Integral Urbanism: Investigating the Materiality and Spatiality of the University of Alberta Quadrangle

by

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Abstract

The university quadrangle is a space that exists on the majority of North American campuses, yet detailed investigation into the creation, existence and perpetuation of the quadrangle has been minimal. Considering how universities look to distinguish themselves from one another in search of the best students and faculty, the built form of the quadrangle has stayed relatively consistent for over four centuries and is found to be an integral component of the university (Akin 2004).

This thesis investigates the University of Alberta's quadrangle and the adjacent architecture through the theoretical lens of Nan Ellin's Integral Urbanism and visual methods, such as architectural plans and photographs. My analysis focuses on the materiality and spatiality of the University of Alberta's quadrangle related to the applicability and actuality of Integral Urbanism.

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I owe much of my broader understanding of theory and its applications to the organizers and participants of University of Alberta Theory Retreat 2013 and 2014 as the discussions have proved valuable, challenging, and most importantly relationship-enhancing.

Preface

This thesis work is an original work by Scott Varga. No part of this thesis has been previously published.

I first experienced the UofA campus in 2009 as a summer student employee with the university's Computer Aided Facility Management (CAFM) team. I had just finished the academic year at Dalhousie University in Halifax, Nova Scotia, and was transferring to University of the Fraser Valley in Abbotsford, British Columbia. I had personally experienced different campuses but my professional work experience at University of Alberta exposed me to comprehend the space of the campus in an entirely new manner. Yet, this is not where my fascination of the university campus began.

In the summer of 2002, I boarded a Greyhound bus as an unaccompanied fifteen year old to travel from Bellingham, Washington to Davis, California to visit my cousin who was studying at University of California, Davis (UC Davis). This summer trip was a birthday present from my parents–who were highly trusting–which ended up being influential on my future interests in university campuses, architecture, and planning. I departed as a fifteen year old who was naive to the possibilities of the university and returned as an "enlightened" sixteen year old eager to finish high school and embark on post-secondary education. It was at UC Davis that I experienced my first large-scale university and my first college town. The energy was palpable and highly contagious. The immensity of the UC Davis campus, diverse academic facilities, and highly visible social interactions, especially in open spaces, left a lasting impression on me which I must acknowledge is the genesis of this Master's thesis.

UC Davis was only the beginning of my intrigue with the university campus. Since 2002 I have researched and experienced university campuses throughout North America and one thing has stayed constant: the quadrangle. Regardless of institutional establishment, rank or pedigree, the quadrangle, or colloquially referred to as the quad, has existed in one similar and reproducible form or another at every institution I have researched. Therefore, it is important for me to acknowledge the research I completed at ten universities located throughout Western North America including campuses in: Alberta, British Columbia, California, Montana, Oregon, Utah, and Washington State between April 2013 and October 2013. Further, the research I undertook in the autumn of 2011 in Boston and Cambridge, Massachusetts was influential in exposing the researcher to some of the world's most renowned post-secondary institutions and their supporting physical environments. Although these campuses are not specifically discussed in the scope of this study, they did provide me with a strong foundation of heuristic knowledge to better complete the UofA case study.

Chapter 1: Introduction

The University of Alberta (UofA), located in Edmonton and founded by Henry Marshall Tory in 1908 (http://www.ualbertacentennial.ca/history/index.html), is the flagship institution of the Province of Alberta. As of 2014, approximately 50,000 people comprise the student, staff, and faculty body of UofA, establishing it as the largest university west of Ontario and east of British Columbia. For consistency and understanding for the reader from the outset, I will refer to this diverse body of people as *campus participants*.

The thesis research presented here follows from heuristic research specifically at the University of Alberta between the fall semester of 2013 and the winter semester of 2014. The purpose of this research was to investigate the question of: How can we better understand the material and spatial nature of the University of Alberta quadrangle through discussing it in relation to Nan Ellin's theory of Integral Urbanism? For consistency and brevity of language, I will refer to the quadrangle as *quad*.

This document is comprised of seven chapters: Introduction: which establishes the framework of the research; Literature Review including an overview of Integral Urbanism; History of the Quad: which explores the history of the university quad from a macro perspective, and a section that focuses in on the history of the UofA quad; Methods: which explains the framework of my case study research design and method, the justification of nonparticipant observation and my use of visual methods; Analysis: which examines the UofA architectural site plan of the quad and ten photographs captured by the author of the contextualizing architecture of the quad and examined through the theory of Integral Urbanism; and Conclusions: which

synthesizes the findings of this research and suggests potential future research to be conducted while recognizing the limitations of the presented research.

Before engaging in a more conceptual discussion of the quad as material culture of the university, it is first useful to explain material culture pertaining to the field of human ecology and then outline what it is that I actually did in this research, and why. The essence of human ecology constructs knowledge of interrelations between humans, culture and ecosystems. According to social scientist Robert Dyball (2010), human ecology moves beyond interdisciplinarity to become "adisciplinary" (p. 273) which provides a strong epistemological grounding for investigation into the university that is both specialist / disciplinary and generalist / interdisciplinary. According to Robert Park and Ernest Burgess (1925) of the Chicago School, human ecology can be defined, "as a study of the spatial and temporal relations of human beings as affected by the selective, distributive, and accommodative forces of the environment" (p. 63-64). Therefore, the field of human ecology is especially pertinent to my research examining the spatial and material aspects of the UofA quad, which includes time and influence by campus participants, resulting in a continually changing landscape.

Material culture integrates into human ecology with the study of physical objects not simply as 'things,' but rather as reflections of the cultures which created them. The study of the UofA's quad and surrounding architecture through the field of human ecology and material culture is compelling as historian Carl R. Lounsbury (2010) provides one insight into parties who use material culture as a position to examine architecture:

> The study of architecture as material culture today thrives in many branches of the social sciences and the humanities, more specifically among cultural anthropologists, archaeologists, folklorists, geographers, museum curators, architects, art and architectural

> historians, and social historians who have shaped the epistemological issues and devised the theoretical methodologies that govern our perception of what buildings tell us (p. 1).

Lounsbury argues that the study of architecture is interdisciplinary; there is value in studying architecture from multiple perspectives. Therefore, this study of the UofA quad's material culture vis-à-vis its surrounding architecture, has the opportunity to benefit multiple branches found within the social sciences. This is particularly the case since architecture is a physical article, and, as Lounsbury (2010) notes: "We have tactile and physiological responses to the physical characteristics of buildings—the feel of materials or the sense of place" (p. 485). A chief benefit of material culture is that it does not pin the subject of research into the study of architecture, architectural science, environmental design or urban planning, but allows for an exploration and synthesis of all of these subjects.

The University of Alberta quad is an artifact of the university, yet more specifically, it is an institutional architectural site, contextualized by the buildings which surround it. According to anthropologist Douglas Bailey and archeologist Lesley McFayden (2010), "Architecture is often seen as the more significant piece of material culture..." which is, "drawn and written as a thing that is thought about as an idea, that idea then being translated into material form, that material form then being used" (p. 563). As Bailey and McFayden argue that architecture may be the more culturally celebrated artifact of material culture, sociologist Chandra Mukerji (2010) points to landscapes, the thing that often supports architecture, as containing "distinct lessons about material culture and human life" (p. 543). Mukerji points out that, "The materiality of social life matters in complex ways, and landscapes help us see it (Appadurai 1986a; Miller *et al.* 1998; Latour and Weibel 2002, 2005)" (p. 550). The university quad as part of the university landscape contains such latent complexities that requires theory to assist in critical meaning making.

Therefore, it is important to not only use different modes of inquiry, such as Integral Urbanism, human ecology, and material culture, to probe the UofA quad, but to also test theoretical perspectives in a modality of experimentation to uncover different ways of understanding aspects of our complex world. Similarly to Dyball, Lounsbury and Mukerji, this research is interested in uncovering new perspectives on the UofA quad arguing how and why the quad is the lifeblood of the university.

The etymology of the term *campus* is derived from the Latin notion of 'level ground' referring to a field, green and open landscaped area. In their book titled *Building Type Basics for College and University Facilities* architects Neuman and Kliment (2003) find that the physical form and social functions of campuses have their origins in the traditions of the *agora*, a public open space in ancient Greece used for assemblies and markets. According to geographer Yi-Fu Tuan (1974, p. 28) a man's full potential is realized in the open agora and forum because he is seen and he is within. Like the agora, to be seen on the university campus establishes a perceived identity with the larger university. The relationship between individual and community identities is a major, if not unrecognized theme of the university campus as students have historically enrolled as individuals but lived in groups (Turner 1984; Coulson, Roberts, and Taylor 2011), most often formalized through monastic houses, colleges, fraternities and sororities, or, more recently, through university-administered dormitories. This intentional segregation of students from a town or city's citizens looked to build community amongst the students while minimizing outside and "profane" distractions; however, the by-product of the separation of peoples was the development of the campus as a distinctive material and spatial landscape that as we will see, establish its own distinct typology.

By my calculations, the UofA quad has a physical area of approximately 18,906 square metres or 1.89 hectares and is surrounded by nine buildings (see Figure 1.1).

Figure 1.1. Aerial image of the University of Alberta quad. Credit: Google Maps (2013).

At first, I believed I would only study the quad internal from the edges of the surrounding buildings as if I could divorce the two. Early on, I realized the importance of the architecture that is adjacent to the UofA quad and decided to add this to my investigation. Therefore, in my research, and inspired by architect Spiro Kostof's (1995, p. 5) eloquent statement that, "architectural drawings are the architect's conventional language," I acquired an architectural site plan of the UofA quad from the University Architect to analyze spatial relationships between the quad and the nine buildings. Further to this, and influenced by Linda Groat and David Wang's (2002, p. 220) discussion of photo-documentation as a research tactic in their book, *Architectural Research Methods,* I decided to capture photographs of the buildings which contextualized the UofA quad from the elevation which faced the quad. I did this with the intent to mirror the architectural drawing convention of the front elevation view. This front elevation view is a standard architectural practice to provide as much visual information of the structure as possible while minimizing the emotive qualities of a more illustration-style architectural rendering that is often captured from an oblique angle. Therefore, my photographs capture each individual building from the front elevation to enable the analysis of the quad in relation to materiality, spatiality, and aspects of Ellin's Integral Urbanism.

The resolution to concentrate on what is often an overlooked and assumed space of any university campus is important to mention at the outset because very little research has been conducted on this space. During my research I discovered Roger Trancik's 1986 book, *Finding Lost Space,* which provided an alternative perspective on urban space that I had not previously considered. Trancik coined the term "antispace" to describe the product of treating buildings as isolated objects and superficially designating the space around these buildings as public space. I

was intrigued on two levels. First, based on my research experience, university quads are most often found to be bounded by individuals buildings establishing a typology of design. Secondly, the discussion between Trancik's antispace and Kostof's "total context" where, "No building is an isolated object, sufficient unto itself" (1995, p. 7), seemed to be saying different yet similar things and arguing for a more holistic consideration of the design of buildings and space to be translated into place, most importantly through human actors. Therefore, the decision to focus on the quad became apparent as I travelled to universities around North America exploring the architecture and planning of campuses. The combination of my educational and professional architectural and planning experience along with my interest in the materiality and spatiality of the built environment of universities resulted in the logical conclusion to study the intersection of all these interests which is the quad. To bring clarity to the potentially abstract notions of materiality and spatiality, I would like to explain the intent of each here. Regarding materiality, particular attention was paid to the material of the architecture and the materials of the quad to try and understand the significance of these materials as a means of communications to the campus participants. For example, does the choice of materiality exhibit a distinct era of architectural style? Or, perhaps the materiality presents a function of security and surveillance. Spatiality specifically refers to the volume, shape, scale and permeability and connections to other spaces (Trancik, 1986, p. 1). Materiality and spatiality are almost exclusively linked. For example, within the UofA quad, architectural hierarchy is displayed from a functional perspective when an exterior front stairwell (material) jogs toward (spatial) the campus participant indicating the main entry point to a building.

The application of Nan Ellin's (2006) theory of Integral Urbanism (which will be discussed in the next chapter) to my analysis of the UofA quad came after extensive reading and discussion concerning the selection of an appropriate framework for this research. Ellin's theory provided an effective direction and enabled me to undertake a deeper theoretical analysis of the UofA quad. Ellin's work is useful to a theorized discussion of how to improve upon our built environment through critical analysis and discourse of actual sites around North America. Since my research focuses on the materiality and spatiality of the UofA quad, the components of Integral Urbanism proved useful to extend a theoretical lens in which to better understand the UofA quad and the architecture which surrounds it.

Summary

In this chapter I have discussed the context of material culture as a field of human ecology, the treatment of objects not merely as "things," but rather as artefacts that reference the culture in which they were created by or for. By positioning this research within this domain of inquiry, other cultural influencers of the quad throughout history, such as the Greek agora can be more accurately understood. Stemming from this conceptual piece is the physical relationship between architecture, place, and the inhabitants establishing a place for community to exist. The quad of the university has been presented as an overlooked artifact, something that has been assumed by researchers and campus participants alike. At the beginning of this research, I was in a similar position, where I assumed that the quad was separate from the architecture which surrounded the demarcated lawn. With my revision in research scope and the addition of Ellin's

theoretical lens of Integral Urbanism, specifically focusing on the materiality and spatiality, I was in a stronger position to critically analyze the UofA quad.

Chapter 2: Literature Review

In this chapter I review some of the literature that engages with the university campus, specifically that which discusses the material and spatial nature of the university campus. I will also outline how my work builds on, or contrasts with, previous scholarship.

The literature review chapter is subdivided into three major parts exploring the university campus; architecture; and a summary of Nan Ellin's *Integral Urbanism,* which is the theoretical approach through which I frame my research. Within the larger framework of Integral Urbanism, hybridity/connectivity and porosity are used to investigate the UofA quad's materiality and spatiality. Hybridity/connectivity means connecting people and activities in space and intensifying both along thresholds. Porosity means how people and objects flow in and out of a space.

Introduction

In the late 1950s, Le Corbusier, the esteemed Swiss-born, French Modernist architect toured America for his first time. His book titled, *When Cathedrals Were White* (1964), was one of the artifacts produced from this influential trip. As part of his trip through America, he visited a handful of university campuses and found that US universities not only had distinct urban characteristics but were a "green city" comprised of "lawns, parks, stadiums, cloisters, and dining halls" (1964, p. 135). In America, an environment of comfort and prosperity was eminent to Le Corbusier, a stark dichotomy between the grittier Parisian university experience of the "starving student" which he himself experienced. This luxury was evident through the influence of Gothic design and planning of the campuses (1964). Le Corbusier found each American campus to be an

'urban unit' made up of what he stated, "a world in itself, a temporary paradise, a gracious stage of life" that served the "interest of comfort, everything for the sake of calm and serenity, everything to make solid bodies" (1964, p. 135). Although Le Corbusier's writing on the subject of his experience on American campuses is Romanticized, the effect of architecture and the idyllic notions of campus planning, specifically the arrangement of space, including the quad, clearly affected the famous architect.

The campus is an architectural entity like none other and yet the existing literature that surrounds the design of the university campus, let alone the specific subject of the quad, does not mirror its *sui generis,* or unique, nature. The subject of the university campus has been written about in a limited capacity even though internationally the physical environment is inhabited by millions of campus participants annually. Critical literature on the built environment of university campuses is extraordinarily thin. This lack of literature is surprising, given that university campuses have been compared to cities (Le Corbusier, 1964; Gumprecht, 2009; Stern, 2010) and many are as large as a small town. A concern with the physical scale of the campus establishes the potential for critical and nuanced research. The notions of the idyll supported through the built environment have a significant potential for critical discussion, yet currently such discussions are limited. This visible gap in the literature on the material culture of the built environment of the university provides a strong opportunity for my research to begin a conversation concerning the design of the university and, in particular, the quad.

The University Campus

Architectural consultants, Coulson, Roberts, and Taylor's (2011) book *University Planning and Architecture: The Search for Perfection,* is the most substantial recent work on the design of the university campus. The authors describe the Puritan settlers' perception of where they would establish higher education environments on America's east coast as a "blank canvas, onto which they could project their ideal world, a pure world of the highest morals, in which every man strove to serve God and one another" (p. 8). While this description captures the idealism of the builders of North America's early universities, what is missing from Coulson, Roberts, and Taylor's analysis is how the built environment of the campus impacted campus participants. This lack of critical discourse prevails throughout Coulson, Roberts, and Taylor's work, which is mostly a descriptive, rather than analytic, study. Their descriptive approach is perhaps because the authors approach the subject from their roles as design and planning consultants and not critical theorists.

This perspective is similar to that of Richard P. Dober (also an architectural consultant) (1991; 1996, 2000), whose book, *Campus Landscape: Functions, Forms, Features*, is also largely descriptive. However, Dober's work is valuable because it provides a rare and detailed look at campus landscapes throughout America and the UK. Dober's work, though not articulated explicitly as a study of material culture, does analyze the material culture of campuses and thereby provides empirical data for the more in-depth research carried out by others. In spite of the fact that Coulson, Roberts, and Taylor and Dober's work is largely descriptive and from the architectural consultant's perspective, both of these works are useful for general information.

However, the fact that these texts exist, but discuss the subject from a non-critical level, speaks to the overall lack of scholarly work that has been done on campus planning and architecture.

One piece of notable critical academic literature that pertains to the university is historian Thomas Bender's (1988) edited collection *The University and the City*, which investigates the relationships between cities and universities throughout history. *The University and the City* examines at length important socio-cultural and socio-geographical aspects of the university and its relation to urban environments and how these have influenced the development of the university and reciprocally the city. In relation to my work, *The University and the City* traces the development of the university alongside the city through time, beginning in the middle ages and concluding within the modern twentieth century university. Bender's work, like Paul Venable Turner's is over twenty years old, but due to the historical examples cited, a breadth and depth of information is established that ensures the relevance of the work.

When considering the UofA quad, we can see that is largely influenced by the Beaux-Arts style of planning which emanated from Paris in the seventeenth century. This approach looked to find solutions to the complexities of a growing urbanism. Throughout Bender's text, the theme of co-development, that the built environment of the university and the city are semi-dependent upon one another, is prominent. My research agrees with Bender's notion of co-development and or interdependencies between the university and the city, especially as extraordinary circumstances arise, such as disease or war as experienced at the UofA, which will be discussed in greater detail in the chapter three.

A Pattern Language, an influential piece of literature in the fields of architecture, planning and urban studies, by architect and professor Christopher Alexander, Sara Ishikawa,

Murrary Silverstein, Max Jacobson, Ingrid Fiksdahl-King and Shlomo Angel (1977), contributes only three pages of their nearly 1200 page book to discussing the university and the role its physical environment plays. Although, the campus is discussed in a minor capacity in this opus, Alexander et al. position the university as a "marketplaces of ideas" (p. 232). The authors compare this ideal space to the variety of a traditional old-world marketplace where hundreds of tiny stalls are congregated around a central space offering ample choice to the campus participant. Although, Alexander et al. do not specifically refer to the quad by name, they discuss the requirement of access to open green spaces, specifically within a three-minute proximity, confirming that foliage and buildings such as residences should be adjacent to green open spaces rather than roads (1977, p. 309). In my research findings, the design of the UofA campus does precisely this, minimizing vehicular traffic within the campus itself. However, when Athabasca Hall, Assiniboia Hall, and Pembina Hall, (subsequently referred to as the Three Halls) were constructed, the UofA quad was within a few steps and accessible within seconds for the campus participants who resided there. Therefore, following Alexander et al.'s logic, the quad would have been a socially active locale. As is the current situation, the majority of UofA campus participants who live within university housing, are approximately 850 metres, or eleven minutes, away from the quad as demonstrated in Figure 2.1. Therefore, based on this distance, Alexander et al. would likely argue that the UofA quad could be more socially activated if campus participants lived closer.

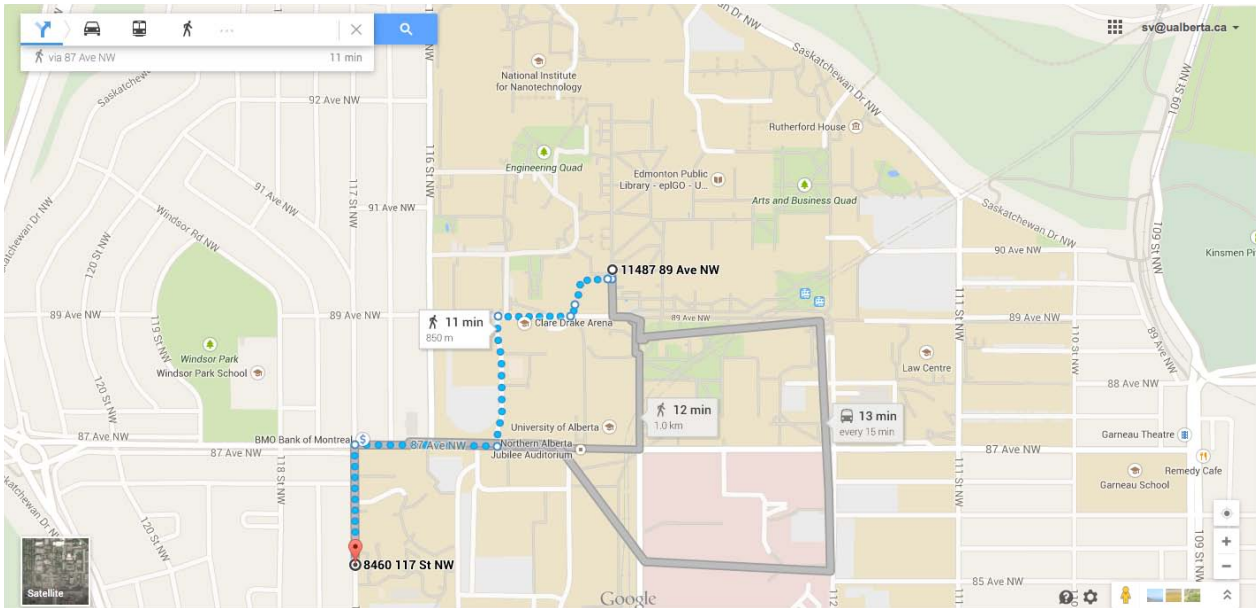

Figure 2.1. Map indicating distance from Lister Hall, UofA's major student residences, to the quad. Credit: Google Maps (2013).

