall semester 2011. “This Little Square of Dirt” is also available online at vimeo.com/33707570.
method that creates unique knowledge apart from other media (text, photos, aural, etc.), and that video eases sharing and collaboration with project participants and other interested parties (p. 521). Garrett mentions the underutilized potential for video depicting place-making processes (p. 533), to which I would add depictions of scalar relationships.

This movie is less a set of ‘results’ as it is a set of encounters between the audience, filmmaker, and film subjects. As discussed by Garrett (2011), humanistic-oriented videographic inquiry is itself a social practice. Interpretations of this inquiry are ceaselessly negotiated between those involved. That said, I constructed “‘This Little Square of Dirt’” with a purpose. I sought to provide an example of a narrative of a particular place in Muncie, a unique home garden. The movie elaborates upon notions of scale and the tensions between ‘on the ground’ practices and broader political-economic forces.

Filmmaking background

I first became acquainted with the movie participants informally, through the bicycling and gardening community emergent in Muncie. During the course of a community bicycle tour, we discussed our shared enthusiasm for gardening. They declared that they had dug up every inch of their lawn for the purpose of cultivation, including the parkway strip along the sidewalk in front of their house. It was only later that their involvement in the film project came about. I spent two afternoons with them at their house filming and talking about how, why, and where they practice their gardening. Filming took place on one day in September and one in October. They graciously
provided me with dozens of digital photos of their gardens at different stages of the season. This group of photos proved to be an invaluable resource for the film, particularly because my technical abilities with the video cameras did not keep pace with my desire to make a film.

Before editing, I began to outline the structure of the film first by making a cursory transcription of our conversations and then picking out recurrent themes that touched upon the priorities of the project as a whole. These themes – corn, land, canning, sharing, and neighborhood – became the headings in the film. Several cuts of the film were edited in turn and shared with Linda and Robert, as well as with classmates, for comment. Following the recursive, iterative character of the qualitative GIS research regime, suggestions and corrections, particularly from Linda and Robert, were taken into account for the next round of editing.

Synopsis

Linda and Robert are urban gardeners extraordinaire. They have eliminated all of the grass in their yard (front and back) in order to grow food for their and others’ consumption. But this film is not their biography, nor is it a gardening how-to demo, though Robert and Linda would be excellent contributors to such a program. Rather, through their words and their yard, the film shows gardening as a social and spatial practice intimately tied to multiple scales of economic activity, from the local (sharing between neighbors) to the global (gardening for war, the Ball canning jar industry). The movie attests that histories and possible futures for Muncie are tied to urban gardening.
Movie discussion

Linda’s and Robert’s unique gardening spaces and practices, though atypical, were discussed in the context of their property boundaries, the surrounding neighborhood, the broad discourse of “preparedness,” global forces such as the Ball canning jar industry headquartered in Muncie and the military purposes of gardening. Though we never really step beyond Robert’s and Linda’s gardening space, these implicit interscalar relationships provide some insight into the role of gardening in Muncie beyond their square of dirt.

The video also depicts the contradictions within what typically are regarded as our ‘private’ spaces. The “sharing” section shows that backyard gardening can literally overflow across properties boundaries. A few minutes later, Linda’s vision of community also bears out the social basis of gardening: a neighborhood cultivates its “wasted spaces” and thereby cultivates a shared purpose and mutual care. In their backyard and in the neglected semi-public spaces lay a latent commons.

Other visual materials

The other visual materials enrolled in this research are static images, including archival photos, advertisements, illustrations, postcards, and recent digital photos. These images provide context and triangulation throughout this text as well as ground-level information that complements the “seeing everything from nowhere” (Haraway 1991, p. 189 as quoted in Kwan 2002, p. 647) spatial perspective of the maps.

It should go without saying that visual symbolic language communicates a particular kind of knowledge that cannot be communicated through text. Photos represent
the color and form of its subject, the subtlety of a facial expression, and the spatial positioning and often social positionality, of the photographer. Illustrations, particularly those of advertisements, offer a compact visual rhetoric typically designed to resonate with particular ideas or assumptions held by the intended audience.

Most of these images have been provided as complementary graphics to depict and elaborate themes touched upon in this text, but a more direct reading of these images is also possible. It is beyond the scope of this project to provide a rhetorical deconstruction of all of the assembled visual material, but a brief analysis about one of these images will further elaborate themes emergent among other data channels.

Figure 19 is an advertisement for Ball canning jars from the 1930s. This image was likely created during the Great Depression, around the time of Ball Bros.’ “booming depression business” (Lynd and Lynd 1937, p. 250), i.e. their absorption of regional canning jar manufacturing companies, and the expansion of their manufacturing facilities across the Midwest (Birmingham 1980). This sense of expansion is evident in the juxtaposition of the canning jar, a household item, with the globe. In fact, the jar is about as tall as the diameter of the globe in the background, highlighting the massive worldly significance of it. The text drives this point home with a double meaning. First, “Ball jars are used and available throughout the world,” and, second, “Ball jars the world, as in places the world in a jar.”
As in the interviews conducted and in the archival investigation, this illustration makes the obvious close connection between home gardening and home canning. The jar and the fruits and vegetables appear to be arranged on an off-white kitchen counter or tablecloth. The viewer – perhaps a “housewife” as depicted in World War propaganda posters and mentioned by Birmingham’s (1980) history of Ball Corp. – stands slightly above the scene, ready to fetch a cutting board and knife in order to get to work in the space provided. The reflection on the jar shows light coming through an interior window.
The produce displayed would be seen as an impressive bounty to the eyes of ordinary people during the Great Depression. The tomato, which interview participants discussed as by far the most common garden product in Muncie, is the most foregrounded item. Corn, peaches, pears, peppers and cherries are also grown by Midwest gardeners and pictured accordingly. Though I encountered many grape arbors during the course of the pedestrian survey, I could not judge whether these were primarily ornamental or for food. None of the gardeners interviewed mentioned growing grapes (which is certainly achievable in Muncie’s climate). It is possible that the grape image was included to invoke the end of alcohol prohibition in the United States, which occurred around the time this image was created. More curiously, a misshapen pineapple looms over the set of produce. Is the inclusion of the pineapple another evocation of the global reach of the canning jar, that is, even into tropical zones?

Taken as a whole, this image succeeds in condensing a few of the emergent themes in this research. Canning and gardening are twin domestic practices; such household level practices are highlighted and encouraged during periods of crisis, for example during the Great Depression; meanwhile, the Ball Bros. company mobilized its consolidated capital in support of its global aspirations.

**Participant Observation: on-the-ground insights**

My embeddedness as a researcher occurred with little friction, as my gardening activities predated my initial forays into fieldwork. My participation in the urban gardening community in Muncie occurred within three overlapping spheres of activity. First, as revealed at the outset, my spouse and I are gardeners of our front and back yards.
Second, as coordinators of the communal garden at the end of our block, we regularly interact with other gardeners, many of whom live or work close to this garden. Third, I am a member of the Urban Gardening Initiative (UGI), a city-wide network of community gardens. These participatory activities take place at roughly three levels, household, neighborhood, and municipal, and hence have provided a range of experiences from which to draw participant insights.

My experience as a home gardener informed my conversations with interview participants. Interviews were not one-way transmissions of information, since I often compared notes on specific home gardening techniques and shared what I knew about the location and practices of communal gardens. In two cases, home gardening interview participants committed to acquiring an allotment at the communal garden I coordinate. In another case, an interview participant offered to till this same communal garden with his tiller, a task which would otherwise cost us garden coordinators some time and money.

My participation as a communal garden coordinator afforded this research project familiarity to many gardeners who acted not only as interview participants, but also as informal advisors about the direction and orientation of my research. And in some ways this research, in turn, affected the circumstances of my coordinator role. A Ball State University faculty member who was involved at the communal garden, and with whom I discussed this research, introduced me to a local high school industrial arts teacher. Together we planned for his class to build a shed for the communal garden. In the latter half of the spring semester in 2011, his class did build the shed, which was then delivered to the garden. This community collaboration may have occurred even if I had not been
associated with an embedded research regime, but it is this embeddedness that makes it impossible to fully decouple research from practice.

This reinforces the notion that embedded research, such as this formulation of qualitative GIS, is a social practice with expected and explicit results (a set of data and analyses, a written work, a thesis defense), but is also unavoidably a praxis bound up with unforeseeable entanglements and effects in the ‘real world’. The participatory component of this work also point to the inherently cooperative practice of embedded socio-spatial research as well as the inherently cooperative practice of gardening.