As already noted, there are few published works that apply a lengthy or particular focus to the university campus. Those already discussed are rather uncritical, while Paul Venable Turner's seminal work *Campus: An American Planning Tradition* (1984) is somewhat hampered by arguing that the concept of campus planning is solely an American invention. This is a bold statement that is somewhat reductionist and therefore does not add depth to the analytic study of the university campus. My research findings disagree with Turner's notion of campus planning being an American invention. Instead, my research sides with Bender and Parman (2005), Akin (2004), and Hyde (1988) who find the first modern campus typology to exist in Bologna, Italy. However, Turner (1984); Trancik (1986); Harries (1998); Goldberger (2009); Coulson, Roberts, and Taylor (2011) all position the University of Virginia as the crucible of North American campus planning which my work does, for the most part, agree is the preeminent planned campus of the "New World."

The difference in campus environments throughout North America is extraordinary and, as captured by Dober (2000), distinct, even though generally the mission of higher education is the same. This can be seen as many North American universities try to distinguish themselves from "competing" institutions, yet often contain similar physical elements, such as the quad. More recent works such as Coulson, Roberts and Taylor's (2011), *University Planning and Architecture: The Search for Perfection* (discussed above) and Neuman and Kliment' s (2003), *Building Type Basics for College and University Facilities,* draw heavily on Turner. These writings add another layer of confirmation to how the North American campus came to be, but as already noted above, with regard to Coulson, Roberts and Taylor, they do not offer much in the way of criticality, especially of Turner's position about the significance of the USA as the centre of invention for campus planning.

As discussed previously, universities in North America have the common mission to educate, yet their physical compositions are often distinctly different from each other. Architect Martin Pearce (2001) argues in his book, *University Builders,* that there are four specific design strategies of the university campus that have been historically developed: the campus model, the molecular campus, the concentrated model and the civic urban model (p. 12-13). Pearce explains that:

> The campus model identifies a core building from which the campus plan extends outwards; the molecular campus—following the Oxbridge collegiate model—develops the design around several social hubs, each of which includes colleges, science or teaching buildings, and buildings of general functions (library, theatre, etc.). The concentrated model builds on these two models in that it also postulates a separation between university and society, but it is innovative by proposing an interdisciplinary academic structure: instead of creating identifiable colleges or faculty buildings, the concentrated models suggests an integrated approach in which disciplines are blurred through common walkways and short distances between buildings. The civic urban model

> continues this interdisciplinary interest, but it also challenges the isolation of the university campuses by explicitly positioning the university as part of the city (ibid.).

Within my research of the materiality and spatiality of the UofA quad, I find aspects of hybridization in Pearce's models. Specifically, the "Oxbridge collegiate model" is found at the UofA within the Three Halls (Assiniboia Hall, Athabasca Hall, and Pembina Hall) and the "concentrated model" of connected buildings along the east side of the quad. As indicated by Pearce, the organization of the campus expresses aspects of institutional philosophy and even pedagogy. Geography also plays an important role through proximity to either university other buildings, urban settings, and rural settings. Two interesting points need to be raised about Pearce's *University Builders*. Although he is the first to suggest theoretical models of campus design and planning, his 2001 publication is a glossy, picture filled book of new universities, not a critical piece of literature. Secondly, Pearce's "concentrated model" shares many similarities with Nan Ellin's notion of hybridity/connectivity, as we will see later.

So far, I have considered literature that discusses historical or theoretical aspects of the university campus. A review of 37 university campus master plans by landscape architect David Spooner (2011) examined how the experiential qualities of walking through a campus can be altered through the built environment and how these experiential qualities directly relate to the perception of time. Spooner's argument is for the design of a campus to fit the human scale, specifically a maximum of "ten minutes wide" (2011, p. 12) as that is the time interval between university classes and thus the required time for a student to reach their destination. Spooner's study, though not explicitly stated, takes into consideration Sprio Kostof's "total context" where neither architecture nor landscape are in isolation. In relation to my research, I argue that the quad does not exist in isolation; rather it becomes a quad when it is contextualized by the

surrounding architecture establishing it is a university landscape. Not only is Spooner's an example of how to divide the concept of the university into manageable research projects that will over time aggregate into a significant body of work on the university campus, it affirms aspects of applying theory to better understand the built environment of the university.

Architecture

Although architecture may be perceived or discussed in the context of a single building due to its physical boundaries (where one building begins and ends), philosopher Martin Heidegger (1971), in *Poetry, Language, Thought*, discusses how the ancient Greeks recognized a physical boundary not as where something ends but where something begins. Heidegger refers to this perspective of the boundary as where a subject begins to be present. In my research, I argue that the space of the quad, as conceptually informed by Hiedegger, only becomes a place when it is contextualized by the surrounding buildings thus becoming a "present" landscape.

Similarly, architect Spiro Kostof (1995) in, *A History of Architecture: Settings and Rituals,* outlines how architectural comprehension involves a totality of knowledge, or the "total context," that extends beyond the boundaries of the physicality of architecture to include issues, such as in my subject's paradigm, post-secondary governance and policy, capitalist mechanisms, provincial government funding. Although my research does not specifically investigate these subjects at depth, they are mechanisms that have come together to establish the UofA over time and aid in a larger understanding of the built environment of the university. My research agrees that when these subjects are synthesized, the totality of architectural understanding is at its fullest because all the mechanisms which contributed to creating, for example, the quad, have been

accounted for. Kostof's approach is drawn on in my work through discussing the historical forces that existed to create the UofA quad and the surrounding buildings (and that continue to sustain them). By using a broader perspective as suggested by Kostof, a deeper comprehension of the ideals of the university in terms of how these are manifested in the built environment is realized. Kostof (1995, p. 3) argues that architecture is the "material theatre of human activity" and does not exist in isolation, yet is part of a larger setting, such as a neighbourhood, and through this physical setting derives part of its architectural character. Specifically in my research, the surrounding architecture of the UofA quad provides such a physical setting but also a narrative of morphology as made evident in the multiple eras and styles of architectures.

Landscape architect and urban designer, Roger Trancik, in his book *Finding Lost Space: Theories of Urban Design* (1986), provides, similar to Kostof, support for understanding the whole, as he states: "If in abundant, physical terms, *space*, is a bounded or purposeful void with the potential of physically linking things, it only becomes *place* when it is given a contextual meaning derived from cultural or regional content" (p. 112). What is especially important to consider is Trancik's description of the geometric considerations of architecture's spatial and material framing of a space. Trancik (1986) states that:

> The three dimensional frame defines the edges of the space, the degree of enclosure, and the characteristics of the spatial wall. Transparency, opacity, openings, and surface ornament have significant impact on the character of space, as does the relationship of vertical mass to horizontal space. The scale of the wall in relation to human scale and the way this frame meets the ground plane and also major factors in the definition of the three-dimensional edge. The two-dimensional pattern refers to the treatment and articulation of the ground plane—its materials, texture, and composition. Objects in space are those elements such as sculpture, water features, and trees that provide accents or focal points and make the space memorable. Objects can be used to anchor the center and to give vitality to spaces. The most vital elements of all are the human actors who use the space, giving it life" (p. 61-63).

Based on my research, Trancik could be describing almost every university quad I have experienced, as he discusses the impacts of the architecture, the positive and negative space, the materiality of the components which comprise the space. These combine to give character and represent the material culture of a place. Finally, Trancik notes the importance of people, such as campus participants, who embody experiences and extract memories from such a place.

In addition to this perspective of transitioning between space and place, Karsten Harries (1998, p. 213) argues that space is transformed into place through buildings. My findings agree, without the architectural context, the UofA quad is no longer a quad, however; conceptually, I side with Trancik as well that the activation of place is dependent upon people who require the functions of the architecture. Therefore, meaning is always being produced or re-produced through context, which supports the built environment. Evidently, as argued by Kostof, Trancik and Harries, there is an ecosystem of interdependencies between space, place, architecture and people.

As discussed above, a change or morphology is identifiable through architectural styles and architectonics, that is, through changes in style vis-a-vis technology, economy and people's attitudes (Tuan 1974). By attending to these technological and socio-cultural details which have influenced the morphology of the university's built environment, a stronger comprehension in how to critically analyze the university's built environment can be achieved, potentially resulting in an improved place. For Trancik (1986), architecture is not simply an entity existing in space, the architecture provides evidence to people of the environment in which it is situated; the environment it came from and currently inhabits. For example, consider the difference in attention paid to materiality, detailing, and scale in prewar campus architecture of the UofA,

buildings such as: Athabasca Hall, Assiniboia Hall, Pembina Hall; compared to the post-war building boom of the remaining buildings, such as: Gunning / Lemieux Chemistry Centre, Central Academic Building, South Academic Building, Administration Building, and Centennial Centre for Interdisciplinary Sciences (CCIS). The differences between these buildings visually express the values of their epoch, with the former valuing history and tradition, and the latter valuing the universal, expediency, and efficiency. Considering Tuan (1974), Trancik (1986) and Kostof (1995) my research similarly argues that the stratification of architectural styles and materials has a profound (if not always conscious) affect on the campus participant while situated within the quad.

As discussed earlier in this chapter, Lounsbury's notion about 'sense of place' is actualized by the site of the UofA quad and not only by the physiological aspects of the built environment but also the psychological aspects. For example, the uncomplicated, monotonous brick face of the Gunning / Lemieux Chemistry Centre, confronts the campus participant as a fortification and may psychologically be perceived this way (Benton, 2011). Whereas CCIS, composed nearly entirely of glass, not only allows the campus participant views into the edifice but also reflects light and mirrors the image of the quad back to the campus participant. These observations will be discussed in greater depth in the analysis section of this thesis in relation to Nan Ellin's *Integral Urbanism*. This brief comparison provides the campus participant *in situ* with an architectural narrative or even philosophy of building that displays the values of era-specific architecture and the relationship of these buildings with the quad.

Commonly, in literature about university-based architecture, individual campus buildings are written about, most often by the architect who designed the building (and often with the aim

of bringing attention to the architect's firm) (Smith, n.d.)[1]. However, Thomas F. Gieryn, sociologist from University of Indiana, is an exception, as he writes on the theme of institutional buildings, specifically in the realm of science laboratories (see Gieryn 2002, 2008) and he does provide some critical analysis. For example, Gieryn discusses how specialized labs that were built to house specialized tools and instruments needed specialized space. In consequence, the specialization of the academy was becoming apparent through the increasingly specialized nature of built form and the organization of space. Although, Gieryn does not discuss his work in relation to material culture studies, the manner in which he dissects objects is directly linked. For example, in research on lab space for scientists, Gieryn (2008) explains how flexibility and modularity of internal contents, such as equipment, casework, desks and even entire offices are being placed on wheels to support future changes. Inherent of the flexibility to quickly adapt to such changes, economic savings are a direct result for the lab and ultimately the university. Taking Gieryn's analysis of modularity one step further, strong similarities between this research and Ellin's notion of hybridity can be made. Gieryn's work informs my study by providing critical insight into the university's built environment and how space is used from the more macro perspective down to the micro considerations of the quad.

A relatively recent piece of literature related to the architecture and planning of a university campus is Kerstin Hoeger and Kees Christiaanse's (2007) edited work titled *Campus and the City: Urban Design for the Knowledge Economy,* which is a collection of conference

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[1] In this article discussing the radical transformation of Bloomsburg University's parking lot into a large landscaped open green space containing the Academic Quad, the author is a member of the landscape architecture firm who executed the project. Although there is value to writing about one's work, like that in the form of a monograph, it is unfortunate that the subject of the campus quad receives little attention from those not involved with the practical aspects. The addition of a critical theoretical perspective examined by academics has the potential to inform practice in a new way.

essays from academics and professionals discussing the proposed "Science Park Amsterdam." This text is comprised of varied yet relevant discussions on similar European academic and corporate science parks. Ultimately, the academics, from fields such as architecture and planning, provide stronger discourse on the subject, whereas the practicing architects and other policy-oriented professionals who have contributed to the volume (including the Ambassador of the Kingdom of the Netherlands, Edo Hofland) offer a more diplomatic and optimistic discussion. Similar to Hoeger and Christiaanse's work, my research on the UofA quad considers the bigger picture of the entire university, tracing it back to its roots and analyzing its influences over time and how this has influenced the built environment of the campus. Since this work from Hoeger and Christiaanse focuses on a European case, there are differences in urban contexts, specifically, the density of the places. However, their work makes for an interesting "predictor" as to what could potentially occur at an institution like the University of Alberta as Edmonton continues to grow.

Finally in this overview of literature concerning architecture is Kansas State University professors, Michael A. Bennet and Stephen L. Benton (2001) article titled, "What Are the Buildings Saying? A Study of First-Year Undergraduate Students' Attributions About College Campus Architecture." Bennet and Benton conducted a qualitative study of first-year undergraduates to determine attributions made towards pictures of campus buildings, specifically, between various styles of campus architecture, and whether gender plays a role in campus building perception. The researchers found that, overall, modern architecture was seen as superior in institutional settings. This is an interesting finding considering its polarity to Le Corbusier's perception of Gothic architecture and planning which to Le Corbusier had the

conscious effect of demonstrating luxury. In relation to the architecture which surrounds the UofA quad the findings of Bennet and Benton's study seem reasonable as the historic Three Halls (Assiniboia, Athabasca, and Pembina) do not contain the same level of student-focused amenities, such as, food service options or large study areas that the more modern buildings do. Like the previously discussed Spooner study (which explored participants' experiences of walking across a campus), Bennet and Benton's work is another example of how to divide the complex concept of the university into manageable research projects that aggregate into a significant scholarly contribution. My work follows a similar strategy of Bennet and Benton and Spooner's works by analyzing the specific subject of the UofA quad through one major theoretical lens to ensure clarity and focus of research.

Integral Urbanism

Nan Ellin, professor of urban planning at the University of Utah, has developed the theory of Integral Urbanism, through which complex urban environments can be analyzed. This theory contains four pillars: *hybridity and connectivity*, *porosity*, *authenticity*, and *vulnerability.* In my study of the UofA quad, I employed Integral Urbanism as a theoretical lens to analyze the material and spatial aspects. It is this intersection of studying the object, that is the material and spatial components that make up the UofA quad, coupled with an explanation of how the quad was originally designed that allows my work to contribute to an in-depth understanding of the development and use of the quad from this theoretical perspective.

Integral Urbanism provided the theoretical framework in which to analyze the complex systems that shape the UofA quad. This theoretical approach shifts the emphasis from isolated

objects and separate functions to the consideration of "larger contexts and multifunctional places" (p. 9) which is what the quad actualizes. Under the larger term of Integral Urbanism, I analyzed the UofA quad specifically through Ellin's notion of "hybridity and connectivity" and "porosity."

Hybridity and connectivity are two distinct subjects of urban design theory yet in Ellin's framework, they inherently work in tandem. For example, "Hybridization connects people and activities at points of intensity and along thresholds. Emanating from these are other paths that connect elsewhere" (p. 18). This symbiotic relationship between hybridity and connectivity can be a vital descriptor of the UofA quad as it demonstrates both these functions. For example, the UofA quad is an internal space of the university that provides external connectivity to people.

To illustrate hybridity and connectivity in another practical way, Ellin (2006) provides an example from Fred Kent, the president of Project for Public Spaces, citing a library that houses a coffee shop, a laundry facility and a bus stop (p. 20) connecting an essential public service to important everyday needs. In relation to the UofA, many essential services to the campus participants are housed in proximity to the quad: classrooms, labs, offices, food services, support services, administrative services, recreation, etc.

Ellin (2006) discusses the fact that many designers and planners use the exact terminology of hybridity and connectivity (p. 19-20) especially in relation to the concept of programming spatial functions. As discussed above, Ellin separates hybridity and connectivity into two different properties of Integral Urbanism, describing connectivity as inherent within hybridity. In some ways, Ellin's addition to the concept of hybridity by fastening on the term "connectivity" is confusing, especially when, in her writing she inconsistently drops the word

hybridity. Therefore, to bring clarity to the use of this concept, here I will "slash" the two words, removing the "and," and use the term: hybridity/connectivity. The meaning has not changed from Ellin's work, only the structure of the terms.

As an internal space, the UofA quad contains artifacts, that is things made by humans (Dant, 1999). For example, paths, benches, artwork, and the intentional placement of vegetation and trees all point to the material culture of the UofA quad and the intentionality of the planning of the quad to be a place that encourages people to gather. The situated buildings on the periphery of the quad provide connecting points for people and activities, leading to the intensification of place. Inherent of the quad's typology, thresholds or edges are a prominent physical feature that allow for flows into, away from, and through the space of the quad. Ellin's Integral Urbanism looks at these thresholds, or nodes, as key functions of design which indicate the potential quality of a space in achieving strong hybridity/connectivity characteristics.

The second component of Ellin's theory used here, porosity, refers to how people and objects flow in and out of a space. According to Ellin, the subject of porosity is largely referential to a "translucent urbanism" (p. 81). Translucency allows for the exposure of only a certain amount of information; it does not give away everything. This creates intrigue and interest to the campus participant, much like a filter that does not allow the viewer to experience everything at once. Similar to the clarification needed around the previously discussed hybridity/connectivity, Ellin sometimes interchanges "translucency" with porosity. In considering her writing, Ellin uses translucency rather than porosity when the space has achieved the objective or the point along the continuum (Ellin, 2006, p. 62); however, she does not explicitly state this. In this thesis I use

porosity to refer to the distribution of information within the quad, both in the built environment as well as the natural.

Segmentation of experience through the visual is essential to Ellin's porosity. A space that is translucent is experienced in segments and should be conceptually considered as a continuum of translucency (ibid.). In my research, I physically analyzed the space of the quad, and analyzed it through the use of a UofA-supplied architectural site plan and photographs captured by the author, by means of Ellin's notions of hybridity/connectivity and porosity to discuss these flows and the materiality and spatiality that composes the UofA quad. Therefore, as Ellin posits the use of a continuum, my analysis will not place a value on the level of porosity, instead, the analysis will explore the types of porosity and just how porous or non-porous the space is with a focus on the visual.

Let us consider an urban scene at night. The corporate towers light up creating an illuminated skyline and a fog rolls in obscuring the top half of the towers. The viewer can see there is light emanating from a source, however, the cloud has added a layer of porosity to the skyline. Because of the cloud, the height of the building is no longer accurately known, the depth and proximity of the buildings is uncertain, yet, the light is ethereal, softening the contrast of light versus dark through a layer of visual intrigue that can be considered porous.

Ellin's (2006) porosity includes practical applications, such as materials / design strategies that either diffuse vision and haptics, that is the physical experience of touch, block entirely or concede entirely, along with conceptual applications that, "allows access to a place or modulates our relationship with it" (p. 70). The UofA quad contains multiple aspects of Ellin's porosity, for example, similar to Ellin's (2006) example of spaces being transformed to support

seasonal activities like Farmer's Markets or special events (p. 71-72), mobile and temporal food sales occur within the quad as do seasonal campus participant events like the Week of Welcome (https://www.su.ualberta.ca/eventsvenues/wow/).

Summary:

As mentioned at the opening of this literature review, Turner believes that analyzing the grand scale of the campus provides such an arduous academic task that no one has tackled the subject in a critical capacity, and therefore, there is little theoretical or practical work done on the university campus that directly relates to my research of the quad. Yet, this gap in the literature provides the opportunity to initiate scholastic momentum and bring a thoughtful consideration to the quad, as a ubiquitous space that is a central part of most North American universities. My research will begin a discussion that will offer a better understanding of the significance of the quad, an in-depth understanding of its development within the context of the university, and a specific discussion of the quad at the University of Alberta. This work will contribute to studies of university planning and design, but will also link to work done by scholars of urban planning and design through my work's application of Ellin's theory of Integral Urbanism to the university campus. A goal of my research is to apply Ellin's theory in such a way that scholars of the urban environment will begin to see the capacity for new theoretically-oriented research on the university campus in terms of how the campus relates as an urban typology and distinct form.

Chapter 3: History of the Quad

A public or private institution such as a college or university, occupying its own tract of land...is peculiarly well situated to reap the inestimable fruits of forethought and skill in planning. Nowhere is it more essential to have the physical plant beautiful and well-knit together; nowhere should it be more feasible to enlist the careful thought of well-trained minds, to weigh and reconcile all component parts, to profit by the past, to measure accurately the present, to forecast the future as well as it can be forecast...[We] have called this kind of planning an art; it is also a science.

- Charles Z. Klauder and Herbert C. Wise, 1929

One artifact remains a core attribute of all traditional North American campuses, a symbol of collegiality, tradition, ritual, a space for reflection and the harmony of nature. This revered space of history, social dynamism, ordered and rational design is the university quad, a four-sided open space contextualized by adjacent architecture. According to Carnegie Mellon professor of architecture, Ömer Akin (2004) the quad, "in its many guises and compound agglomerations helps structure small and large, rural and urban, new and old universities all over the world" (p. 234). Following Akin's assertion, this structuring of the quad, specifically the physical aspects: material and spatial, will now be explored here in greater detail beginning with its history.

To discuss the history and trace the morphology of the university quad it is essential to frame the theoretical discussion of the material and spatial properties at the UofA. Specifically, this chapter assists in the analysis of Ellin's Integral Urbanism by arguing historic precedents that have changed the course of campus planning and ultimately enabled a theory such as Integral Urbanism to be applied to the UofA quad.

I begin this chapter by reviewing how the existence of the quad originated from the University of Bologna in Italy in the form of a courtyard. I then move to discuss how those who

have studied the built form of the university have found evidence in Greek city life and its importance on the formation of public space (Tuan, 1974; Trancik, 1986; Kostof, 1995) that is then translated into the appearance of the campus. Also, I outline the influence of the English university, which was based upon religious practices and built forms such as the monastic cloister (Tuan, 1974; Hoeger and Christiaanse, 2007). The manifestation of these ideals in the built environment will be examined along with the impact of the work of the architect, Sir Christopher Wren, who had a major influence on English campus design. I conclude this section by exploring the quads of the North American university, with a particular focus on Thomas Jefferson's design of the University of Virginia and its significance in the built environment of campuses and closing with a discussion of three influential Canadian examples: Scarborough College, Simon Fraser University, and University of Lethbridge.

In the following chapter I discuss the history of the University of Alberta and the factors affecting its quad, thus tying together the common themes arising throughout this discussion of the history of the university campus. It is important to reiterate that there is little critical academic discourse on the specific subject of university architecture or planning. Therefore, I draw on the works of theorists and practitioners that relate both directly and indirectly to the university; however, the common thread which binds the works together is the discussion of space, place, and the built environment.

Development

The quad is a curious entity that is specific to the setting of higher-education, in particular the university. Etymologically, the term quad is defined as a geometrical plane with four sides and four angles. According to the Oxford English Dictionary the etymon of quad stems from the fifth-century post-classical Latin word *quadrangulum* (ie. quad, OED Online). In cartography, a quad refers to a rectangular area of land that is identified through latitude and longitude. Yet, in the context of the university, the quad is more than geometry.

The quad's association with the university establishes it not only as a space with geometric properties but extends the quad to become a place with socio-cultural importance. It is here in its association with the university that the quad is differentiated from any other familiar typologies (classification of a form) such as a park or a city-square. Moreover, the Oxford English Dictionary establishes that the shortened and colloquial term "quad" derived from quadrangle, is originally Oxford University slang for the area enclosed by college walls and wings (ibid.). According to archaeologist, Jacquetta Hawkes (1951), the naming of places is an action that provides a lasting and intimate link among people and their territory. Therefore, for the quad to have a colloquial name indicates both importance to its inhabitants along with defined territory.

A visually defining feature of the quad that must be discussed near the beginning of this thesis is that the quad is completely or largely surrounded by buildings which establish an architectural context. As architects McCarter and Pallasmaa (2012) state:

> Landscapes also provides the spatial, formal, rhythmic, material and colour contexts for buildings that are usually conceived as large-scale objects. Buildings are in a dialogue and counterpoint with their settings, both natural and man-made, and this dialogue can take many different forms (p. 365).

As Ellin would argue, the statement by McCarter and Pallasmaa is in alignment with hybridity/ connectivity as well as porosity by bringing together potentially disparate characteristics through integration of the natural and man-made. Rather than seeing the natural and fabricated as binary, architecture and the landscape in which it is situated, should be designed to complement one another essentially benefiting the campus participants. Further, as Ellin points out in *Integral Urbanism,* with her many diverse examples, and corresponding to McCarter and Pallasmaa, the achievement of hybridity/connectivity and porosity is executable in various ways.

Through aggregating this knowledge we are in a better position to frame the university quad in a more comprehensive manner that is capable of exploring the interdisciplinary influences that have and continue to shape the quad. For the task at hand, we are able to define the quad as an architecturally bounded space, often rectilinear in shape, that in part or whole, is associated with a place of education.

The first modern university was born in 1088 in Bologna, Italy (Akin, 2004; Bender and Parman, 2005), although it would have appeared in a different form than what we have come to expect of North American universities today due to its urban locale and relative small scale. Regardless, it was a place of higher learning that utilized buildings, classrooms, and a courtyard (see Figure 3.1).

Figure 3.1. The University of Bologna, Italy, demonstrating the enclosed courtyard. This model differs greatly from contemporary North American quads that include landscaping features such as trees, plants, ledges, seating and a large expanse of open space. By today's institutional standards of large campuses this example would be considered a courtyard rather than a quad. Credit: Bender and Parman (2005).

According to Omar Akin (2004) "[t]he concept of the campus dates back to Carolingian monasteries and Muslim *medrese* (Arabic term for educational institution) of the eighth and ninth centuries" (p. 232) which were associated with religious sites and were often located off of a mosque's fountain courtyard used for ritual washing before prayer. Akin's observation of the religious nature of educational institutions from the commencement of higher education has impacted the form of the university campus, specifically the quad. We will see later how the way

the spatial fabric of the quad has been affected due to religious functions is seen strongest and most repeatedly through the monastic courtyard in England.

The etymology of the term *campus* is derived from the Latin notion of 'level ground' referring to a field, green and open landscaped area (http://www.oxforddictionaries.com/definition/english/camp#camp). According to sociologist Chandra Mukerji (2010), "The landscape is at the heart of human life—a site of ongoing experiments in survival and betterment" (p. 546). My argument is that by tracing the contemporary quad through history we will see that the quad is, as Mukerji states, both a landscape of essence—fundamental to campus participants—and a site of revision. As discussed above, Ellin's theory supports the notion of revision and / or iterations as it increases the opportunity for achieving flow.

The Influence of the Agora

The quad is found *within* the campus and is therefore a product of the university. An artifact of Mediterranean conception, like much of the Western world, the quad's evolution can be traced, beginning in the East and moving to the West.

The nineteenth century poet, Percy Shelley, penned in the preface to the poem *Hellas* (1821), "We are all Greeks. Our laws, our literature, our religion, our arts have their root in Greece" (p. 54). Architect David J. Neuman (2003) finds that the physical form and social functions of campuses have their origins in the tradition of the *agora*, a public open space in ancient Greece that was used for assemblies and markets. Yi-Fu Tuan (1974) states that, "...in the open agora and forum a person fulfills his potential as free man" (p. 28) because he is seen and he is within. Like the agora, to be seen in the university quad establishes a perceived identity in

relation to the larger university. As Tuan states, one had to have the status of 'free man' to fulfill such capacity, much like the realm of the university, as one must be a 'member' to such an institution to consummate one's academic learning and credentials. Historically, the agora itself was within the *polis*—a city. The landscape of the agora was an ideal space for philosophical and social purposes the way the quad is within the university campus. As with ancient Greece's agora, the campus quad is a place to informally encounter other campus participants and metaphorically bid and barter socio-cultural information. Tuan (1974) finds that, "The Greek polis provided the opportunity for free men to achieve immortality of thought and action, and so rise above their biological servitude" (p. 150). The geographies of the Greek agora and polis are vital to our spatial understanding of today's university quad in relation to the spatial context of the entire university. Historically, the centre of a space was perceived to be the most significant location, for instance, Emile Durkheim (1976), in discussing how space is made known through the senses of an individual, asserts: "...I am the centre and where everything is disposed in relation to me" (p. 441). Similar to how the campus participant is an individual and is part of the university, Durkheim argues that an individual in space does not experience "space in general, which contains all extensions" (ibid.) rather they experience only a tiny fraction of space.

Traditionally, the *axis mundi* of a space is the central point where sky and earth meet. The symbolism of the celestial and geographic poles converging could be used to support the design of university quads, specifically the notion of axiality, as we will discuss later in this chapter (Tuan 1974; Shields, 2013). This idea of centrality and even transcendence is fitting for the metaphorical "ivory tower" that is often used to describe the university. Yet, even more important when considering Durkheim's observation is the potential for multiple psycho-social centres

(people) within the major spatial centre (the quad). The *axis mundi* is the locus of the geometric form of the quad with people at the centre of the structured space, thereby continually re-establishing the centre of the university. Tuan (1974) argues:

> At the world's primary centres of urbanism, cities arose not only in response to economic and commercial forces but also to the call for the establishment of sacred space, modeled after the cosmos. Such cities tended to have rectangular geometric outlines oriented to the cardinal directions, to their intermediate points, or to the position of the rising sun. A Jungian might say that every building, sacred or secular, that has a mandala (or isometric) ground plan is the projection of an archetypal image from within the human subconscious onto the outer world (p. 17-18).

Tuan's analysis of the geometry of urban landscapes could also be understood as a description of the archetypal university quad. Returning to Mukerji (2010), "Landscapes are models of human governance of things" (p. 546) which establishes a refined perspective on the discussion of how places such as Greece's agora and the university's quad, are not only physical landscapes but are also socio-political landscapes composed of numerous human decisions over timing resulting in the modifications to such places.

From East to West

Moving from Greece to England, we see the rise of Medieval English institutions such as Oxford (1096) and Cambridge (1209) where students and faculty studied and lived together on campus in, virtually, a monastic setting. Andrea Deplazes (2007) finds that:

> The Oxbridge [Oxbridge is a portmanteau of Oxford University and Cambridge University] colleges are often laid out rather like monasteries, with everything contained on a single, closed site. This layout in colleges and religious institutions alike reflects similar situations: in both cases like-minded souls come together to live a communal life and to enjoy a degree of protection from the outside world (p. 35).

This sequestered setting was intentional as the pursuit of knowledge was vehemently engaged and the physical space designed to minimize contemporary distractions. Coulson, Roberts, and Taylor (2011) maintain that when:

> ...Merton [College] was founded [1264], no model existed as to the form an Oxford college should take. The buildings took shape in a piecemeal fashion from 1266, irregularly placed around a courtyard, reproducing an arrangement found in bishop's palaces and some nobles' houses (p. 5).

The enclosed quad, first seen in Merton College (see Figure 3.2), has proved the enduring language of collegiate architecture at Oxford and Cambridge to the present day, and indeed yielded considerable worldwide influence on university architecture, regardless of the haphazard and rudimentary planning.

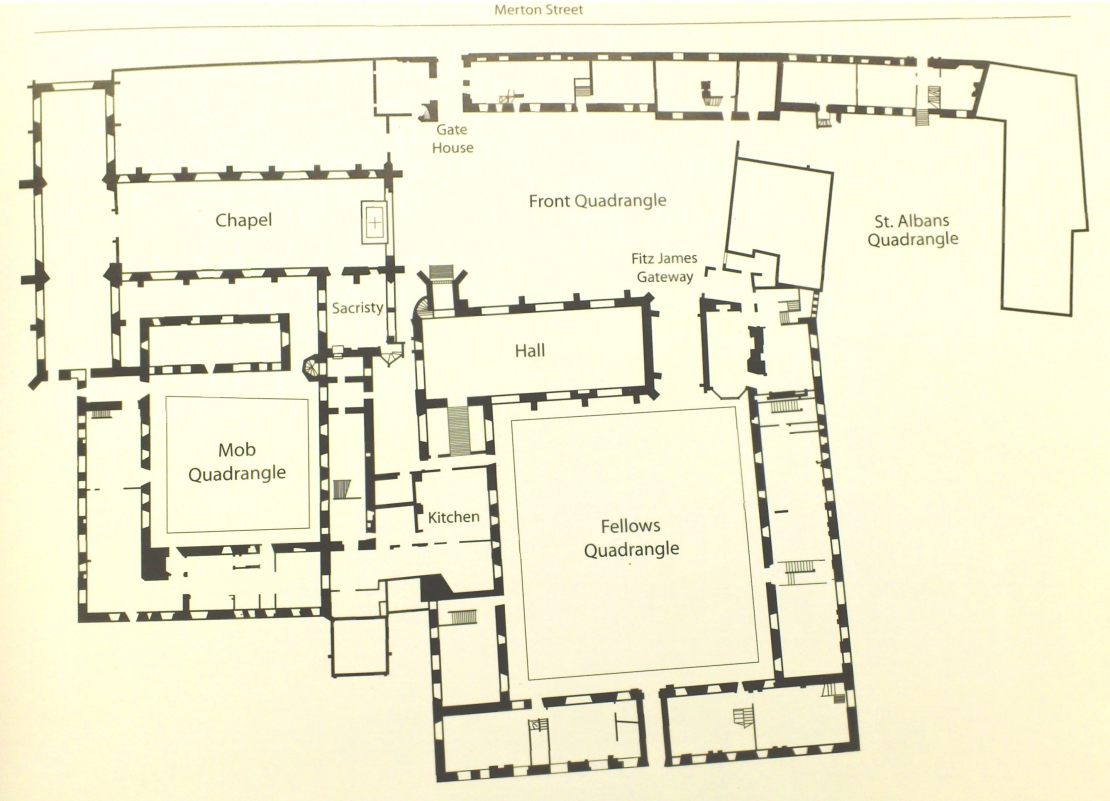

Figure 3.2. Floor plan of Merton College, Oxford University highlighting the different quads and how they evolved over time from fully enclosed to semi-enclosed. Credit: Coulson, Roberts and Taylor (2011).

It is this physical ordering of collegiality, where students and faculty lived and studied together, that informed the responsibilities of scholastic endeavors to one another. Professor of architectural history, Paul Venable Turner (1984) finds that both Oxford and Cambridge based their curricula and methods of operation on the dialectical analysis of Christian doctrine. Within this rigid academic system students were unable to choose freely which lectures they attended because of their preceptor's direction. Further, in the physical manifestation of students and faculty residing on campus, precedence of knowledge is made visible as the pursuit and dissemination of scholarship were the main objectives of campus. This intentional segregation looked to build community while minimizing outside—profane—distractions. According to Tuan (1974), "The cloisters and gardens of monasteries were places of contemplation. The technical term for the enclosed garden or the cloister was "paradise"" (p. 138) which identifies how universities have long been an idealized place for the production of knowledge and their built environment has been constructed to display this paradise narrative throughout time and space, beginning with Oxbridge.

Mob Quad, connected to Merton College of Oxford University, was the first quad at Oxford University and therefore the oldest known quad in the Western tradition. Mob Quad was built in three phases: the Treasury c.1288-91, the north and east ranges and the Sacristy c. 1304-11, and the Library on the south and west sides 1373-8 (http://www.merton.ox.ac.uk/aboutmerton/history.shtml). Comprehending the main difference between medieval enclosed quads and contemporary quads is vital for clarity. Medieval quads were often relatively small, open-aired spaces that included a lawn that was surrounded on all sides often housing academic functions such as faculty offices or classrooms. Intellectual discussion and informal interactions

with students and professors took place in the surrounding cloisters that protected against inclement weather. The lawn played a unique role as a space for reflection and was also an indicator of academic rank. For example, At King's College, University of Cambridge, only senior members and Fellow's are allowed to walk across the lawn (http://www.kings.cam.ac.uk/files/undergraduate/kings-self-tour.pdf). Whereas, contemporary quads, though they may support interactions between faculty and students, are actualized more as a landscape for the social and the cultural aspects of the institution; a place to see and be seen.

The Environmental Design of the University

Designing to socio-spatial and socio-cultural conditions has been a longstanding method of architects. Environmental design analysis is most often capable of discerning 'why' a building is a certain way. Famed American architect and planner, Edmund Bacon (1976), in his work "Design of Cities," provides an environmental analysis of the medieval Castle of Saumur from the *Book of House* by Duc de Berry. As we will see, there are many linkages between the medieval Castle of Saumur and the medieval university.

Bacon finds that there are three types of architectural forms that respond to three distinct exterior environments to create the synthesized castle form. At the lowest level of the castle Bacon identifies a hostile exterior environment which required solid massing to improve defensibility while the inward-looking environment at the base produced a maximum interior volume with maximum protection. The intermediate level of the castle, Bacon finds to be partly but not wholly removed from military threat. Therefore, as the vertical ridges of the exterior extended the surface area and ultimately the vulnerability of the wall, the interior form is still

circular and mostly inward-looking but now with wall openings. It is at the top third of the Castle of Saumur in which Bacon deems a favourable environment as the architectural form, "leaps outward into space, exposing itself in all directions, involving itself with the atmosphere to the point that the turrets, foliate protections, spires and pinnacles seem almost to dissolve into space" (p. 42). It is at this point in space that the architecture breaks away from the oppressive hostility and is able to establish itself thoroughly in its environment.

Like the medieval Castle of Saumar, the built form of the medieval university was required to respond to its environmental conditions and to offer suitable fortifications. However, this is difficult to compare to the full-scale battles that a medieval fortress was built to withstand. Coulson, Roberts, and Taylor (2011) state that, "...town-gown tensions were notorious, not only in England but throughout European university towns, leading to fighting, pillage and even murder" (p. 5-6). These tensions affected the built form and led to fortified, inward looking facilities. According to Ellin (2006, p. 82), the notion of fortification is discussed in contemporary theory as the postmodernist planning paradigm; however, as Coulson, Roberts and Taylor have demonstrated, this defensive tool has been in progress long before the twentieth century. Coulson, Roberts, and Taylor (2011) find a defensive advantage between colleges and halls; the fact that, "...colleges could close themselves off from the outside, and thus exert heightened control over students, was one of their chief advantages over the academic halls" (p. 7). The key difference between a college and a hall (known today in the UK as Permanent Private Halls) is the size differential and the number of buildings; a college most often has multiple buildings whereas, a hall contains a single building. For example, Merton College at Oxford had a defensible form of multiple buildings which was closed to the exterior, unlike St. Stephen's or

St. Benet's Hall which both contained a singular building leaving it vulnerable. Further, inherent of the smaller size of the halls was the smaller number of people residing within them and the ability, if required to surmount a defense.

The Quad and Donors

As English institutions solidified their existence over time with lavish architecture, wealthy benefactors looked to reinvest into their colleges while at the same time promoting their name or industry. Pious donors provided these colleges with a small number of advanced students in law or divinity who would pray for the souls of their benefactors (http://www.cam.ac.uk/univ/history/setting.html). Turner (1984, p. 4) observes that for an entire century Merton College at Oxford provided lodging for only these advanced or graduate students. Although this was to be the norm for an extended period of time, change was coming.

In 1379, William of Wykeham founded New College at Oxford (Akin, 2004, 233), with an emphasis on the education and housing of undergraduates. A former Surveyor of the King's Works, Wykeham took a special interest in the physical planning of his college (Turner, 1984, p. 9). Turner (ibid.) documents that the arrangement that Wykeham's buildings took were those that enclosed a courtyard—in other words, the quad. This architectural design was the most efficient land use of small plots. By organizing the structures around the perimeter of the plots the builders were able to maximize the building space while creating an environment that met monastic requirements of the academy. From an environmental design perspective, the formation of an enclosed quad allowed for natural light to penetrate multiple sides of the architecture, improving the indoor quality and that of the inhabitants. While the quad provided a quality space meeting

physiological necessities of light and air, its protective characteristics further increased the importance of access to nature, albeit a reproduction, during town and gown tensions.

Although the physical planning and arrangements of buildings were efficient from a land utilization standpoint, this arrangement had a negative affect on the perceived relationship between the town and the university. As discussed above, this architectural typology promoted concentrated study and limited outside distractions; however, the perceived power differential based upon the university's fortification was seen as detrimental. This conservative or defensive physical arrangement of the enclosed courtyard to keep townspeople out and students (knowledge) in was about to change with the introduction of Sir Christopher Wren's architectural philosophy.

Christopher Wren's Influence

Coulson, Roberts, and Taylor (2011) note that, "Despite a significant drop in student numbers, from the 1660s, the university and colleges embarked upon an apparently ceaseless building campaign. The most important individual presence in these years was Christopher Wren, who set Cambridge upon a new trajectory..." (p. 144). Sir Christopher Wren (1632-1723) was a polymath, a notable astronomer, and mathematician-physicist and has been lauded as Oxbridge college's conquerer of Gothic (Coulson, Roberts, and Taylor, 2011, p. 11).[2] As was mentioned earlier, post-secondary institutions became channels of patronage for the wealthiest individuals of this era. Oxford and Cambridge were recipients of some of the finest examples of Gothic architecture, "...patronized by the leading political figures of public life, the prelates and the

[2] Wren is referred to as a conqueror of Gothic by Corbet Owen in his *Carmen Pindaricum* in *Theatrum Sheldonianum* in *solennibus magnifici operis Encaeniis recitatum Julii die 9 anno 1669.*

monarchy" (Coulson, Roberts, and Taylor, 2011, p. 7). However, Gothic began to lose its cachet by the time of the arrival of Wren who, "...inaugurated a new philosophy of collegiate architecture that rejected the medieval enclosed quad in favour of openness, vistas with focal points, and hierarchal arrangements..." (Coulson, Roberts, and Taylor, 2011, p. 8). This marked, according to Coulson, Roberts and Taylor (2011),"...the introduction of fully-fledged classicism" (p. 144). Wren's architectural style has been described as 'unprecedentedly pragmatic' along with having a 'strong sense of formal freedom' (Li, 2000) as he broke convention with the Gothic traditions of drama or emotional evocation through form and detail. Instead, Wren introduced axiality and perspective via the siting of the building to create an emotional response to the viewer. Similar to Ellin's Integral Urbanism which emphasizes the criticality of contemporary paradigms, such as Modernist and Postmodernist planning principles, Wren challenged the status quo of his era through a shift of emphasis from the individual architectural detail to an emphasis of the integration within the landscape. Within this new 'formal freedom' Coulson, Roberts, and Taylor (2011) find that Wren changed architectural perspective through axiality:

> College architecture had previously been dominated by ranges, uniform along their length with little or no central emphasis or axiality. A key development of Wren's Oxbridge designs were focal points positioned on strong axes. Directionality and central emphasis were introduced into the academic architectural vocabulary, an innovation that was to shape not only the English universities but also the thinking behind America's first colleges (p. 8).

Axiality in architecture is the symmetrical positioning of a building, part of a building, group of buildings, or space around or along an axis (see Figure 3.3 and Figure 3.4).