My membership in the UGI network provided a somewhat contrastive vision of the practice of urban gardening locally. UGI’s umbrella organization, Muncie-Delaware Clean and Beautiful (MDCB), is administered under the auspices of the Muncie-Delaware Chamber of Commerce. MDCB was founded in 1977 as a non-for-profit organization devoted to beautification of city spaces. MDCB coordinates volunteer events such as community clean-ups (i.e. of litter), river clean-ups, and median adoption. They bestow annual awards to residents and businesses who contribute to the community beautification efforts. Recently the organization’s leadership has devoted resources to the transformation of local landscape architecture in the form of rain gardens and urban and community gardening (Muncie-Delaware Clean & Beautiful). Themes emergent during my participation in this beautification organization resonated with the historical perspective on the Ball Corp. influence on urban gardening locally and nationally. However, interview participants were conspicuously silent on the topic of urban gardening as beautification.
Significantly, MDCB is currently now in the process of becoming part of an older, national beautification organization called Keep America Beautiful (KAB), which “is a national organization that focuses on litter prevention, recycling initiatives, and community beautification” (MDCB 2011 Annual Report). Researcher Heather Rogers (2006) has shown that KAB was founded in 1953 by the packaging industry association made up of the likes of Coca-Cola and Philip Morris as what Rogers calls “the first of many great greenwashing corporate fronts to come” (p. 141).

In the 1970s, KAB was known for the iconic image of the so-called “crying Indian” (Fig. 20). Through this campaign and others, KAB sought, perhaps successfully, to shift the discourse of ‘pollution’ away from the packaging industries to the individual litterbug. This situates the beautification agenda as an explicitly neoliberal reconstruction of the urban, that is, the project of fashioning our urban spaces to make them more attractive to capital. Many city administrations now are encouraging gardening on vacant lots as a temporary, interim mitigation of ‘blight’ to beautify abandoned lots, attract development dollars, and foster a discourse of urban dwellers’ self-reliance (Rosol 2012). Critical geographers have discussed such neoliberal policy (re)formations within the context of the recent popular interest in ‘the local’ (Brenner and Theodore 2002) and the involvement of not just city administrators in this project, but community organizations (Elwood 2003). Through KAB and MDCB, local organizing of communal gardening projects is now being enrolled, in part, for the broader political-economic demands of mobile big capital. Interestingly, Ball Corp., which no longer manufactures canning jars
and now extracts most of its revenue from disposable packaging materials, is a modest corporate sponsor of KAB. The Scotts Miracle-Gro Company, which manufactures an array of home garden products, is a major corporate sponsor (Keep America Beautiful).

![Image](image.png)

**Fig. 21.** The iconic image of the most popular Keep America Beautiful campaign. Retrieved from Wikipedia.

However, the stated mission and actions of UGI belie the beautification agenda espoused somewhat more overtly by its parent organization, MDCB, and quite explicitly by KAB. The aims of UGI are stated on its webpage:

> To support such a unique tradition of community gardening and to address the tough economic issues our community is faced with, Muncie Delaware Clean and Beautiful has created a network of local gardens and gardeners to help build a stronger local food system. (Muncie-Delaware Clean & Beautiful)

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9 According to the Ball Corporation 2010 Annual Report, its global sales of aluminum and steel (disposable) beverage containers was 82% of their $468 million net earnings.

10 Not incidentally, Scotts Miracle-Gro is a prime funder of the National Gardening Association, probably the largest garden-oriented U.S. non-profit organizations. Scotts sponsored the most recent extensive national survey on gardening cited earlier, “The Impact of Home and Community Gardening In America” (Butterfield 2009).
Compared to the enrollment of urban gardening projects during World War I, the Great Depression, and World War II, the top-down pressure to rescale gardening practice is gone and has been replaced by a varied and largely grassroots discourse. The local leadership of the beautification agenda – an organization with roots in a neoliberal reconfiguration of urban places – in fact supports a strong urban gardening initiative that links to local tradition and economic/food issues.