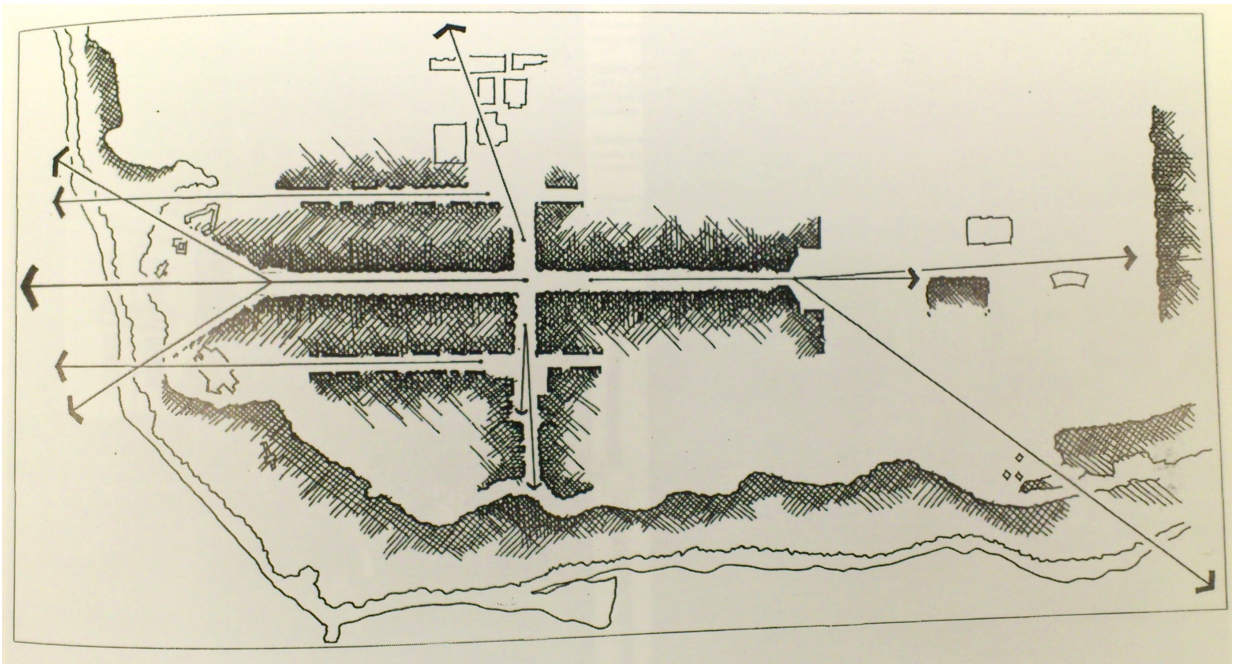

Figure 3.3. UBC's campus plan demonstrating axiality and pathways oriented towards vistas. Credit: Coulson, Roberts, and Taylor (2011).

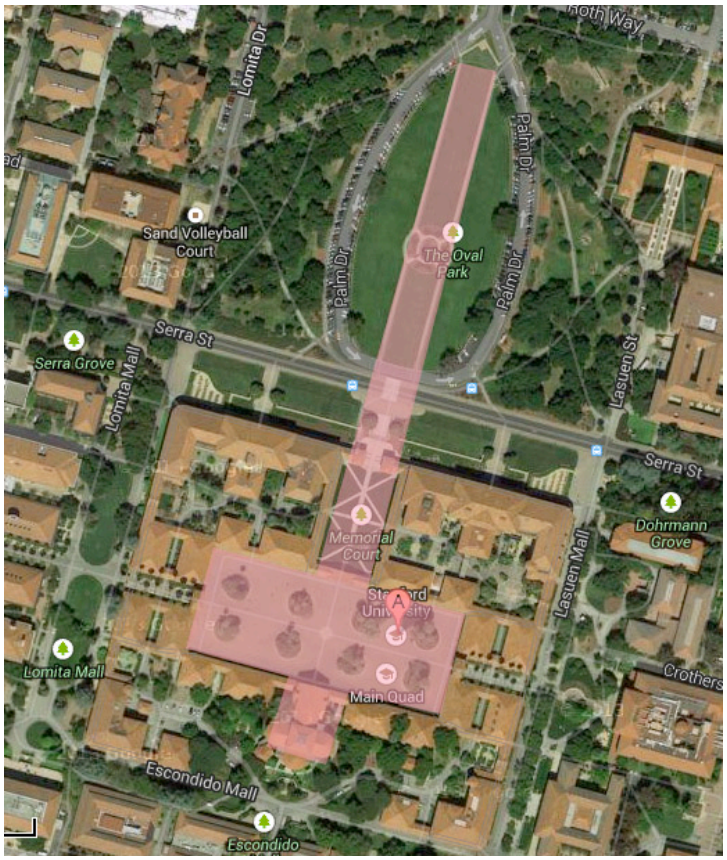

Figure 3.4. Two intersecting axes at Stanford University's Main Quad. Credit: Google Maps (2013). Edited by author.

Axiality can join disjointed elements by sight lines but in general establishes a relationship between architectural objects, space, and the viewer. Roger Trancik (1986) highlights André Le Nôtre's plan for Versailles, L'Enfant's plan for Washington, and the Eiffel Tower in Paris as historical examples of "symmetrical hierarchy of urban space laid out along axes" (p. 225). This notion of axiality, of orienting edifices and space, has become a bedrock principle for campus architects and planners. Edwards and Turrent (2000) state that there are two foundational principles in situating campus architecture:

> "...the establishment of the importance of a central landscaped axis through the university for social and academic discourse. The second, the need for architectural expression in the layout of the campus in order to reflect the pedagogic ambitions of the university and its different academic disciplines" (p. 15).

Due to Wren's architectural ingenuity, as well as the positive reception his ideas received from his commissioners that enabled him to repeat his designs, the more contemporary quad has been allowed to 'breathe' by giving greater priority to its potential as open space. As demonstrated, because of Wren's rejection of gothic architecture on the campus (which would enjoy a revival in the mid-to-late nineteenth century as previously discussed vis-à-vis Le Corbusier) and the philosophical underpinnings of collegiate architecture and its arrangements, the university campus has evolved into a dynamic space that values the open and augmented quad, which is usually designed through axiality.

The North American Quad

Advancing from the monastic universities of England we see universities begin to be established in North America, starting on the East Coast with the establishment of Harvard

University in 1636, America's first university. Coulson, Roberts, and Taylor, (2011) explain that, "The Puritan settlers conceived the colonies as a blank canvas, onto which they could project their ideal world, a pure world of the highest morals, in which every man strove to serve God and one another" (p. 8). However, from the conception, American universities "distanced themselves from the monastic-like planning traditions of the medieval English foundations" (Coulson, Roberts, and Taylor, 2011, p. 8) regardless of the fact that by, "1646, approximately 100 Cambridge men and a third as many Oxonians had settled in New England" (ibid.). Although these numbers may seem trivial by today's standards, geographer Blake Gumprecht (2008) finds that, "Harvard's enrollment did not rise above 100 until more than seventy years after its founding, and in 1771 it still had only 124 students" (p. 31). Therefore, for New England as a State to have more Oxbridge representatives than Harvard University to have students and yet have a change in the way campuses were being planned, i.e. outside of the monastic traditions, was an extraordinary feat. This was an exceptional point in history that allowed for *carte blanche* planning and the establishment of new ideals in a new land. For example, Harvard University established an "E-shape plan" (ibid.) rather than an enclosed quad, communicating the importance of the University's accessible interaction with both the internal and external communities. This idea influenced other institutions, for instance, Turner (1984) finds that Harvard's three-sided courtyards to be a "miniature prototype" (80) for the University of Virginia.

While the North American campus was undergoing reorganization in the "New World," it is important to discuss the impacts the Beaux-Arts style, which emanated from *Académie royale d'architecture* (1671) (Hasanin, 2013, p. 92) in Paris, later to become *École des Beaux-Arts,* had

on American architecture and the campus. Beaux-Arts architecture is a neoclassical style which emphasized strong view corridors, axiality, and perspectives supported by symmetry to reinforce the whole composition of the architecture and its surrounding landscape. Architect Andrea Deplazes (2007) argues that the Beaux-Arts movement was, "a highly eclectic trend" as, "The town planners of the day strove for the 'City Beautiful'; this, in turn, had a decisive impact on contemporary campus design, for the emerging universities saw themselves as 'towns' and expected the architecture to be suitably imposing" (p. 37). As Deplazes discusses, the monumental nature of such a planning movement was reinforced by universities to distinguish themselves through the design and landscape of their campus. Deplazes further argues that, "The campus perfectly combined the idyll and the ideology of Modernism" (p. 38) in a manner that allowed for protection—or normalization—within the campus environment while adhering to a redefined and clearer framework of design that established an institutional image and reputation to distinguish one campus from another.

The preeminent exhibition of the evolution of campus planning and social and pedagogical ideals in early America are located in the University of Virginia. Founded in 1819 by Thomas Jefferson, governor of Virginia, and the third president of the United States. The University of Virginia was designed to meet Jefferson's objective to create an "academical village" where the order of the physical enhanced collegiality (McCarter and Pallasmaa, 2012; Coulson, Roberts, and Taylor, 2011) (see Figure 3.5).

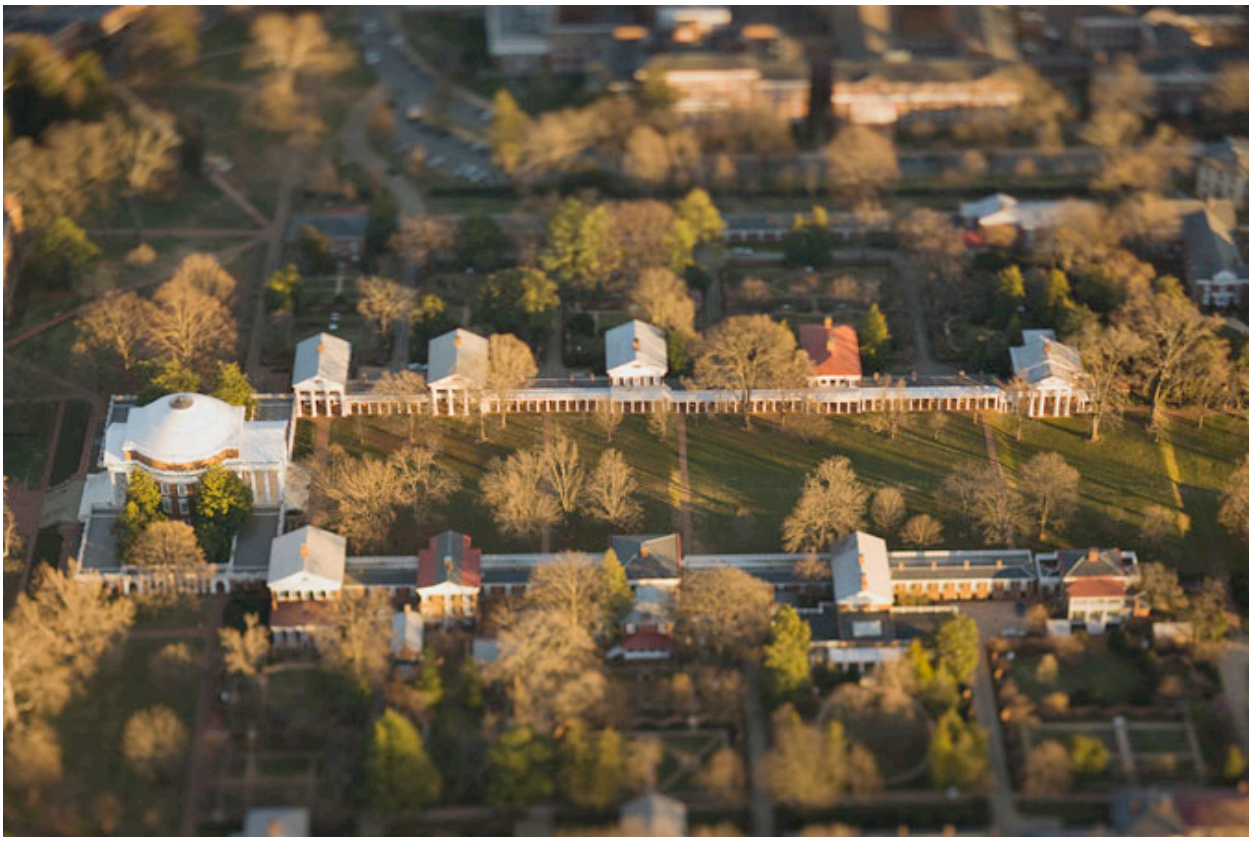

Figure 3.5. Thomas Jefferson's design of The Lawn at the University of Virginia. Credit: Professor David Phillips (n.d.).

Jefferson did this by placing "a series of professors' houses (the "Pavilions"), alternating with groups of students' rooms, along the colonnaded sides of a mall (the "Lawn"), terminating at the north in a domed library (the "Rotunda"), and flanked to the east and west by gardens and outer rows of buildings" (Turner, 1984, p. 76). The pavilions which represented individual disciplines, were to be the professor's house and his classroom (Kostoff, 1995). Further, Jefferson, like Sir Christopher Wren, went against "classical principals of uniformity and symmetry" by advocating for each pavilion to be distinct and "so to serve as specimens for the Architecture lecturer" (Turner, 1984, p. 83). This departure from classical symmetry and replication of design changed campus architecture.

According to architect Spiro Kostoff (1995), Jefferson advanced beyond the English pedagogical traditions of fully enclosed quads and affixed architecture which emphasized "pure" academics. Further, Jefferson viewed education as a comprehensive endeavor that would have profound affect upon the student, with transformational results that would lead to an engaged citizenry. This ideal is most clearly demonstrated by the Neoclassical arrangement of individual pavilions (Kostoff, 1995) with combined functionality of professorial housing, classroom, and student's wings (Turner, 1984). With this philosophy informing the built environment, Jefferson created not only a place of higher education but also a community of learning that, "emphasized [the] physical environment as a pivotal feature of educational vision" (Coulson, Roberts, and Taylor, 2011, p. 10). As we can see, Jefferson believed education to be an ecology of close social relations supported by the organization of campus. In a 1822 letter written by Thomas Jefferson to his friend Dr. Conrelius Camden Blatchy discussing environmental design and its impacts on campus design he wrote, "I look to the diffusion of light and education as the resource most to be relied on for ameliorating the conditions, promoting the virtue and advancing the happiness of man" (2012 Report by the American Council of Trustees and Alumni). Jefferson's discussion of light and the importance of it in environmental design corresponds to aspects of Ellin's porosity. What is especially interesting, is how Jefferson sets light and education as analogous to one another in progressing society in a way that Ellin would argue to essentially be a demonstration of hybridity/connectivity.

The importance of this new campus typology created at the University of Virginia cannot be overstated as the arrangement of student and faculty residences adjacent to the academic buildings with the Lawn, transpositional of the quad, socially synthesized the two functions

(education and accommodation) in a new way. As architect and professor Christopher Alexander, Sara Ishikawa, Murrary Silverstein, Max Jacobson, Ingrid Fiksdahl-King and Shlomo Angel (1977) discuss in, *A Pattern Language*, part of the success of Jefferson's design could be contributed to the increase of "intensity of action" where, "the facilities which are placed together round any one node must function in a cooperative manner, and must attract the same kinds of people, at the same times of day" (p. 165). This aligns with Ellin's principal goal for place, especially through the use of hybridity/connectivity and porosity as Jefferson's design translated values of an open society into an egalitarian built form, forever effecting the North American campus, which can be traced back to the quad.

The Canadian University

Before I close this chapter the omission of Canadian universities in both the literature and this section is important to briefly touch on. Canada is home to many well-respected universities; however, specific attention to the design of Canadian university quads has been negligible in scholarly or popular literature. Therefore, I am only able to briefly address three specific Canadian postwar institutions in this section.

The University of Toronto Scarborough (founded 1964) (formerly known as Scarborough College) in Ontario, designed by Australian architect John Andrews in a Brutalist style (largely composed of concrete that was crudely plain by intention) is recognized as a pivotal point in Canadian university design (Chodikoff 2004) through its amalgamated structure merging all distinct colleges under one roof. Architectural history professor Stefan Muthesius (2001) refers to this form as a 'single structure campus.' The internalized megastructure was planned to be a new

academic form for the “baby boom” generation (those born between 1946 and 1964) (http://www.census.gov/prod/cen2010/briefs/c2010br-09.pdf) and to minimize harsh climatic conditions (http://www.thecanadianencyclopedia.ca/en/article/john-hamilton-andrews/). Consequently, it did not contain a campus quad.

The Canadian architect, Arthur Erickson (1924-2009), who designed Simon Fraser University (SFU) (see Figure 3.6), founded 1965, in British Columbia and University of Lethbridge (UofL) (see Figure 3.7), founded 1967, in Alberta, also play important roles in the Canadian institutional architectural fabric alongside John Andrews’ University of Toronto Scarborough. Although, University of Toronto Scarborough came about first, Erickson’s design for SFU has become widely recognizable in part due to Erickson’s professional reputation. At SFU, a large rectilinear reflecting pond with meandering steps integrated in the pond move the campus participant through the quad and safely above the water.

Figure 3.6. Simon Fraser University Academic Quad with meandering steps across the reflecting pool establishes a unique central artifact to the space. Photo: Author (2011).

SFU's quad is reminiscent of both Tuan's depiction of the agora and Jefferson's desire for an egalitarian built form. The geography of SFU plays a vital role to the design as it is located atop Burnaby Mountain. Mutheius (2001) contends that Erickson had a vision to create, "an Acropolis for our time" (p. 193) and used large connected squares that gently ascended and descended between the ridge of the site emphasizing the natural topography. The quad, as seen in Figure 3.6, is contained within one of these squares framed by campus participants engaged in their daily activities. The essentials of axiality is evident in SFU's quad but Erickson unorthodoxly inserts an aspect of meandering into the campus participant's path, resulting in an awareness of one's actions and the change in materiality and sight lines.

Figure 3.7. University of Lethbridge designed to integrate into its surroundings. Photo: John Granzow (2010).

At UofL, seen in Figure 3.7, Erickson again emphasizes the natural topography integrating the building into the southern Alberta landscape. Erickson managed to house all university functions into one building, University Hall, which created a radical change in university design (Mutheius 2001, p. 193) creating a metaphor of integration between the natural and the synthetic. SFU and UofL share architectural similarities in materiality and arguably aspects of their environmental design leading to their monolithic forms; however, the philosophy of the Acropolis diverges at UofL as the campus does not contain a quad (http://www.uleth.ca/unews/article/parking-lot-quad-projects-seek-feedback#.U8LexKj18zR).[3]

As all three Canadian institutions discussed here were designed in a new and emerging architectural vocabulary—as "the new university"—moving away from individual colleges and into amalgamated 'single structure campuses,' it is only SFU that contains the formal Academic Quad, fully enclosed and intentionally designed.

I argue that although University of Toronto Scarborough, Simon Fraser University, and University of Lethbridge all contain similar architectural styles of Brutalism in a 'single structure campus,' it is the SFU that has established an indelible space for campus participants through the form of the historically re-produced quad that has been an extraordinary factor in distinguishing it from the other campuses.

As we have seen, a new epoch of institutional design taking the form of a 'single structure campus' was attempted at multiple institutions specifically in Canada. Rather than dividing and breaking up disciplines into discrete colleges and faculties, the architects devised a

[3] Although a quad was not in the original plans, University of Lethbridge has been working since 2011 to redevelop a parking lot into their campus quad. See: http://www.uleth.ca/unews/article/parking-lot-quad-projects-seek-feedback#.U8LexKj18zR

megastructural form contingent on the topographical context. However, it is Erickson at SFU that decided to contain a traditional university material artifact in a modern edifice. Yet, what is extraordinary about the progressive nature of these campuses is the use of architecture to push an agenda of change. All three Canadian institutions discussed here (with the exception of University of Toronto Scarborough after the 2002 reorganization) (http://www.utsc.utoronto.ca/~advancement/about/history.html) are not considered to be among the top tier universities in Canada. Although this could be another discussion unto itself, and out of the scope of this thesis, it is an observation that the elite Canadian universities were not the ones trying to change the university institution through the architectural fabric of campus, rather the new and emerging, or "instant university" (Johnston 2005, p. 12) are the ones looking to cast off the previous paradigm of campus design to distinguish themselves for a new generation of learners.

Summary

In review, it has proved useful tracing the history of the university quad in comprehending key design junctures and socio-cultural influences which have shaped the university's built environment. It can be argued that the first institutional quad began in Bologna, Italy in the form of an enclosed courtyard. Greek city life and the importance placed on the public realm has played a role in the development of the university quad in relation to the spatial context of the entire university. Through Tuan's comprehension of the *agora* and *polis* as ideal spaces of self-actualization, we see how many universities embody this ideal as well as the Jeffersonian notions relating to campus design and the quad. The medieval English university, which was based upon religious practices and built forms such as the monastic cloister, has had

long standing influence on the contemporary quad. There have been specific key figures operating in the realm of campus design, such as Christopher Wren, who introduced axiality and perspective via the siting of the building to create an emotional response to the viewer, and Thomas Jefferson who established a new campus in a "New World" with the objective to create an "academical village" where the order of the physical enhanced collegiality. Finally, three "new" Canadian universities exploit progressive forms of architecture for the a new learner—the Baby Boomer generation—looked to redefine what a university campus was through megastructural forms contingent on the topographical context. However, only Simon Fraser University campus contained a quad which I argue is an extraordinary factor in distinguishing it from the other campuses of similar eras. It has been useful to discuss these major precedents in the history of the university through Ellin's Integral Urbanism, as it has contributed to a more thoughtful theoretical application adding depth to the analysis of the quad's history and framing aspects in contemporary terms.

Chapter 4: History of the University of Alberta Quad

The University of Alberta quad is the oldest planned open space on the North Campus and home to the UofA's first building Athabasca Hall (1911). River Lot 5 (see Figure 4.1), the original land on which the University of Alberta was constructed, consisted of 258 acres that, "Premier Rutherford [the first President of the UofA] had personally selected in 1905" (Schoeck 2006, p. 99) before the *University Act* was legislated in 1907.