Without my participation in the local urban gardening network, these finer points about the state of affairs of gardening at the organizational level would have been less intelligible. Indeed, embedded research as a social practice has brought the researcher closer to the ‘facts’ of research. Science and technology studies scholar Bruno Latour put it this way: “The question was never to get away from facts but closer to them, not fighting empiricism but, on the contrary, renewing empiricism” (2004, p. 231).
Chapter V. Discussion

[E]ach fragment of space subjected to analysis masks not just one social relationship but a host of them that analysis can potentially disclose. (Lefebvre 1991 [1974], p. 88)

The summer growth is innocent and disdainful above all those strata of sour dead. (from “This Compost,” Walt Whitman 1897, p. 286)

Resonances and incongruities

Several strands of inquiry resounded with each other within the research regime, while others clashed in contradiction. The pedestrian survey results attest to the widespread, ordinary practice of maintaining a home garden, at least throughout the south side of Muncie. Abandoned lots are being claimed by residents and administered by them for gardening and community purposes. The interview participants contended these same facts, though with a high degree of individual nuance. The personal motives for gardening included feeling at home, exercising a connection with plants and dirt, health (exercise and nutrition), community education, stress relief, economic survival, and neighborhood organizing. Other themes emergent in these conversations consisted of the following: gardening practice was learned from previous generations; preservation, particularly by way of canning and freezing, is a requisite companion practice to gardening; the size and scope of gardens in Muncie has increased recently; and gardens
are almost always sites of sharing (food) and shared family/neighbor/community experience.

The archives told a somewhat different story from a different perspective. State and industrial interests initiated and managed gardening projects during the worst economic crises of the 20th century. Urban gardening projects were used as a way to delink state and industry from social welfare. Muncie was repeatedly recognized nationally for quick, effective mobilization of urban gardening practices. “The Muncie plan” – devised by a Ball family member as head of the local Community Gardening Association and advocated by the Hoover administration – unburdened Muncie’s “dole” during the Great Depression.

The Ball Bros. played a major role in these local gardening and canning projects during these historical moments. Their fortune, built upon glass canning jar manufacturing, originated from home gardening practice. The former site of their flagship canning jar manufacturing facility11 lies in the eastern half of the pedestrian survey study area.

The video “This Little Square of Dirt” also touches upon the role of the Ball canning jar in local history as well as the participants’ gardening practice. The video also showcases the development of a particular garden through time and provides

11 This factory closed in 1962 after significant labor unrest. According to the Ball Corporation 1961 Annual Report, “over 600 grievances were processed in the Muncie plant during 1960, costing the Company more than $60,000 paid to hourly personnel only while arguing the disputes involved. In the rest of our 15 plants an average of one grievance each was processed at nominal costs. Closing of the Muncie Glass Plant should substantially decrease labor problems” (p. 5). This eliminated thousands of jobs and ceased the production of canning jars in Muncie.
triangulation to almost all of the themes (articulated above) that emerged throughout the rest of the interviews.

The participant observation component of the research updates the historical survey to the present. While allied state and industry promoted urban gardening practice as an economic band-aid for struggling city residents during moments of economic crisis in the previous century, urban gardening is regarded by many as an economic strategy for grappling with the current recession. The “stronger local food system” priority of UGI stated above may invoke the top-down rescaling of urban gardening in the past, but is playing out today from a comparatively more ‘grassroots’, bottom-up foundation of communal gardening enthusiasts.

Ball Corp., no longer headquartered in Muncie and no longer a producer of canning jars, does not play a direct role in the current iteration of urban garden organizing in Muncie. However, the legacy of the Ball family and its Muncie-based production looms large in Muncie’s current economic and social infrastructure: Ball State University, Ball Memorial Hospital (now IU Health), Ball Brothers Foundation, and Minnetrista. But if my conversations with gardeners are any indication, the practice of canning is making a resurgence in Muncie – this time without the encouragement of government propaganda or the marked local presence of canning jar manufacture.

**Urban gardens are places**

In *Place: a short introduction* (2004), Tim Cresswell introduces human geographical notions of place using a New York community garden as an example. Theoretical articulations of ‘place’ (e.g. a community garden), he explains, contrast with
the abstract, generalized geometry of ‘space’ (e.g. latitude and longitude coordinates) (p. 8). For Doreen Massey, places are “articulated moments in networks of social relations,” that is, processes that do not have definite boundaries (1994, p. 154). Everyday practices such as gardening inscribe the landscape and the attendant social relations.