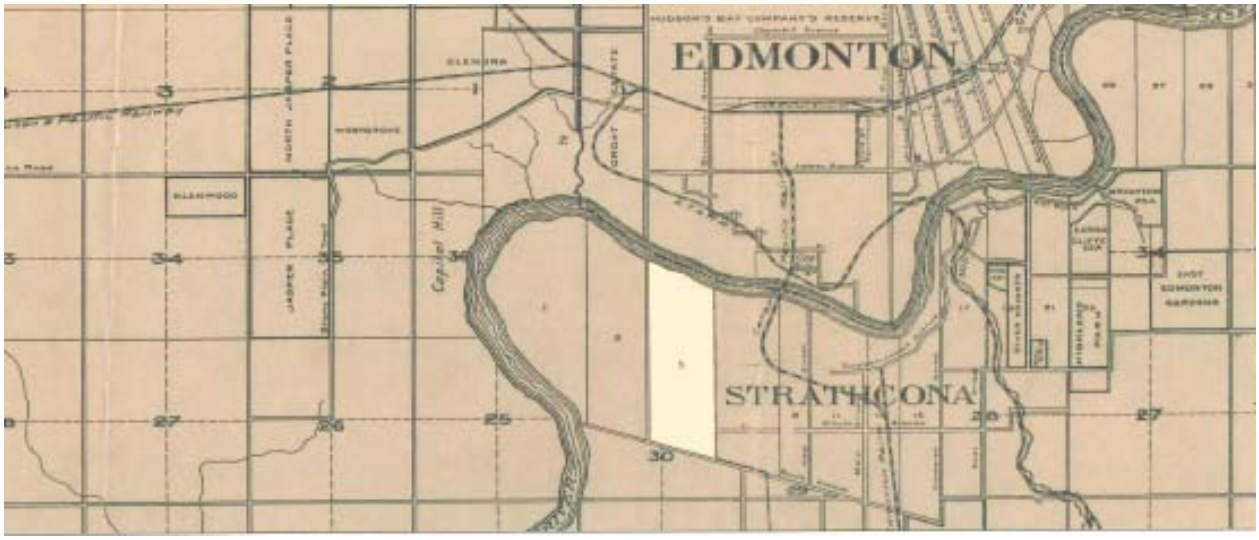

Figure 4.1. Map of Edmonton and Strathcona as separate entities. Credit: Ellen Schoeck (2006).

However, the University of Alberta's campus had not always been located in Edmonton the way we understand Edmonton to be today. The campus was established in the twin city South Edmonton, a cross-river rival of North Edmonton, which later in 1899 became known as the town of Strathcona; named after the railroad magnate Lord Strathcona. North Edmonton was economically reliant upon its history as a trading post while South Edmonton or Strathcona, was a pioneer community economically dependent on the new railroad (Shoeck 2006). The Canadian Pacific Railroad originally planned to route its railroad through Edmonton but instead revised

their route to Calgary via South Edmonton bypassing North Edmonton because of the great expense of constructing a bridge over the North Saskatchewan River (Shoeck 2006). At this time in history, the train meant connectivity to goods, markets, and labour which most often translated into economic growth. Tensions between the twin cities rose due to the potential boom and bust economies brought about by the railroad and the perceived geographical advantage for one and not the other. By 1912, with the first graduating class of the UofA, the two sister cities had realized the "economic folly of their divorce" (Shoeck 2006, p.15) and placated one another into amalgamation. The joining of the two cities established the University of Alberta in the City of Edmonton and no longer in the City of Strathcona in which it was founded. In some ways, the University of Alberta campus was born out of both political and economic progress but also out of geographical tension for one's neighbours, which as we will learn, manifested itself in the built environment.

The Architects

In 1909, the Montreal firm of Nobbs and Hyde were commissioned to develop the campus plan for the University of Alberta (see figure 4.2). As faculty member and the first Provost of the university, Dr. John MacEachran, upon first seeing the UofA campus, eloquently referred to it as a "wild, wind-blown bushland" (Schoeck 2006, p. 98-99) setting the stage for much architectural vision.

UofA architect Percy Erskine Nobbs (1875-1964) was born in Scotland and received his Master's from the University of Edinburgh (http://cac.mcgill.ca/home/archive.php?ID=1) while his partner George Taylor Hyde (1879-1944) was born in Montreal and earned his degrees at

Massachusetts Institute of Technology; the first Beaux-Arts based curriculum in the United States; moreover, the first architectural program in the United States (http://web.mit.edu/mmj4/www/descriptions.html). Beaux-Arts architecture is a neoclassical style which was taught at the Ecole des Beaux-Arts in Paris. The Ecole des Beaux-Arts was an influential academic institution in which many architects, especially North American architects, aspired to study at as a finishing portion of their education. Beaux-Arts architectural education is characterized by drawing upon Greek architectural forms, gestural sketching and articulate presentation drawings with an emphasis on composition (Draper 1977, p. 209-210).

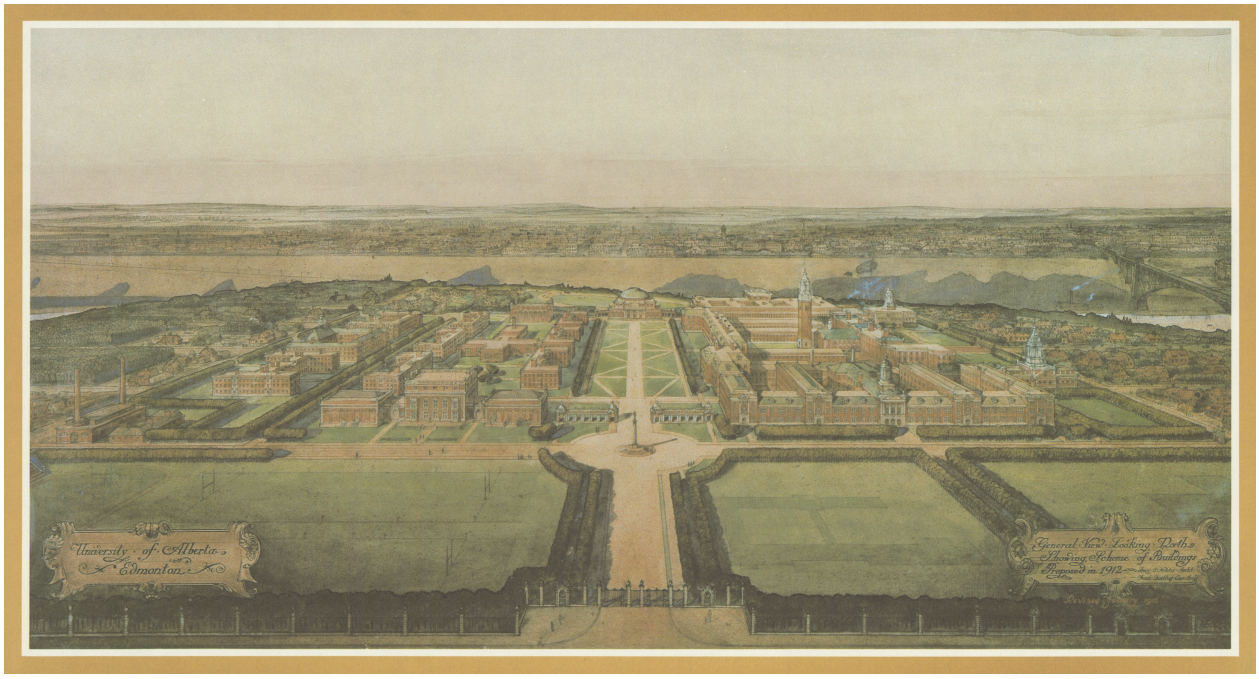

Figure 4.2. The image of the original rendering by the firm Nobbs and Hyde for the University of Alberta with the quad being the central vista. Image courtesy of the University of Alberta Archives Accession #73-124-1.

Staying true to their Beaux-Arts architectural training, as seen in Figure 4.2 above, Nobbs and Hyde paid particular attention to composition characterized by a dramatic, though minimalist foreground with rectilinear forms reminiscent of a French garden. This negative space in the foreground is influential to the eye as the landscape is easily consumed and draws the viewer

down the path of the central axis like a portal to the resplendent campus completely built out. Once past the obelisk at the centre of the traffic circle the viewer's eye is lead through the quad and to a gesturally drawn building at the north end of the space. Although the eye cannot clearly define the purpose of the building or which classical order of architecture it is classified by, the columns and dome evoke Grecian architecture. Nobbs and Hyde contextualized the scene by the North Saskatchewan River and the connection point to the city of Edmonton via the steel bridge (on the far right) fusing the traditional nature of the university with the emerging urban. As Walter Hugh Johns (1981) states, "the architects [Nobbs and Hyde] were commissioned to prepare drawings to show the campus as it was hoped it might develop" (p. 41) achieving all of the requisite Beaux-Arts components

According to Stephen Sennott (2004, p. 205) campus planning in the late nineteenth and early twentieth century took its direction from Beaux-Arts which ultimately was referential to urbanism. Sennott finds inspiration resulting from the World's Fair of 1893 in Chicago with "it's ordered City Beautiful buildings and boulevards, the exposition emphasized stately systems of organization that implied not only virtue but order, characteristics eminently suited to the image of the university" (ibid.). Architect Andrea Deplazes (2007) asserts that the 'City Beautiful' movement, "...had a decisive impact on contemporary campus design, for the emerging universities saw themselves as 'towns' and expected the architecture to be suitably imposing" (p. 37). The combination of Nobbs' traditional architectural training in Edinburgh and Hyde's Beaux-Arts training can be seen in the spatial arrangement of the University of Alberta, one that favoured both tidy organization and the grand scale. This is especially evident in the *cour de*

honneur (main courtyard) which in the Beaux-Arts tradition was a three-sided courtyard which the University of Alberta's quad was planned to be (as seen above in Figure 4.2).

From a Cartesian perspective, the University of Alberta quad is an elongated rectilinear form oriented along the north-south axis as seen in Figure 4.3. This design celebrated the axial procession to and from Convocation Hall located on the north side of the quad while having direct and efficient connections between academic schools and the residences. The firm's original proposal suggested that the 258 acres be allocated into the following:

Farm	80 acres
Playing Field	16 acres
Hospital	16 acres
University Buildings	45 acres
Professors' Houses	10 acres
Church Colleges	3.5 acres
Powerhouse and Yard	8.5 acres
Campus	5.5 acres
Student Residences	9.5 acres
Wooded Park	7 acres

(Shoeck 2006, p. 100).

Nobbs and Hyde planned the buildings to be arranged around a central yard (the quad) contiguous to Athabasca Hall with the intent that, "the buildings crowning the bluff, which will be seen from the other side of the river, should form as imposing a composition as possible" (Ibid.).

Figure 4.3. A remake of the 1912 Nobbs and Hyde campus blocking plan. Credit: Ellen Schoeck (2006).

This statement by Nobbs and Hyde corresponds to Beaux-Arts' emphasis on the visual, at the same time as spatialization of power and knowledge. A theme of power vis-à-vis the arrangement of the built environment at the UofA is noticeable considering the tensions between the North Edmonton and Strathcona, and the intentional provocation Nobbs and Hyde planned.

The Plan

Three buildings flanked the east side of the UofA quad in the early 1910s which still remain today. Athabasca Hall, opened in 1911, was originally the University's first official home location. For the first year it housed the entire university, including classrooms, labs, the library, faculty offices, the dining rooms, as well as residences for domestic staff, faculty, and students (http://www.campusmap.ualberta.ca/). Today, Athabasca Hall currently houses the Department of Computing Sciences and the Canadian Institute of Ukrainian Studies. Directly to the north of Athabasca is Assiniboia Hall, opened in 1912, as a male student residence until the 1970s. It now houses the Office of the Senate, the Office of the Chancellor, and a number of groups from the faculty of arts: the Department of Linguistics, the Department of Philosophy, the Women's Studies Program, and the Centre for Writers (ibid.). Pembina Hall, opened in 1914 and located to the south of Athabasca Hall was also a campus residence and is currently home to the School of Native Studies. It is interesting to consider how different the design of the quad was during the early stages of the University's existence compared to today, and how these differences affected its campus participants. Specifically, major differences include the three large residences adjacent to a large open space that was not fully programmed with connecting pathways or mature trees or moveable seating, like that which exists today. The intensity of three distinct communities dwelling on the UofA quad certainly would have had an effect on how and when the space was used that is much different from today.

Analyzing the 1912 Nobbs and Hyde block plan (see Figure 4.3 above) demonstrates a resemblance to Thomas Jefferson's University of Virginia, where the combination of residences situated across from academic buildings alludes to an egalitarian society. The crowning edifice of

Convocation Hall basking in direct southern light seems to beckon campus participants towards the future. It is interesting that in Nobbs and Hyde's plan, this 'future' was composed of the economic centre North Edmonton which functions as the backdrop to the threshold for the students who are becoming learned citizens.

The proposed vision set forth by the master planning architects changed due to the reorganization of North American society, economics and demographics as a result of World War II (Schoeck 2006) (see Appendix B for new master planning work being conducted at UofA). As evident in Figure 4.4, the orientation of the buildings comprising the UofA campus was to be along an east-west axis, whereas in the original plan from Nobbs and Hyde, was oriented along a north-south axis. This change in the physical organization of the UofA campus in just four years after Nobbs and Hyde produced the master plan of the university demonstrates not only the difference between vision and reality but also the limits of the Beaux-Arts master plan which focused on the unification of architectural character through symmetry and axiality.

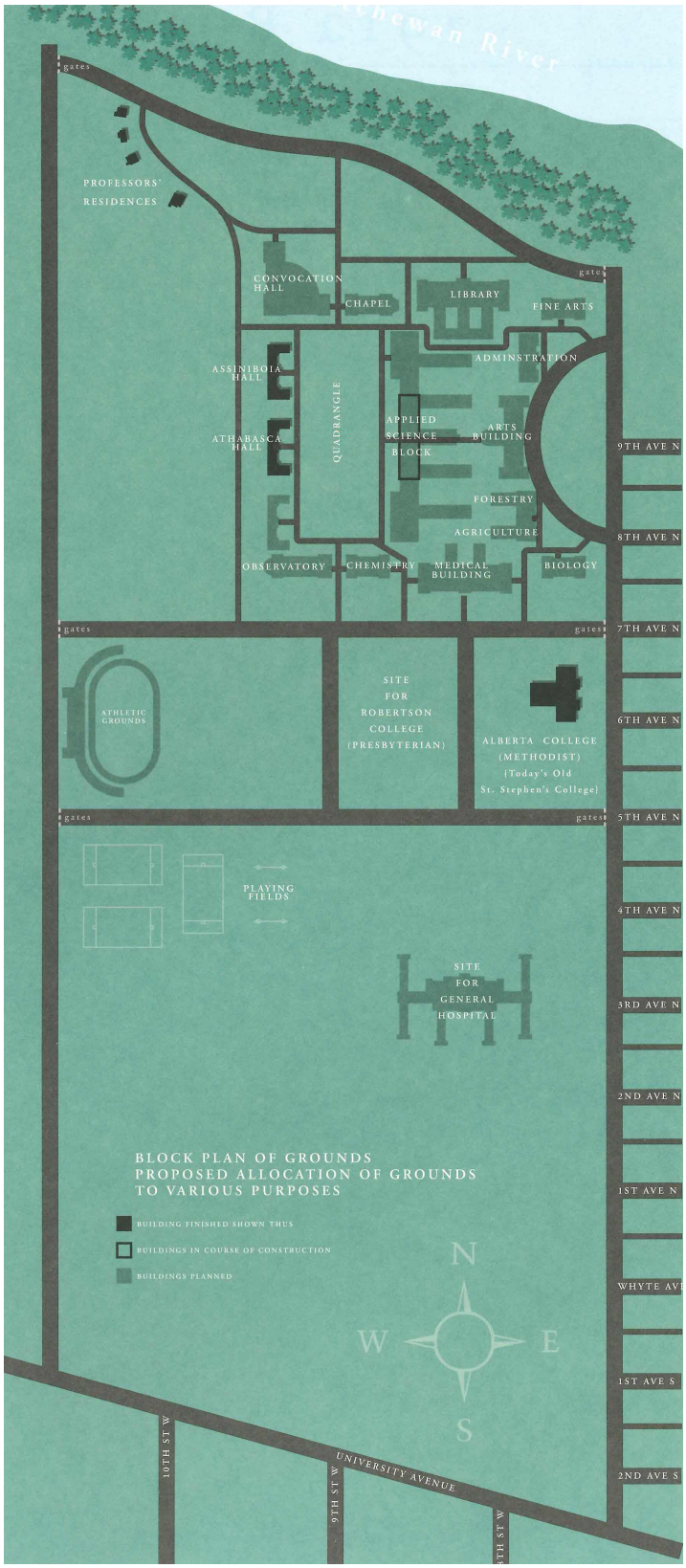

Figure 4.4. 1912-13 campus plan demonstrating existing buildings, buildings under construction, and planned buildings. Credit: Ellen Schoeck (2006).

Urban design theorist Nan Ellin (2006) finds that Beaux-Arts pedagogy contains a, "predilection for the ideal and universal, pure geometries, proportional relationships, formal composition, and internal programmatic hierarchy" (p. 53) regardless of specific site location and site requirements. These universal ideals are still visible today—to the detriment of the functions of the quad—as many of the buildings erected over time do not regard their exceptional siting and instead provide an architectural hindrance to social aspects of the quad by reducing a sense of place.

Summary

The University of Alberta campus has a unique history filled with political and social tensions. However, the simple fact that the quad has been an ideal of the UofA since the original 1909 architectural vision was drafted substantiates its importance as a space for campus participants. Ultimately, the UofA quad has remained but the layout of the surrounding campus buildings has changed. Growth adjacent to the quad has been constant throughout the history of the University and is now at complete build out. Today, the University of Alberta's quad contains eight buildings enclosing the space and range in inception dates from 1911 to 2011. The oldest of the buildings being Athabasca Hall and the youngest is the Centennial Centre for Interdisciplinary Sciences (CCIS). The quad contains an area of approximately 18,906 square metres or 1.89 hectares, nineteen paved pathways, and one piece of public art. However, the morphology of buildings, new and old, will continue and the quad as a site for future university investment will increase in prominence. As geographer Blake Gumprecht (2008) argues that the

importance of university campuses play an important public role as they fulfill a larger purpose to not only their institution but the town or city in which they reside. The role of the quad contained within the University of Alberta campus continues to fulfill its larger purpose of a cultural centre and a symbol for the University of Alberta and ultimately the citizens of Edmonton.

Chapter 5: Methods

Lost Keys: The Key to a Better Understanding of Methodologies

In my study, to better understand the material and spatial nature of the University of Alberta quad through discussing it in relation to Ellin's theory of Integral Urbanism, I employed multiple methods, including, nonparticipant observation and visual methods (including the analysis of architectural drawings and photography). However, before I explain how I used these methodologies in this investigation, I will provide a short account of a field experience that heuristically shaped my understanding of methodology and as according to Luck, Jackson and Usher (2006), the importance of methodological flexibility when conducting qualitative research, specifically case study research.

While researching in Missoula, Montana, home to the University of Montana Grizzlies, I lost my car key. Inherent to the key being lost was the inaccessibility to the contents of my vehicle which contained my digital camera, video camera and charging equipment, as well as clothing and toiletries. First, I was devastated. I believed the trip to Missoula to be wasted as it seemed that gathering "visual data" had become nearly impossible without the go-to-equipment that I so often depend upon.

After a combination of staring helplessly at my car's locked doors and circling my vehicle believing that just once more around and the missing key would somehow reveal itself in the dried and fallen leaves, I collected myself and checked into a nearby hotel. No longer "homeless," the mental fog began to lift and I realized that not all was lost. In fact, my academic training in architecture and planning and my professional experience of sketching in the field

mentally surfaced. I struck out with a free pen from the hotel and purchased a new notepad to begin field notes and graphical observations.

This event of losing my car keys while traveling alone in a state I had not been to before, though at the time was a bit unnerving, informed my comprehension of variables that can arise during research. This experience enhanced my confidence for the duration of my research as it taught me that methodology needs to be flexible as it is informed by field experiences and does not occur in a vacuum. By understanding that in order to make this portion of the research trip worthwhile, I would need to ensure my rigor was of the highest priority, since I only had my field notes and graphical representations to refer to rather than digital data. Because my electronic devices, that perceivably had the ability to capture a "truthful account of reality" (Pink 2001), were not available to me, all of my senses were required in data collection.

Reflecting on this experience, I found this level of rigor to pose a challenge as while I was in my places of observation I would be focusing on the activities occurring in the quad, yet, I was aware that I was missing other concurrent activities. This embodied understanding that research is not perfect regardless of how it is designed became a reality which actually relieved my mental state of not conducting *perfect* research and allowed me to better engage my senses on the material and spatial occurrences I could observe.

This experience furthered my understanding of what reflexivity really means in research. Leaning on archaeologist Ian Hodder's (2003) recognition that reflexivity accounts for the researcher's own "positionality" (p. 58). This positionally includes what the researcher is bringing to the subject of inquiry, such as educational background, specific academic and professional training, etc. This is important to discuss at the outset of this chapter to better inform

the reader of my own positionality and the biases I am bringing as a researcher to this subject. In this research, I bring to this subject educational and professional training in architecture and planning. Reflexively, these fields have a strong visual component and therefore, I have a strong tendency for the visual, which the research design of this thesis is largely comprised of. This layer of reflexivity and the acknowledgement of my positionality within the research improves the validity of my claims and adds a layer of rigour.

In this chapter I will discuss the use of the methodologies I used in my case study of the UofA quad: nonparticipant observation and visual methods. However, first I will explain why I chose the case study research design for this thesis. This is followed by a discussion of how I conducted my visual methods.

Research Design

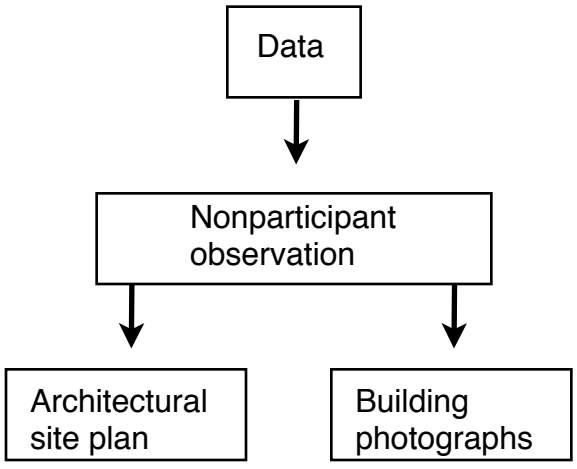

Figure 5.1 Data collection flowchart for the case study.

Through discussion and reading a wide-range of literature it was determined that to appropriately investigate the research question, according to social scientist Robert K. Yin (2003, p. 28), an exploratory case study was the most appropriate design for the research because of the lack of historical data; specific to my work the material and spatial aspects of university quads. According to medical researchers Lauretta Luck, Debra Jackson, and Kim Usher (2006, p. 103) a case study can be generally defined as a detailed investigation or in-depth study of a single unit or case. Furthermore, an exploratory case study was considered the most appropriate for answering questions about "how" and "why" (Yin 2003, p. 10), if at all, Integral Urbanism, could be considered a valid theoretical lens for the university quad. Following Yin's case study methodology, the following units of analysis (ibid.) were used to analyze the UofA quad:

- Built form of the UofA quad
- Materiality
- Spatiality

The built form of the UofA quad was chosen as a unit of analysis because my research findings revealed that the quad is actualized in a large part by the built form which contextualizes it. This unit of analysis is appropriate to consider since Ellin analyzes the built form through her theory of Integral Urbanism. Materiality was also chosen as a unit of analysis to gain a better understanding of the quad's architectural morphology, historicity and the development which has occurred. Particular attention was paid to the material of the architecture and the materials of the quad to understand the significance of these materials as a means of communications to the campus participants. For example, does the materiality display wealth and opulence or restraint and economy? Spatiality was chosen as a unit of analysis with the intention to investigate the

spatial properties of the UofA quad. Specifically, the volume, shape, scale and permeability and connections to other spaces (Trancik, 1986, p. 1) are important considerations to the analysis as they may indicate aspects of hierarchy, transportation and accessibility. Materiality and spatiality are also appropriate to consider through Ellin's work, given the attention she pays to these concepts in relation to connectivity/hybridity and porosity.

At the beginning of this study, I predicted that the UofA quad has continually been subjected to the contextualizing architecture that encompasses it. This contextual morphology has continually reshaped the material and spatial aspects of the UofA quad and confirms that that the quad has never existed in a lacuna but has been influenced by design trends. These trends, visible through the material displays of architecture, the spatial location and arrangement of architecture, and ultimately, the context of the quad all became increasingly vital to this research. Yin (2003) finds that it is precisely these contextual conditions which contribute to the investigation by stating that, "you would use the case study method because you deliberately wanted to cover contextual conditions—believing that they might be highly pertinent to your phenomenon of study" (p. 13). Further, as I claim throughout this study, the material and spatial phenomena which are situated in the UofA quad are linked to campus participants' experience of the campus, which Yin (2003) affirms, "...the distinctive need for case studies arises out of the desire to understand complex social phenomena" (p. 2). Adding to the complexity of the research, yet confirming the use of case study research design are the boundaries of time, place, culture, group, and institution (Luck et al. 2006; Stake 2000). Therefore, case study is the proper research design for my subject of study.

Although the case study approach is an appropriate research method for my question, there are inherent limitations that must be dealt with. Yin (2003) finds that over time case studies have been viewed in the social science community as a "less desirable form of inquiry than other experiments or surveys" (p. 10) often because of the lack of rigor in case study research. Yin points to the researcher's deviation from systematic methodological procedures, "equivocal evidence or biased views to influence the direction of the findings and conclusions" (p. 10) as contributors to this lack of rigor. The author states that other methodologies have numerous texts supplying specific procedures to follow unlike case study methodology, which Yin finds that, "few if any texts (besides the present one) cover the case study method in similar fashion" (10) to other methods. "A second common concern about case studies is that they provide little basis for scientific generalization. "How can you generalize from a single case?" is a frequently heard question" (p. 10). Yin's answer to this critical question is:

> That case studies, like experiments, are generalizable to theoretical propositions and not to populations or universes. In this sense, the case study, like the experiment does not represent a "sample," and in doing a case study, your goal will be to expand and generalize theories (analytic generalization) and not to enumerate frequencies (statistical generalization) (ibid.).

The research presented here, which is specifically analyzed through the theoretical proposition of Integral Urbanism, takes into account Yin's notion of analytical generalization and will provide new knowledge about the spatial and material aspects of the UofA quad. Although there are limits to case study research, I am confident that the case study method is appropriate for this research.

Nonparticipant Observation

As previously discussed, this research is looking at the UofA quad through the theoretical lens of Integral Urbanism and keeping with a theorized discussion and interpretation of the visual and material. I began this theorized study with nonparticipant observation to observe and understand spatial and material aspects of the UofA quad. According to Feng Liu and Sally Maitlis (2010) in the *Encyclopedia of Case Study Research*:

> Nonparticipant observation is a data collection method used extensively in case study research in which the researcher enters a social system to observe events, activities, and interactions with the aim of gaining a direct understanding of a phenomenon in its natural context. As a nonparticipant, the observer does not participate directly in the activities being observed (p. 610).

This decision emanated from an ontological / epistemological position that sees space, and the material objects contained within that space, to be comprised of meaningful signs about culture, society, policy, the economy and security and is used to construct meaning to objects (Tuan 1974; Trancik 1986; Miller 1987; Shields 1992; 2013; Ellin 2006; Kuntz 2010; O'Toole 2010). This socio-spatial perspective (i.e. an approach that explores the relationship between the built environment and society) was a perspective that informed my research by associating meanings with objects (the quad and objects within the quad). It is here where the validity of my sole perception of the research findings must be addressed.

My education in architectural training, and over eight years of professional experience, enable me to apply a deeper understanding of the architectural science of what I was observing. This embodied knowledge provided more insight into the built environment of the UofA quad by capturing nuances that may otherwise have gone unnoticed, specifically, the materials and construction methods of the buildings adjacent the UofA quad and the paths and material artifacts

contained within the quad. Although my personal perception of the data was my own form of analysis it did not occur without structure since I applied the theoretical analysis of Integral Urbanism, a socio-spatial perspective of materiality and spatiality. To further support my analysis I also drew upon a range of architects, planners and academics whose work was relevant to my own, thereby ensuring a critical perspective to my analysis.

I engaged in nonparticipant observation in the UofA quad throughout the fall semester of 2013 and the winter semester of 2014 for a total of twenty site visits at a duration of thirty minutes per visit. Since I employed nonparticipant observation as a method, I am unable to discuss the meaning-making of human actors in relation to the spatial and material aspects of the UofA quad according to their own testimony. However, this is not detrimental to the study because as stated by Lounsbury (2010) in the *Oxford Handbook of Material Culture Studies,* "Constructing meanings from these objects [architecture and landscape architecture] lies in the hands of their interpreters" (p. 485) and as a researcher, I am a valid and knowledgeable interpreter.

In her book *Qualitative Researching,* Jennifer Mason (2002) describes observation as "methods of generating data which entail the researcher immersing herself or himself in a research 'setting' so that she or he can experience and observe at first hand a range of dimensions in and of that setting" (p. 84). Observation has been esteemed as "the fundamental base of all research methods" in the social sciences (Adler and Adler 1994, p. 389).

Visual Methods

International management education professors Jon Prosser and Andrew Loxley (2008, p. 1) position visual methods as an emerging field with a groundswell of global interest over the last two decades. Visual methods were first introduced in the fields of anthropology and sociology, gaining stronger interest from researchers during the 20th century with the approach of "photography-as-data" (Prosser and Loxley 2008, p. 5). However, like all methodologies, criticism has occurred, and is mainly focused on the subjectivity of image creation and the ability to manipulate images (not dissimilar to other forms of data) by staging events, recreating events or directly adjusting the image itself (Prosser and Loxley 2008, p. 4-6). These critiques of visual methods have let to better rigor and advanced trustworthiness within the methodology, as researchers have become more explicit about how, "within the research process, researchers 'create' an image (still or moving photography, drawings, paintings, diagrams and so on) and what kinds of technology are used to produce them" (Prosser and Loxley 2008, p. 9).

In my research, visual methods includes creating and analyzing architectural drawings and creating and interpreting photographs. As discussed by Prosser and Loxley, to increase the trustworthiness of my visual data creation, I explicitly explain the "how" and the "why" of my epistemological decisions and the perspectives through which I analyzed the architectural drawings and photographs. In this section I draw heavily upon Michael Emmison and Philip Smith's book *Researching the Visual* (2000) because the authors provide multiple examples of using diverse sources of visual data, such as photographs, drawings, maps, diagrams, advertisements, to ensure the research question is attended to with substantial diligence (p.

54-55). As stated above, visual methods is a newer field with emerging interest, that over time has been influenced by multiple research methods to refine and develop itself as a method.

Emmison and Smith argue that Pierre Bourdieu's (1990) seminal essay on the Kabyle house "may be one of the most famous illustration of the power of theoretical insight to decode the dwelling" (p. 153) wherein Bourdieu draws heavily on his own visual analysis of materiality and spatiality. Although my work is not directly related to a residence, the UofA quad, similar to Bourdieu's study, contains many latent symbols to be decoded, such as the architectonics of the surrounding buildings or the location and form of the concrete paths.

In my study of the UofA quad I took photographs of the buildings fronting onto the quad which I analyzed for their material and spatial aspects. Further, I analyzed an architectural plan of the quad supplied from the University Architect's office as well as Google Map aerial imagery. Together, all these contributed to my understanding of the larger context of the quad. In the section to follow I outline specifically how I conducted my visual methods and why.

Emmison and Smith (2000) support the use of photographs in visual research because, "Unlike other forms of storing informations, photographs are signs which bear an iconic resemblance to the reality they represent" (p. 3). In relation to the larger context of the quad, Emmison and Smith (2000) state that, "Objects are always positioned in particular spatial contexts" (p. 109). In this case, the objects I am considering are the individual buildings which overlook the quad. In my study, the use of photography as a visual method was to build multiple layers of data which supported the material and spatial analysis and to provide a nuanced description of that which exists. Photographs could be explored through the theory of Integral Urbanism.

Using multiple visual data sources (photographs, drawings, maps, etc.) proved useful due to the difference in visual perspectives, such as front elevations (building photographs) and aerial (architectural plan) views. This photographic data, or according to Goldstein (2007), the photographic depiction of 'a moment,' provided empirical evidence to support my findings and arguments. For example, in my Analysis chapter I claim that Computing Science building is "hiding" behind Athabasca Hall so as not to visually "distract" from the historical significance of the Hall. Yet, to state this with only words proved difficult. Therefore, a combination of photography and the analysis of a UofA site plan was essential to support such a claim about the "camouflaged" architecture.

Following sociologist Gregory Stanczak's (2007) notion that a single image is rich with data and that this data can be empirically discernible truth based on objective facts, I photographed individual buildings contiguous to the UofA quad as well as their tectonic and material details. Emmison and Smith state that, "Interactions with objects, then, are a source of visual data from which we can make inferences about social life" (p. 109) through photographs. Details that I may not have noticed in 'the moment' could now be reviewed later, with the data findings becoming richer upon multiple analyses. Concerning this review of photographs, Emmison and Smith (2000) establish a strong position for visual research, "The study of 3D data is ideal as a source of what is generally called 'unobtrusive measures'" (p. 110). This circumspect method allows for the researcher to enter the field covertly and reduces any chance of disturbing the 'natural' environment under study. To refer to the previous example of Computing Science and Athabasca, I had spent many hours in the field, analyzing maps and architectural plans before I realized how a photograph I captured demonstrated how the architecture was integrated and the

material choices mimicked the historical aesthetic of Athabasca Hall. This demonstrates not only reflection in research but also that if I did not use visual methodology this data may have been missed. Further, although one can argue that photography is ultimately two-dimensional, and field work would be considered three-dimensional, by combining the layers of visual data I contend that all of my research was actualized in three-dimensions. This approach links to Emmison and Smith's (2000) outline of four major advantages to researching the three dimensional:

1. In many cases objects of material culture, and traces can be used as objective measures of social process. They tap into 'actual behaviour, not reported or experimental approximations' (Rathje, 1979, p. 77). A physical trace or a material object is either present or it is not.

2. Objects and traces provide non-reactive and (often) unobtrusive measures. This has the advantage that the process of research is not confounded by respondents' behaviour changing once they know they are part of the study. Normal issues like interviewer bias, providing socially preferred responses etc., are avoided, unless we move on from the object themselves to try and find out about their meanings.

3. Objects and traces are very often easy to quantify and classify, making comparative sociology and rigorous research design easy to conduct. This does not rule out interpretive sociology (decoding objects and their meanings), but it does add another string to the bow of the researcher.

4. Objects and traces are all around us. They provide a free source of data for the visual investigator. All that is required is an active imagination which can work out how to mobilize them in a theoretically informed project and a pair of eyes to see them (p. 148-149).

Emmison and Smith (ibid) discuss how material culture and the latent traces of such objects exist in the three dimensional realm of visual research, specifically, they argue that objects and the mark, or traces, of such objects and social constructions allow for accurate inspection. Therefore, visual research provides a unique and often untapped methodology of research which is

especially useful when paired with theory, such as, in the case of this research, Ellin's Integral Urbanism.

Visual Analysis of Ten Photographs and an Architectural Plan

I began analyzing the ten photographs I captured of the architecture adjacent to the UofA quad during the summer of 2014. I conducted three iterations of visual analysis of the ten images for a total of 150 minutes. The author-captured images were analyzed in order of their physical arrangement positioned as a hypothetical "walking tour" for the reader, beginning with the Administration Building and ending with South Academic Building (southern portion). According to a study by educational systems researchers and consultants Binder, Haughton and Van Eyk (1990), shorter intervals of concentration showed to be beneficial to overall performance of their research subjects. Therefore, as I analyzed ten photographs I broke the visual analysis into two sections of twenty-five minutes in which I analyzed five images during that time; after a five minute break, I would continue to the second section of the remaining five images to be analyzed within the same duration of twenty-five minutes.

Since the act of visual analysis required my full concentration I was acutely aware of ensuring my environment was arranged to dissuade any form of distraction. Therefore, I analyzed both the photographs and the architectural plan in a private office with the door closed and with ample light and space. For the photographs I analyzed the photographs on my personal laptop in "fullscreen mode" to limit distractions of any other open documents or programs. To ensure equitable visual analysis of each image I set a timer for five minutes. During the five minutes I recorded what I saw in a journal. I found that the individual segments of five minutes felt short on the first iteration, however, the set time was progressively perceived as longer on the second

and third iteration as I reached theoretical saturation (Yin, 2003). Similarly to my methodology of analysis of the photographs, I analyzed the architectural plan in three iterations of ten minutes for a total of thirty minutes. Detailed notes were recorded in the same journal as mentioned above. After the analysis of both the photographs and architectural plan was complete, I transcribed the notes into a separate document to form part of the analysis section of this thesis.

Photography is an essential visual method in social science research (Flick 1998; Banks 2001; Pink 2001; Wagner 2002, 2007; Goldstein 2007; Stanczak 2007; Rose and Tolia-Kelly 2012) which I employed to document the existing scale, materiality and architectural taxonomy and composition of the UofA quad and its built environment. In the chapter *Materialising Vision: Performing a High-Rise View*, by Jacobs, Cairns, and Strebel (2012), the authors specifically point out that in their study of high rise views through windows, that they, the researcher *and* their cameras capture the views. It is Jacob's et al. intention to demonstrate to the reader that human agents and mechanical agents capture information (data) differently and both forms are useful to more comprehensive analysis. Further, the human agent not only has the ability to analyze data in real time but also the captured information later. This perspective is similar to Ellin's approach where buildings and sites are discussed through the aid of images and architectural drawings. Therefore, my methods have tried to look at the subject of the UofA quad the way Ellin would. An added benefit of photography as a visual method, is that the photographs create artifacts, which as archeologist Ian Hodder (2012) asserts, "...the interpreter of material culture works between past or present, between different examples of material culture making analogies between them" (p. 181). My photography of the UofA quad was not intended to be the final product, rather a documentation of the material and spatial that supports the ability to make

correlations. As Stanczak (2007) points out, “Employing images in our methodologies often reveals surprising new knowledge that we as scholars, students, and researchers may not have recognized through conventional means” (p. 8). In my analysis I experienced precisely this through the multiple iterations of visual analysis of photographs as new aspects of visual data were revealed over time and continuous examination.

Although many demonstrable strengths exist and support the use of photographs as a means of visual methods and the analysis of a re-presented reality, there are limitations to the use of photographs. According to sociologist Barry M. Goldstein (2007, p. 78), the researcher whom presents images to any audience has no control of how that audience will respond to the photographs. Specifically, Goldstein outlines content, perception of intent, and context as the three major points which the viewer will respond to the photograph through (ibid.). Therefore, although impossible to minimize, in my research I epistemologically decided to capture the UofA buildings from a front elevation perspective to improve the objectivity of each photograph.

As discussed above, in my research I analyzed existing architectural plans of the UofA quad. The intent was to push the boundaries of visual methodology by investigating the design of the quad through accessing evidence of the methods through which it was professionally designed. For example, standard architectural techniques of examining and visually explaining the spatial relationship between objects through the plan (aerial) view of a site and the section (a horizontal cut through the site) view are the tools of architectural discourse.

As previously discussed, Ellin’s Integral Urbanism explicitly addresses the plan and section view, demonstrating how multiple perspectives of space, especially reduced representations of the real world as architectural drawings, can establish new knowledge. Ellin’s

recognition and use of these architectural techniques was one reason for my use of visual methods. As previously discussed, another reason visual methods were used, is that architectural plans clearly delineate what is represented and what is not through the presentation of layers of information. This is an advantage and increases the likelihood of a discussion occurring that includes pertinent architectural information. However, the difficulty of this method is that the researcher must choose either breadth (many layers of general information) or depth (limited layers of detailed information) of the information to ensure a sufficient analysis takes place.

Virginia Tech professor Paul Emmons and Ph.D candidate Jonathon Foote (2012) discuss the significance of interpreting architectural plans and argue that, "despite often being misunderstood as merely providing technical information, architectural drawings are edifying because they simultaneously convey and construct culture" (p. 197). In relation to Emmons and Foote's proposition of architectural drawings being misunderstood, it was a goal of my research to use visual methods in a manner that could precipitate a better understanding of how semi-ubiquitous tools (the photograph vis-à-vis the camera, the site plan vis-à-vis the architectural drawing) can be combined to establish new knowledge of the UofA quad.

While in the field I created architectural sketches as part of my documented field research, not only to better understand the spatiality and materiality of the quad and the surrounding architecture, but to create, according to Emmons and Foote, cultural constructs. That is, extending from Emmons and Foote's assertions, the architectural plan and my sketches become artifacts for analysis as well as a mode of conducting analysis. I found that sketching aspects of the UofA quad was helpful for me to analyze what I was observing in the field by engaging multiple senses that required translation of data from one form to another. Further to

this, I acknowledged at the time of sketching (and now) the centrality of my subjectivity (Pink, 2001) demonstrating reflexivity.

Figure 5.2. An example of a field sketch. Credit: author (2014).

As I was drawing and visually explaining the quad I took notes on how my drawings related to Ellin's theory of Integral Urbanism, specifically relating her work to the plan and section views of the quad.

Architectural drawings are a visual language that can explain where something exists spatially, such as the quad and its relation to its architectural context. Further, as a visual method,

interpreting a collection of architectural drawings that have been created over time can also be a way to decipher what does not exist, i.e., that which was planned (and captured on one drawing) but was materially omitted by not being built (as evidenced by a later / revised drawing). Architect Spiro Kostof (1995) affirms the indispensable nature of architectural plans and the understanding that plans can bring to an interpretation of a space, especially after that space has been created. In my research, to discuss the UofA morphology I drew on Ellen Schoeck's (2006) book, *A Century of Campus Plans,* which contained many historical or reproduced historical maps. By closely analyzing UofA campus plans that denoted the campus morphology over time, I was able to better understand how change took place within the UofA quad. Specifically, buildings that are no longer situated on the quad, such as Bhatia Physics Building or recreational spaces like tennis courts adjacent to the quad in the 1920s (Schoeck 2006, p. 413; p. 518). Buildings both new and old, along with artifacts such as architectural plans, provide unique ways to comprehend the way people have actualized their lives (Hodder 2012).

Summary

In review, this research into the UofA quad was designed as an exploratory case study in which I used nonparticipant observation and visual methods as the methods of inquiry. Materiality, that is the material composition of the architecture and that of the quad, and spatiality, the spatial properties of the quad (volume, scale, connections) were analyzed also to better understand aspects of what the material culture of the UofA quad is communicating to campus participants. A discussion concerning the application of photographs and the analysis of architectural drawings in qualitative research helped frame both the strengths and limitations of their use in this case study. Since this research is within the field of material culture, the creation

of artefacts in the form of photographs of the contextualizing architecture of UofA quad, and the analysis of existing architectural drawings as an artifact, supported the visual analysis. Following Emmison and Smith's proposition that by researching the three-dimensional, the researcher can better understand the traces of the objects and the changes that have occurred. This concept aligned well with Ellin's theory of hybridity/connectivity and porosity because of the similarities in exploring physical properties for information. Stanczak's practical assertion that photographs are useful pieces of information not only because they capture visual data but that the researcher can re-visit the data over and over again potentially picking up on information that was missed in the field proved especially useful to this research. Leaning on Kostoff's defense of architectural plans as the language of architects and Ellen Schoeck's re-creation of many UofA campus maps, the visual analysis of the UofA quad was strengthened as the morphology of the UofA quad could be more accurately understood while applying Ellin's notions of hybridity/connectivity and porosity.