Such a notion of place highlights the importance of gardening as a social practice over the value of gardens as static landscape. The liminality of many gardening places/spaces also attests to the processual existence of gardens (Alexander 2002). Since gardens are processes, it follows that strict garden typologies such as communal vs. home gardening are problematic. That is, this research suggests that even home gardens are common spaces in the sense that they are processes. Despite the ‘privacy’ fence protecting and delimiting Robert’s and Linda’s backyard garden (see “This Little Square of Dirt”) from neighboring properties, the produce and practices of that garden branch out beyond this space. The habanero peppers Robert provides to his neighbor, to whom he was previously unacquainted, not only cross the Euclidean borders of his property line, but also the social borders that often exist between neighboring households. All interview participants shared the fruits and vegetables of their gardening labor. In this sense, all home gardens, as well as the explicitly defined communal gardens, manifest an aspect of the commons.

Urban gardens and geographical scale

The relationships between data channels also took on a scalar form, and thereby made the scalar implications of urban gardening more coherent. Scale can be conceived hierarchically only insofar as the current moment of scalar relations is hierarchical. In
other words, the relationships between ‘levels’ (households, local, regional, etc.), which are themselves socially constructed, is scale. Such relationships are the results of historical and political outcomes, not an essential character of scale as such. As Massey’s “global sense of place” posits that process and social relations are constitutive of place, theories of scale similarly complicate notions of bordered spaces. Paasi (2004) notes the complementarity between these concepts. Indeed, this is evident in Prytherch’s (2007) contention that “scales are not really things per se but spatialities: the temporary constitution of interlinked spatial forms around spatialized processes” (p. 465). Place and scale denote different aspects of a geographic analysis, but similarly result from social (i.e. historical, political) processes.

Urban gardening is an excellent example of a practice that is subject to scalar transformation. Urban gardens clearly are places that operate at the ‘local’ level. Gardening takes places as an unheralded everyday practice. seemingly conversely, even a cursory understanding of the history of urban gardening in the United States clearly shows the national and global potentialities of urban gardening. War gardens and victory gardens were sites of patriotic activity that served state and industrial interests (Lawson 2005). It therefore became ones of the aims of this research to articulate the ways in which these two spheres of activity are related, or, indeed, that these are not two separate spheres at all. The history of the Ball Corp. entwines these two stories and furthermore refers to the unique urban development of Muncie. Here, scale initiates a deeper understanding place.

12 For the most recent debate regarding the utility of the scale concept see Marston, et al. 2005; Collinge 2006; Prytherch 2007; and Neumann 2009 among others)
At a glance, grand political-economic projects seem unrelated to just growing some tomatoes and peppers in a backyard. Through widespread propaganda efforts, the state sought to rescale the practice of home and community gardening such that “our food is fighting” (see Fig. 16). The Ball Bros. canning jar industry positioned its capital and philanthropic efforts toward the project of funneling the ground-level gardening practices into urban growth and profit- and war-making via top-down scalar reconfiguration. Currently, the beautification agenda, which in many places enrolls urban gardening in the project of refashioning urban aesthetics, does not appear dominant within the actions and rationales of Muncie’s urban gardening network.

But these clearly top-down scalar relationships – gardening as dictated by war and economic hardship – chafe against the current ground-level practices and potentialities of gardening. A consideration of scale supplies a way to track the political relationships concentrated in the places where gardening occurs and continues to occur. Set against the humble home gardening foundation of the Ball Corp. fortune, consider these words of a past president of Ball Corp. on the topic of the Ball aerospace technology division, which has remained an integral element of their business since the 1950s:

Our technological expertise is applicable to the defense of our country. Therefore, in consideration of the deepening threat to survival on this planet, we are participating in the various endeavors of the Department of Defense. We believe that in order that the ultimate weapon presently in stockpiles remain untried it is essential that our defense be formidable and that we have an overwhelming capability to retaliate. Over the ages, the consequences of retaliation have influenced and moderated mankind’s propensity toward personal conflict. (Ball Corporation Aerospace Division 1982, p. 5)
An examination of scale, inaugurated by a mixed methods approach to socio-spatial inquiry, can disclose such political-economic relationships. Through the medium of the Ball canning jar industry, as abetted by government action throughout the 20th century, the capital accrued through home gardening practice transformed into the machinery for national defense.
Chapter VI. Conclusion

We need, therefore, to think through what might be an adequately progressive sense of place, one which would fit in with the current global-local times and the feelings and relations they give rise to, and which would be useful in what are, after all, political struggles often inevitably based on place. The question is how to hold on to that notion of geographical difference, of uniqueness, even of rootedness if people want that, without being reactionary. (Massey 1994, p. 152)

Gardening our way out of inequality?