Chapter 6: Visual Analysis of the UofA Site Plan

This section discusses the visual analysis of an architectural site plan of the UofA quad and the UofA buildings adjacent to the quad: in relation to material and spatial characteristics and Ellin's theory of Integral Urbanism, specifically, hybridity/connectivity and porosity. To review, hybridity/connectivity means connecting people and activities in space and intensifying both along thresholds. Porosity means how people and objects flow in and out of a space.

The analysis within this section is demarcated to the architectural site plan as provided by the UofA University Architect's office (see Figure 6.1) and the photographs taken by the author. According to Australian social scientist, Paddy O'Toole (2010), "Qualitative research is concerned with building descriptions, explanations and theories that are rich, nuanced and comprehensive. This requires the qualitative researcher to probe beyond the superficial and the explicit" (p. 121). Following O'Toole's assertion, to achieve this, I used multiple data points of visual methods, specifically, visual methods as tools that levered different visual perspectives of the UofA quad to uncover new information. The site plan is a unique 'birds-eye' view that provided me with contextual information, such as spatial relationships between buildings and pathways. My method of investigating the UofA site plan is supported by Kostof (1995, p. 5) who asserts that plans are the common language used by architects to communicate information about space. Kostof's point is especially relevant in this research because I have analyzed the UofA site plan as a communication tool for a specific audience and have interpreted the plan and provided my perspective on what information the plan is conveying and what information has been omitted. Concerning photography, the use of researcher-created photography, or according to Banks (n.d.) 'making visual representations' (http://sru.soc.surrey.ac.uk/SRU11/SRU11.html)

provided a heuristic perspective that required me to traverse the space of the quad, and intentionally capture an image of each adjacent building to the UofA quad.

The intent here is to provide accurate reasoning and synthesized knowledge through my interpretation of the architectural drawing and visual images of the buildings and spaces. Given my interpretive approach, my architectural education and professional experience was an asset in delivering a relevant analysis because of my theoretical and practical knowledge of architectural space, and my knowledge of composition, and materiality. My background and theoretical perspectives, when addressed to my topic of study enabled me to establish new theorized knowledge concerning the UofA quad through the use of Ellin's theory of Integral Urbanism.

UofA Site Plan

In this section, I will: first, describe the site plan (see Figure 6.1) that was supplied to me by the University of Alberta's Office of the University Architect, and the materiality and spatiality of the quad, explore Ellin's notions of hybridity/connectivity and porosity within the UofA quad; and, discuss the strengths and weaknesses of the visual representation of the site as an artifact which the data is derived. I will complete these latter tasks to further support my assertion that architectural site plans are valid artifacts for visual research.

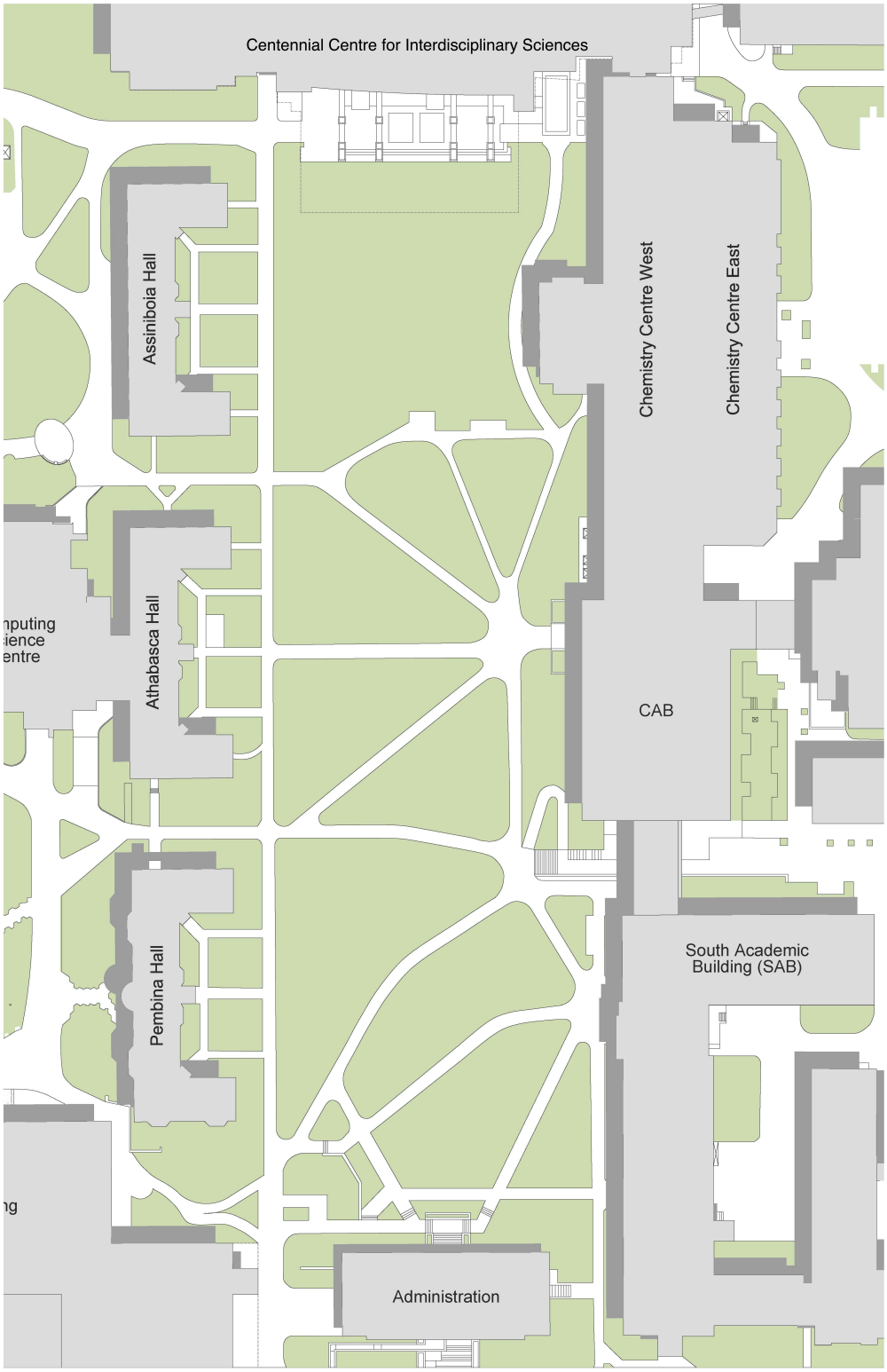

Figure 6.1. UofA site plan supplied by the University of Alberta's office. Credit: Office of the University Architect (2013).

The electronic site plan file was received via email from the Office of the University Architect and was printed by the author at a professional print facility. Overall, the site plan adheres to typical architectural industry conventions, such as size, and therefore was printed accordingly to the scale set out by the draftsperson. The plan was printed at 36” wide by 24” high in full colour. As indicated, the plan conforms to typical architectural conventions of a site plan, taken from an aerial view, outlining the predominant artefacts such as buildings, pathways, and lawn. However, a north arrow is missing from the site plan. This is an important feature of a site plan as it provides cardinal orientation to the viewer and the context of material artefacts. Since I have experience in the architectural industry and the embodied knowledge of the quad’s physical space, north was locatable (Centennial Centre for Interdisciplinary Sciences is at the North end of the site plan) by these means. Despite seeming to be a trivial detail, it is important to address the absence of north because it demonstrates both a weakness and strength of visual analysis as methodology when important information is omitted by another. Since the visual analysis this research deals with is tied to space and thus geography, orientation is important to comprehend for the clarity of communicating environmental aspects of the site. For example, when analyzing the location and direction of Centennial Centre for Interdisciplinary Sciences (CCIS), comprehending its physical orientation, in this case south, is important because environmental design considerations such as passive solar orientation becomes apparent. Without the understanding of cardinal direction, a conclusion like this may be missed.

Overall, the UofA site plan provides geographical and spatial and material information which is understood through visual interpretation and analysis. The site plan is able to provide the viewer with a literal change in perspective in comparison to how a space is experienced in

person—that from above, and in two dimensions compared to an embodied perspective in three-dimensional space. The site plan as an image thereby provides concise yet complex information in an efficient manner. For example, I was able to accurately and efficiently gain a better, though not complete, understanding of the function of each building adjacent to the quad by reading a labelled site plan. By analyzing the UofA site plan, which offers a compact view of a wide area, a larger spatial context and the relationships that exist between spaces and structures are revealed by analyzing both open spaces and material artifacts. To be clear, the author is not stating that a site plan is the only form of inquiry that provides detailed information succinctly. As discussed above, errors or omissions exist in a site plan as a representation of complex reality reduced to a simple drawing. Further, local knowledge is required of the UofA site plan to comprehend the acronyms that exist as labels, such as "CAB," (Central Academic Building) or even what the contemporary function of a "hall" is.

According to Kostof (1995) architectural drawings are the conventional language in which communication occurs from the abstract to the real; however, the language of drawing is not completely translatable because specific, industry-related symbols mean one thing to one group and potentially nothing to another group. Due to my architectural industry experience I was able to accurately comprehend the drawing while providing a measure of critique to its accuracy of representation. Additionally, when visually describing geography in two-dimensional drawings, changes in elevation are nearly impossible to accurately depict, yet, because of my heuristic experience of the UofA quad I am able to provide a detailed explanation. In the case of undertaking this research, a site plan was chosen for initial visual analysis because of the author's experience and education with architectural plans and the valuable information they offer. That

is, a site plan is useful rapid comprehension of an entire building's footprint or understanding the larger context of a site and the relationships between spaces, structures, and pathways. Such issues are best determined from such a material artifact.

During the course of my research my professional education and personal knowledge of architecture and plans were drawn upon when conducting analyses. With these aspects of a site plan's conventions in mind, specifically the larger spatial context of structures and the reduction of information into lines, I could begin to better understand the strengths and weaknesses of the UofA site plan in particular and extend my knowledge of, and ability to critique architectural drawings in general.

In the UofA site plan, differences in colour are used to indicate materiality and the classification of material artifacts. For example, the paths for walking within the UofA quad are represented with a white fill (a fill being the interior of a boundary that is distinct by a pattern or solid colour); however, there is no legend to clearly indicate what denotes a pedestrian path. From a spatial perspective, the pathways do not seem to carry a formal logic of patterns or rigid geometry like that of original design for the Beaux-Arts styled campus (see Figure 4.2). Instead, the configuration of the UofA quad's current paths are mostly organic in form. That is, the multiple paths that exist within the quad flow in and out of one another in a curvilinear manner, almost like the root system of a tree, acting as "other paths that connect elsewhere" (Ellin, 2006, p. 18) rather than as a strict geometry of classically planned paths. These multiple paths could play a role of increasing expediency when walking through the space of the quad, since the paths function as the hypotenuse of a triangle, decreasing the length travelled ($C < A + B$). Further, the current paths also indicate an aspect of the quad's morphology as the University of Alberta has

grown over time. A finding from my analysis that supports this claim is the contrast of paths between those that serve the Three Halls (Athabasca, Assiniboia and Pembina) and those that relate to the later-built buildings. As demonstrated on the UofA site plan, the configuration of the Three Halls and their similar "E-form," is reminiscent of Harvard's original layout (Gumprecht, 2008, p. 31). This architectural form has dictated the layout of the paths in a strict method that has been replicated for each of the Three Halls. This stands in distinct spatial contrast to the remainder of the UofA quad. However, regardless of the form of the paths, either straight or curvilinear, the materiality is paved concrete throughout, indicating a difference visually and functionally. Visually, when encountered in 'real' space (rather than on the site plan), the concrete material offers a hard surface for pedestrian transportation that contrasts with the lawn of the quad. Functionally, the hard surface of the paths allow for effective maintenance, such as snow removal. Another finding that supports my assertion of paths as an indicator of morphology is visual evidence that the newest building located adjacent the quad, CCIS, contains the least amount of developed pathways and the largest open lawn space (see Figure 6.1). As new buildings are built within the quad, a need for points and corridors of connection is required. The open space to the south of CCIS demonstrates the capacity to one day contain interconnected pathways adjoined with the existing network.

Vegetation and landscaping are significant material and spatial artifacts that are not represented on the UofA site plan but which do exist in reality. This finding demonstrates the importance of field work and empirical research when working with visual documents to ensure accuracy and to have the capacity to cross reference findings. The lack of vegetation on the site plan is misleading as to just how much open space exists within the quad. Further, the lack of

vegetation on the plan can mislead the viewer as to potential spaces amongst the trees, especially at the South end of the quad. This exclusion of information raises the question of accuracy or reliability of the site plan as an archival document.

I conducted investigations into the composition of the electronic file of the site plan to ensure all settings of the PDF document were correct and that all of the "layers" (correlated properties, such as a building layer, or a paths layer, etc.) were turned on. It was confirmed by the researcher that all settings within the file were correct and that the information concerning vegetation was simply missing from the drawing. Although the data of vegetation may have been missing, it does not mean that the significance of vegetation in the real environment, is reduced. According to landscape architect, Richard Smardon's (1988) article titled, *Perception and Aesthetics of the Urban Environment: Review of the Role of Vegetation*, vegetation in urban areas has strong cultural and symbolic value, especially trees, as they can be perceived as the last representatives of nature in establishing "anchors of stability" in urban environments (p. 94). A conclusion that can be made based on the UofA site plan's representation, is that clarity of the spatial layout is achieved through the elimination of the vegetation data, which by its very nature continually grows and changes. Ultimately, although I was unable to find out why, it would be useful to understand the logic of why the vegetation data has been omitted from the UofA site plan.

As discussed earlier, an architectural site plan provides a unique perspective to the researcher from a new point that is unattainable while in the field. Relationships within the larger context of the UofA quad become more explicit and communication from the abstract to the real emerges (Kostoff 1995), such as the visual and functional difference in the concrete pathways

and the lawn of the quad. To ensure accurate deduction of information, it is important for the researcher to understand architectural conventions, in this case, industry symbols, what colour represents, which direction north is, etc. The lack of a legend and vegetation displayed on the provided UofA site plan had the potential to provide misinformation; however, due to my architectural education and professional experience, I was able to accurately comprehend the meanings of the symbols and that which was omitted from the plan, such as north and aspects of vegetation. This lack of information solidified the importance of pairing empirical field work with visual analysis of the site plan to ensure precise data collection.

Hybridity/Connectivity

Hybridity/connectivity can be articulated as improving the possibilities of a space's utilization by increasing the number of participants through positioning multiple attractors in the same location. Or, said another way, hybridity/connectivity's goal is to densify a site for people and their activities for multiple outcomes. A major goal of hybridity/connectivity, as previously discussed, is that it is a concept through which can be discussed the ways in which space, **"**connects people and activities at points of intensity and along thresholds" (Ellin, 2006, p. 18). "Along with intensifying activity and opportunities through hybridity, tremendous attention has been paid in recent years to facilitating movement within and between urban nodes" (Ellin, 2006, p. 42). As evident in the UofA site plan, there are multiple points of intensification, that is: nodes, where multiple paths converge to create a larger paved area increasing the potential for circulation and activity. These nodes are evident adjacent to CAB, just south of CAB near a major stairwell that leads away from the quad, and arguably, also adjacent to South Academic

Building (SAB). Although SAB contains multiple paths intersecting one another, based on the visual evidence from Figure 6.1, this does not support aspects of hybridity/connectivity due to the constricting stairwell, lack of seating or places to gather and intensify place. Ultimately, the design and layout of the adjacent architecture is deficient in establishing "multiple attractors" (Ellin, 2006, p. 42) to support social interactions, such as sitting or gathering, at the converging paths.

In the visual analysis of the UofA site plan, the researcher found that hybridity/ connectivity existed strongly between paths. As evident in the UofA site plan, there are multiple "negative spaces" of lawn created by the concrete paths that allow for diverse functions and programming both formally and informally by campus participants. During the visual analysis of the UofA site plan, the North side of the quad has the greatest area of open space that is not "carved off" by paths which supports a wide range of programming, such as large scale university events, student rallies, food sales, fundraisers or impromptu recreational activities between campus participants. This space at the North end of the quad establishes an exceptionally strong notion of hybridity/connectivity not only because of the geographic size but because of the interaction between the space and the apron of CCIS. This interaction between space and architecture and the potential at the intersection of these two, compared to the segregation of function and form which, according to Ellin (2006, p. 82), Modernism and Postmodernism planning has established throughout the 20th century, confirms an interpretation of hybridity/connectivity at this location. A future longitudinal study could consider the morphology of this north space over time with the addition of paths, if any are developed, to reassess the quality of hybridity/connectivity.

Paths have been a major topic of discussion throughout this analysis section as they establish a flow of people and thereby activate the space of the quad. According to urban planner, Kevin Lynch (1960), “Paths are the channels along which the observer customarily, occasionally, or potentially moves” (p. 99). As alluded to by Lynch, paths are used to transport people which Ellin confirms and expands to include paths in the broader aspect of networks establishing a “connected urbanism” (Ellin, 2006, p. 50). In the case of the UofA quad, people are the priority as there is access to motor vehicles within the quad does not exist. As Ellin states, “Combining the qualities of hybridity/connectivity, large-scale design interventions are focusing on the creation of cores with adjoining corridors” (p. 35). Although Ellin in the quote above is discussing large scale transportation networks, if one was to scale down the example, the argument could be that the UofA quad provides a strong example of hybridity/connectivity for people at the core where corridors adjoin both north to south and east to west.

There are two distinct features of the UofA site plan and how paths are represented that need to be discussed. First, as discussed earlier in this chapter, the paths are represented with a white colour without a legend, ambiguously communicating the materiality of the paths. In reality, the paths are composed of poured concrete. By not providing the viewer of the site plan with a representation of materiality through pattern, colour or legend, for example, the lawn is coloured green, the potential for confusion increases. A tangible example is, continuing from the discussion above, that the paths within the UofA quad do not establish access for motor vehicles; however, the site plan does not communicate this information. There is no indication from the site plan as to the modal use of the paths through the quad. In Integral Urbanism, Ellin does not consider the details of paths and their materiality specifically, but instead organizes paths into

network types which materiality is inherently touched upon. For example, Ellin (2006, p. 50) mentions roads: concrete and/or asphalt; paths: dirt, gravel, concrete, brick, etc.; trails: dirt, gravel, mulch, etc; escalators: alloy metals; stairs: wood, concrete, stone, etc.

Secondly, the exclusion of a scale (a reference tool that establishes relational comprehension based upon set values), on the UofA site plan furthers the obscurity of the paths, their size and their spatial relationship to the quad. As architect Lars Marcussen (2008) states, "Our elementary relationship to large-scale space is, then, based on the fact that spatial experience is automatically translated into a mental map, which first and foremost registers topological relations among places and, next, metric relationships" (p. 37). Marcussen borrows the term "mental map" from Kevin Lynch's (1960) theory of internal and cognitive processes when visualizing space. This can be taken further and applied to the understanding of how embodied experiences are being established within the viewer when the UofA site plan is analyzed, including the "metric relationships," or said another way, the distance of things to the campus participants. Therefore, when the UofA site plan is viewed without a scale, the comprehension of that space, the material artifacts within that space, and the relationship between these items, becomes unclear. In Integral Urbanism, Ellin does not discuss scale at the architectural convention level even though she discusses architectural plans represented in both plan and section view (2006, p. 20). This is something of a limitation of her work as it does not take into consideration the importance of accurate and measurable representation. I have sought to rectify this in my analysis by detailed site visits and many photographs to compare to the UofA site plan.

Ellin provides examples of hybridity/connectivity in the programming of spaces by drawing on sociologist William H. Whyte's documentary "The Social Life of Small Urban Spaces" to identify how diverse functions interact when juxtaposed in space (p. 20). Ellin (2006) outlines that:

> Intensifying program (also described as cross programming or programmatic integration) can be accomplished spatially (plan and section) as well as temporally over the course of a day, week, or year. It allows people and activities to commingle and converge in ways that the separation of functions does not (p. 20).

Ellin (2006) provides examples of this: "housing above the big-box store, time-share condominiums, the movie theater / restaurant, bookstore / coffeehouse (both mega versions and small boutique versions), the urban plaza or parking lot by day / outdoor movie theatre at night..." (ibid.). Unfortunately, the visual analysis of the UofA site plan, because of the exclusion of certain types of information, does not specify such information, such as the location of restaurants, cafes, etc. However, this further confirms the requirement to study the contextualizing architecture of the quad as it plays an important relational role of Ellin's Integral Urbanism because of programming that occurs within diverse spaces. Therefore, according to Luck et al.'s work (2006, p. 103) on methodological flexibility, as previously discussed in the methodology section of this work, I will include some empirical information based on my fieldwork that briefly steps outside of the "pure" visual analysis.

Although Ellin's examples are not geared specifically towards a university setting, we can see how aspects can be directly translated to the quad. For example, adjacent to the quad, CCIS and CAB both contain coffee shops and other food services, while the quad at times itself contains mobile food sales. Additionally, social events such as movies, alumni reunions and special ceremonies occasionally occur in the quad. These activities within the UofA quad are

nearly verbatim to the examples that Ellin (2006) cites with spaces supporting movie theatres and "intergenerational functions" (p. 20-21). It is interesting to note that the campus participants who temporally inhabit the UofA quad are exhibiting its strengths of hybridity/connectivity through such activities. By investigating through the lens of Integral Urbanism, we now have a designation, or name, can be applied to these functions and social activities.

Inherent to Ellin's theory of hybridity/connectivity, flexibility of space is crucial to not only improve the diversity of programmatic uses and the quantity of people who use such space but to how the concept is applied. This is in part because the places analyzed were not designed with reference to Ellin's theory of Integral Urbanism. Shifts in philosophies of space, such as Modernism seeking transparency of space with "the ideal of an open society" through a unified vision and Postmodernism's urban fortification (Ellin, 2006, p. 2; p. 82) both of which are visible within the UofA quad demonstrate another reason why the concept of hybridity/connectivity needs to be flexible. For example, Ellin (2006) considers on Postmodern urbanism's focus of "development along corridors" (p. 28) which establishes segregation of functions and people. To assist in the explanation of the inclinations of architects and planners who work in the Postmodern style, Ellin employs images that are accessible to non-designers (2006, 38). Her approach helps to connect a greater number of people to ideas in line with her theoretical notion of connecting and intensifying places. By applying Ellin's notion of hybridity/connectivity the researcher begins to comprehend the latent properties that exist within the space of the UofA quad and the adjacent architecture and how the diverse programming of the quad can lead to the intensification of place and achieve the *flow* of space.