To the epigraph, I append that urban gardening activists must stay cognizant of interscalar (re)configurations that may contradict, co-opt, or re-direct these struggles. An amplified struggle for common spaces in our urban environments, which includes urban gardening along with, say, abandoned housing reclamation and public occupations, is the tactical answer to Massey’s questions about “an adequately progressive sense of place” (p. 151). The ordinary, entrenched practice of urban gardening does manifest in many ways as a latent, normalized commons.

Home and community gardening practices contributed to the rise of the Ball Bros. canning jar industry and their concentration of capital. Such practices were also rescaled by state interests, especially during the World Wars and the Great Depression. Muncie holds a unique place in this history as home to the Ball Bros. industry and a highly active site of urban gardening in its own right. Middletown Studies has neglected this strand of storytelling, especially its connection to Ball Bros.’ canning jars and civic activities.
Muncie’s position in the broader national history of urban and communal gardening is woefully under-documented as well.

More generally, I have argued that urban gardening represents a kind of practice from which to understand how scale can be quickly remodeled, particularly from the top-down by state and corporate actors. But the potential for the bottom-up rescaling of urban gardening – and for the expansion of its ground-level common practice – endures as an element within the broader struggle for public space.

**Affordances of embedded qualitative GIS**

Any methodology carries with it particular affordances and limitations. The mixed methods, exploratory, embedded qualitative GIS approach enacted here underscores the following methodological characteristics: breadth of data, depth of knowledge, iterativeness and flexibility, a diverse range of visualizations, and an emphasis on process.

A broad range of data, as exhibited in the five-channeled methodological structure, provides rigor through the interplay of these types of data. Interviews, archival materials, and participant observations all offer necessary depth. These were moments during which participants could speak freely and creatively about their individual experiences. Likewise, I approached photography and historical data less as tools to present a chronological, reconstructed view of gardening in Muncie’s past, but more as images that generate additional voices and interpretations in relation to the other channels of data.
The third affordance of an embedded qualitative GIS approach is its iterative, flexible character. Such an approach allows for continual revision during the course of the study, as an important narrative of methodological design. A conventional approach might be more apt to close off digressions and eliminate leads generated during the course of the data collection. As with any inquiry, the researcher must decide how to grapple with new questions that arise during the course of the study. The embedded qualitative GIS approach leaves open pathways that call for corollary lines of inquiry. While not oriented toward problem-solving or hypothesis-testing research questions, this approach can thereby exercise greater flexibility in revising methods and accommodating new questions as they arise.

A monolithic perspective on the subject matter is hardly possible as visual and textual research components complement each other. Multiple types of visualizations, in this study including maps, video, archival photos, illustrations, and photos, demonstrate the complexity and irreducibility of these stories, histories, and places. However, here maps are embedded within data collection as well as in analysis. Maps were used as objects for consideration, knowledge-sharing, and editing during interviews and semi-public queries. This enabled discussion and research participants’ quick access to spatial dimensions of the project. Perhaps this also functions to demystify the “charismatic technology” that is GIS in the words of Pavlovskaya (2009), in other words, make the researcher’s methods and perspectives more intelligible.

Fifth and finally, there is a distinct focus on the process of research in qualitative GIS, as opposed to a product – a problem solved, a location identified, a map produced. This focus frees the channels of data to diverge, rather than chart a trajectory toward a
comparatively narrow set of conclusions or an isolated problem. Thus, the several channels of inquiry can co-exist and interlace. Qualitative GIS addresses research questions by making associations and drawing insight from several types of sources. The process of this thematic emergence, commencing from the layering, mixing, and interaction of the different types of data, is unique to qualitative GIS. In this context, the enrollment of GIS may not function as a problem-solving regime, as in conventional GIS practice, but manifests as a process of exploration.

**Limitations of qualitative GIS**

As with any methodological practice, the affordances of practicing embedded qualitative GIS can also be its limitations. As a grounded approach, driven through participatory or collaborative interactions, research can seem to continue ad infinitum, as the relationships forged are perhaps personal as well as professional ones, that exceed the neat boundaries of the research program. As such, an actualization of qualitative GIS requires a vigilant reflection on the objectives of the engagement, to continually iterate and adjust the channels of research within the scope of the project. Less than vigilant attention toward project scope can lead to difficulties defining the practical day-to-day tasks for the researcher. At worst, this open structure methodology can lead to dissolution of the methodology itself.

Nor does this iterativeness and flexibility necessarily lend itself readily to success within the bounds of the academic institution, which perhaps due to funding and evaluative structures leans toward short-term engagements that regard participatory and collaborative research as barriers to completion. Exploratory qualitative methodologies
driven by embedded researchers may lack short-term, tangible, and predictable benefits that fit within the rhythms of institutional funding cycles and student research deadlines.

Further, recognizing qualitative GIS as a research strategy that engages the positionality of the researcher(s) and highlights the reflexivity within the research process, there exists the danger of tending too far toward the autobiographical. Consider Donna Haraway’s appeal to de-purify methodological strategies such as reflexivity: “The point is to make a difference in the world” (1997, p. 36). That is, mistaking autobiographical narrative for transparency with social research may make it difficult to extend the impact of the project, to realize change within the communities engaged by the research.

**Qualitative GIS re-unreconstructed**

But what is the difference between this methodology, practiced here as qualitative GIS, and what we might call a mixed methods, spatially-oriented ethnography? Why is it at all relevant to label this methodology qualitative GIS? Until now, geographers and spatial analysts have tackled GIS as a fundamentally technological enterprise. Even those practitioners who have envisioned GIS beyond spatial analysis integrate their data into a single interface (as in Knigge & Cope 2006, also see the collection Cope & Elwood 2009).

Can geographers engage with GIS without digital integration? Can we even imagine GIS beyond maps? Since Herodotus, geographers have presented geographic information *not necessarily* through maps. If we are to agree with critical GIS scholars’ contention that GIS is more than a tool (see Schuurman 2000; Harvey, et al. 2005), and
that conventional GIS embeds a particular epistemology (see Wilson 2009), then we must make room for practices of GIS that refuse, or ignore, technological integration as an unavoidable presupposition of conceptual integration. As web GIS proliferates along with its social and economic architecture, and with the study thereof (see Crampton 2009; Haklay, et al. 2008), the dangers of epistemological uniformity grow. How is the expanding dominion of Google Maps affecting our spatial imaginations? A diffused, conceptually-focused re-envisioning of qualitative GIS reminds us that spatial processes can be mapped with words and pictures and that spatial analysis does not necessarily require digital information.

Geography has a long history of problematizing not just political borders, but disciplinary borders as well. This embedded qualitative GIS approach problematizes these disciplinary boundaries. The practice of qualitative GIS methodologies erodes the walls erected around GIScience as a specific disciplinary entity defined by technological expertise, particular software implementations, and problem-oriented spatial analytical questions.

Sui and DeLyser (2012) have recently begun a review of, coupled with a renewed call for, hybrid methodological practices “in an effort to bury the qualitative-quantitative divide in our discipline” (p. 116). Such an agenda is aided by directly situating the researcher as part of the study. As Latour’s “renewing empiricism” positions the researcher-subject at eye-level with the ‘data’, the social commitments to place implicit
in Bunge’s neighborliness take on central importance as research\(^\text{13}\). The affordances of practicing qualitative GIS, which offer a broad, flexible, and open structure to socio-spatial research, proceed along these priorities.

**Final summation**

Gardens are not just spaces set aside for growing food. They are complex places inscribed by social practices, ineluctably implicated in all the messy personal, political, and economic facets of our social relations. Muncie, Indiana embodies a particularly interesting place in which to garden and to conduct research on gardening. Though nicknamed ‘Middletown USA’, Muncie’s past is highly distinguished with regard to food gardening and preservation activities. Yet this past is grossly underappreciated, as is the Ball Bros.’ role in the rescaling of the practices of home gardening into a global, and extra-global, business. The present day neoliberal enrollment of urban gardening continues to play out, yet it meets with continual friction among the grassroots discourses of the practices of the commons.

These findings point the way toward a more socio-critical consideration of gardening and a deeper historical investigation of the particulars of gardening in Muncie’s history. In addition, this exploratory, embedded qualitative GIS approach to inquiry opens the door to new configurations of spatial research.

\(^{13}\) It is possible that human geographers may realize that often their most valuable work occurs when their own socio-spatial existences (i.e. their homes) take place within their ‘study area’.
Appendix A. Field Maps, Two Examples
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