Hybridity/connectivity is an important concept of Ellin's Integral Urbanism that helps us understand how place is intensified for people and their activities for multiple outcomes. The way in which this occurs is often site specific and culturally derived, for example, as in the case of the UofA quad, businesses that cater specifically to campus participants need to exist in academic buildings that traditionally have not featured such commercial functions, and the social intensification that comes with such foundations. Paths within the UofA quad play a major role of supporting the social intensification of place as they allow for the movement of people between nodes and establish a core along corridors. This notion is evident in the UofA quad with the perimeter pathways being more rectilinear and the core pathways being more serpentine, allowing for direct transportation along the outside and more indirect movements, with places to stop, within the core.

Porosity

During the visual analysis of the UofA site plan I concluded that there are four major aspects of Ellin's porosity classifications that directly relate to the UofA quad. They are: visual porosity, historic porosity, temporal porosity, and symbolic porosity.

Ellin defines visual porosity to include attributes of seeing through a space, both wholly or partially, while not being able to directly move through that space (2006, p. 63). However, to ensure clarity to the reader, I must reiterate that Ellin's notion of visual porosity is based on translucency which Ellin posits exists as a continuum (2006, p. 62). Within the UofA quad, visual porosity is most evident through the landscaping of the linear north-south pathway adjacent to the Three Halls. As one moves along this pathway, visual porosity is realized by the tall trees

which line the path providing a sense of protection from those within the centre of the quad and vice versa. As Ellin (2006) states, visual porosity is “most commonly accomplished through the use of glass” (ibid.), but as demonstrated by the UofA quad, natural objects such as trees con provide a similar function as well. Concerning glass, this form of visual porosity is achieved within the UofA quad by main floor fenestration of CCIS and CAB which allows the campus participant within the quad “to peer in” and those within CCIS and CAB “to gaze out” (ibid.). Although Ellin does not explicitly state proximity being an important attribute of visual porosity, I would argue that it is a determining factor in the “quality” of visual porosity. For example, the buildings which contain the largest surface area of glass, as previously discussed are CCIS and CAB, with only CAB having a formalized path that runs parallel to the building. This parallel path has a greater potential, due to its proximity to the building, of increasing visual porosity by allowing the campus participant to see into the building, be seen from within the building by others, and see their image reflected by the building. Proximity also plays a role in the degree of visual porosity because of the treatment of glass. By this, I specifically mean the tinting or shading of glass. As discussed in the next chapter on the visual analysis of the individual buildings, I found that CAB’s glass appeared black in the photograph. However, when experienced heuristically, in different lighting conditions, and at a closer proximity, the effect of black is reduced and visual porosity is increased. Whereas, CCIS, though containing a high proportion of reflective glass in its south facing facade, yet does not contain a parallel path that increases proximity for the characteristics of visual porosity to change to the same extent as CAB. Therefore, visual porosity is reduced at CCIS and increased at CAB which is not what I

expected upon initial observations due to the role played by the proximity of pathways within the UofA quad.

Ellin's definition of visual porosity could be improved upon by more definitively discussing an organizational structure that includes a range of building and spatial characteristics that enable visual and physical ingress as well as their opposites. For example, Ellin's visual porosity only discusses being able to see wholly or partially through a space but not being able to move through it. Ellin does not explain why degrees of visual porosity could not be extended to include *not* being able to see through a space yet being able to move through it. Another issue that limits her conceptualization of porosity that visual porosity is not binary in the sense of "good" or "bad." Rather, visual porosity should support the context of the intended outcome and be designed and measured through the continuum of translucency (Ellin, 2006, p. 62). For example, Ellin (2006, p. 65) provides the example of the Barcelona airport obscuring a parking structure by employing a recycled steel mesh screen to reduce the appearance of the uninteresting and repetitive structure. Ellin argues that it is through the use of the visually porous steel mesh screen that the parkade transitions from typological utilitarian architecture, where form dictates function, into a sculptural and more visually interesting structure. To further the achievement of hybridity, in this case specifically through the use of porosity, Ellin provides detail of how because of the parking structure's incorporated steel mesh screen, advertisements and / or entertainment can be projected onto the screen (ibid.) modifying the purpose and the uses of the parking garage.

Historic porosity is defined by Ellin (2006) as an action in the built environment that, "preserves remnants of the past while building new" (p. 72). Although historic porosity is not

easily recognizable at first glance of the UofA site plan because all buildings are represented with the same colour, in reality, it does exist in multiple places. The strongest example of historic porosity within the UofA quad is at the connection point of Athabasca Hall and Computing Science Centre (CSC). Similarly, Ellin (2006) provides an example of how Phoenix City Hall integrates an existing exterior wall of a historic building into its design and repurposes it as an interior wall lending a mixed materiality to a new building.

As mentioned above, historic porosity was not initially recognized at this location when I was conducting field work; however, once the UofA site plan was analyzed it became apparent that there was a relationship between Athabasca Hall and CSC, specifically, materially and spatially. Since an architectural site plan allows for an aerial perspective and reduces the data into a reduced scale, complex information becomes manageable and easier to understand. For example, due to the scale of Athabasca Hall, and consequently CSC, I was unable to comprehend the physical connection between the two buildings while I was conducting field work. Yet, from viewing the site plan I can state that CSC is not actually located adjacent the quad to the same extent as the other eight buildings that have been discussed (i.e. CAB, SAB, The Three Halls, etc.). It is the porous relationship between the two buildings and specifically, what CSC does *not* do that confirms its historic porosity.

The UofA site plan proved valuable as a research tool by offering the opportunity to change my perspective of the environment. It was not until I analyzed the site plan that I recognized that the design of CSC pays homage to its predecessor (Athabasca Hall). In part, this is achieved by CSC not being any wider nor taller than Athabasca Hall. Therefore, when looking towards Athabasca Hall the campus participant does not experience visually competing designs.

While the site plan was useful, the analysis of the site plan was most valuable in tandem with field work. Specifically, the researcher could not know from the analysis of the UofA site plan alone that CSC is not taller than Athabasca Hall, nor that the materiality of CSC is nearly identical to Athabasca Hall's all the way down to the window sill detailing (see Figure 6.2). These points further illustrate how the architecture of Computing Science Centre was designed not to visually compete with Athabasca Hall but to compliment it.

Figure 6.2. Sill and window casing detail of Computing Science Centre demonstrating the similarities and architectural influence of Athabasca Hall. Credit: Author (2014).

Historic porosity exists in several other locations within the UofA quad. Although, in less stark contrast to my previous example, the connection points between buildings such as CCIS and Gunning / Lemieux Chemistry, CAB, and SAB on the east side of the quad can also be classified as historic porosity. As Ellin (2006) explains, another aspect of historic porosity to include, "updating to accommodate changing needs and tastes" (p. 72) of buildings and spatial functions. At the UofA we see how the connected buildings on the east side of the quad, all constructed in different years, "preserve the historic character" (ibid.) of one another by improving the physical porosity between the buildings. Although Ellin's definition of historic porosity could be described as ambiguous or even contentious, (specifically, how is historic defined?) yet, at the very least, it does indicate a conscious decision within the UofA quad to retain an aspect of the historic built environment. While this historic character is retained, connectivity through historic porosity is also achieved. As discussed earlier in this chapter, Ellin has argued against Postmodernism's aim to segregate; however, she has herself segregated aspects of the theory without allowing them to coalesce or be combined. Therefore, in this research, and as an extension of Ellin's work, I claim that the connection points between CCIS and Gunning / Lemieux Chemistry, CAB, and SAB demonstrate historic porosity but they *also* demonstrate Ellin's notion of hybridity/connectivity through their fluidity.

Temporal porosity is defined by Ellin (2006) as space that is transformed for a period of time. That period can range from a day to a year. According to Ellin's definition, the UofA quad is a space that has the potential for temporal porosity to abound due to its scale. For example, spaces can be transformed into farmer's markets, during specific times of the year. Or, spaces can function differently depending on day or night, such as cafes that can be transformed into

performance spaces (Ellin, 2006, p. 71-72). Following Ellin's examples, the UofA quad could and often does support myriad activities of different sizes and at different times throughout the year. Since the quad is relatively flat with little topographical variance, it can contain a relatively large number of people who socio-culturally accept the space of the quad as a place to gather and hold events; therefore, temporal porosity has a strong potential to exist. However, although temporal porosity may have the potential to exist in the UofA quad, visual analysis of the UofA site plan as a methodology of investigation, does not lend itself well to this form of porosity analysis. In part, this is because of the fluidity or irregular nature of events. As previously discussed, an architecture site plan is a reduced form of data both in detail and scale, and therefore, like a photograph, only captures a moment in time. The analysis of the UofA site plan supports an interpretation of the likely planning of the locations for events that indicate temporal porosity is occurring (such as farmers markets, mobile food sales, performance events), but analysis of the plan is not the analysis of these events themselves. A tangible example of temporal porosity is the University of Alberta Alumni Association's centenary celebration titled "Green & Glow Winterfest" (http://alumni.ualberta.ca/events/centennial/winterfest) where the entire quad is being transformed for three days and two nights into a programmed celebration space.

Based upon the findings from my analysis of the UofA site plan, symbolic porosity is the final porosity component that exists within the quad. Ellin argues that symbolic porosity occurs when, "a permeable membrane is perceived although there may be no separation at all or, conversely, a wall" (p. 79). Context plays a major role in Ellin's description of symbolic porosity. For example, the front lawn of a suburban property contains perceived boundaries which one

does not cross (Ellin, 2006). In Ellin's example, the physicality of the boundary does not actually exist, rather the space becomes culturally or cognitively less permeable. In the context of the UofA quad, as analyzed through the site plan, although a campus participant may not be "trespassing," as in Ellin's example of private property, there are symbolic walls within the UofA quad. For example, as discussed above, the Three Halls, although adjacent to the quad, each contain their own "front lawn." This furthers the notion of a residential perception of space where campus participants should not enter without embodying a specific requirement of that place. In other words, if a campus participant does not have a clear reason to enter a designated space, such as an assigned classroom, a designated office, etc., symbolic porosity can be argued to exist. Another supporting finding, also as previously discussed, is the regularity of the pathways that visually establish distinct thresholds. For example, the west area of the quad visually "belongs" to the Three Halls and therefore the campus participant is required to have association with them to enter their space, thereby establishing symbolic porosity. In contrast, to the east, the threshold of the various, disparate buildings is more symbolically porous and perceived as an egalitarian space available to all campus participants. I argue that the linear geometry of the path adjacent to the Three Halls is in stark contrast to the central portion of the UofA quad with its meandering paths and large voids of open lawn. This contrast visually communicates different messages: one of association of campus participants to the Three Halls and therefore exclusion otherwise, and the other openness to all campus participants and therefore overall inclusion.

A weakness of Ellin's (2006) theory of symbolic porosity, that is the degree to which a membrane's permeability is perceived (p. 79), is the lack of a resolution. A perception of

ownership plays a central role in symbolic porosity. It seems symbolic porosity could be applied to everything in the UofA quad, whether it is the ownership of that a campus participant takes not to enter a space because of a perceived boundary, or the ownership the university has regarding non-posted times in which a space like the quad is closed. Further, the degree of perception could be a useful addition to Ellin's theory of symbolic porosity adding a layer of criticality and deeper application.

Through the visual analysis of the UofA site plan, it can be argued that symbolic porosity is in part countered by the conjoining of multiple buildings. Similar to historic porosity, the notion of removing thresholds allows for a free-flow of campus participants within diverse spaces. This is especially visible on the east side of the UofA quad where a campus participant can move internally from CCIS to SAB. One reason Ellin may have so many types of porosities that are perceivably similar in her theory of Integral Urbanism is to ensure coverage and perhaps even overlap. My use of both visual analysis and field work helped to counter this perceived weakness of Ellin's work. By having different perspectives, I was able to better understand how to apply the components of Integral Urbanism to my research on the UofA quad in a more accurate manner resulting in richer findings.

Summary

As discussed in this chapter, which explored both the site plan and aspects of the "real" environment, four of Ellin's defined porosity classifications were deemed to exist within the UofA quad: visual porosity, historic porosity, temporal porosity, and symbolic porosity. Visual porosity is the most prominent of the four within the UofA quad. According to Ellin (2006) glass

is the most prominent material to achieve visual porosity. In general, I found Ellin's assertion to be consistent in the UofA quad; however, throughout the research my understanding of the role of proximity become increasingly important as visual porosity shifts on the continuum depending on the location of the campus participant in relation to the buildings. Historic porosity exists within the UofA quad most notably at the connection of Athabasca Hall and Computing Science Centre. However, as discussed here, this discovery was partially made through the use of the plan view as my experience during field research did not enable me to uncover such information, due to the positioning and size of Athabasca Hall.

Chapter 7: Visual Analysis of the Adjacent Buildings

In this chapter, I will discuss the nine buildings which are geographically adjacent to the UofA quad which were subjected to visual analysis. In each section that follows, divided by building, I will discuss the relevant material and spatial components of each building, as well as the existence or non-existence of hybridity/connectivity, and finally, the degrees of porosities as categorized by Ellin (as previously discussed).

Since this thesis is primarily a written text (supplemented by photographs and images), I will attempt to engage the reader in a spatial and material "tour" of the UofA quad. To aid in this "tour" I have included a map based on the supplied UofA site plan (see Figure 7.1) that correlates to the photograph of the individual building and the view from the individual building (see Appendix A).

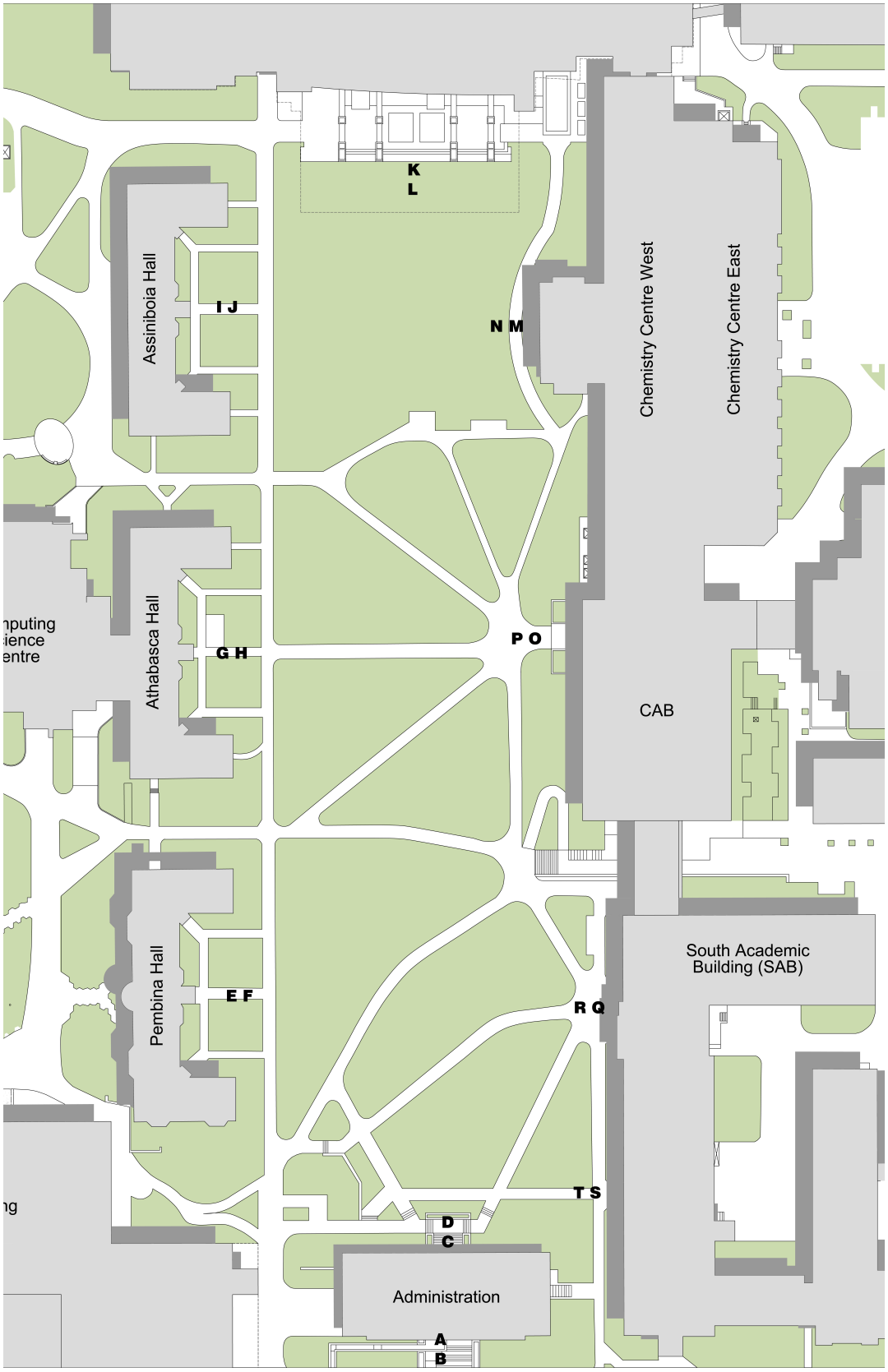

Figure 7.1. UofA site plan with correlating letters to the direction of the photographs in Appendix A. Credit: Office of the University Architect (2013). Edited by author.

The tour will begin with the Administration building because it is a symbolic gateway into the quad. The tour will then move clockwise through the space from west to north to east to south. Although the Administration Building (AB) is not a gateway in the traditional sense of crossing a threshold, this building actually encloses the South end of the quad. Its placement diverts the campus participants to take a meandering path to the west before entering the main space of quad, acting as a gatekeeper of the UofA quad.

1) Administration Building (1957)

Figure 7.2. Administration Building (south). Credit: author (2014).

The Administration Building (AB) is a three storey building that encloses the south end of the UofA quad. It is reasonable, based on its location, to state that AB is the symbolic "entrance"

to the quad with the major axis of 114 street bisecting the edifice. This is an element of the original Beaux-Arts planning as discussed previously in the chapter on the History of the Quad. Another factor that contributes to the symbolic nature of AB are the three flags located on top of the building, equidistant from one another: Canada's national flag, Alberta's provincial flag, and the University of Alberta's institutional flag.

Considering the AB's materiality is composed mostly of red brick, with elements of concrete and wooden doors and windows, the building demonstrates a restrained and economical architecture that symbolically supports its administrative mandate. Its symmetrical proportions and fenestration indicate a rationality and order similar to the Beaux-Arts site planning in which AB is set. The patterning of the windows and the material of their construction visually emphasizes a horizontality, while the concrete covered columns, through the building's elevation, visually emphasize a contrasting verticality. It is through this materiality and symbolic form that the campus participant is informed as to where the "centre" of the building is, i.e. by projecting midsection that juts forward towards the south. It should be noted that although the building is symmetrical, the north and south facade differ specifically in the midsection of the building with the south facade containing five rows of windows while the north only contains three. This is not an insignificant detail as the architecture of the Administration Building symbolizes differences of economic investment. Particularly, this signifies the "main" entrance and the secondary entrance of the building.

The south facing portion of the building is signified as more "important" than the north due to the increase of expenditure on more windows and a wider, more resplendent facade. In contrast, the midsection of the north facade faces the quad and is visually obscured by mature

foliage. Although the north facade embodies the same material palette as the south, it is configured in a narrow and reserved composition. One may consider that, because the north facade faces the quad and would be regularly viewed, thereby heightening the campus participants' experience of the quad, it would receive equal if not greater architectural treatment through materiality and form. However, just the opposite exists. Given my knowledge of this part of the campus, I speculate that there are two reasons for the difference between the north and south facades.

First, urban architecture often deals exclusively with the frontality of buildings, given that the front is often exposed to the greatest scrutiny due to the proximity of buildings on either side. In contrast, campus architecture most often has a back, a front, and sometimes multiple sides because buildings often have more space around them than is the case in a downtown setting for example. "Front" and "back" are unequal in social value in the built environment according to Tuan (1974, p. 27). Therefore, if we follow Tuan's reasoning we see how the Administration Building establishes a distinct difference in value between the front and back of the building. The materials of AB, in conjunction with the spatial variance of the architecture, establishes a visual hierarchy and communicates aspects of intended use, such as the front being the "main" entry. Any other building use beyond accessibility to its users is tertiary and therefore does not require the same design attention.

Hybridity/connectivity, that is extent of the connection of people and activities in places of intensification, can be found at the site of the South facade of the building. The built-in table and benches located adjacent to the main stairs establish a hybridity of social space, which accompanies the functional aspects of the movement of people. Such a function in this location is

congruent with Ellin's (2006, 18) notion of intensifying thresholds. Further, the benches near the main doors of AB overlook a large informal paved courtyard. The courtyard indicates the threshold between AB and those non-Administration-building functions, such as the efficient movement of people.

Spatially, the courtyard of AB allows approximately sixty people to gather in front of it. These gatherings include student orientation activities as AB is an important stop for new students because it is where tuition is physically paid. Further, the activities of UofA outreach programs, including information booths and tables, industry vendors and emergency-services demonstrations, tend to congregate in this area.

Second, a reason for the differences in north and south facades is associated with differences in the areas' capacities to intensify place (Ellin 2006, 20). Place intensification is one of the major elements of Ellin's (2006, p. 6) notion of how "*flow" is* achieved (original emphasis). On the north side of the Administration Building, the side which faces the quad, the capacity to intensify place, let alone capture aspects of hybridity/connectivity, does not exist. In part, this is due to the three tiers of external concrete stairs that limits cross-programming (Ellin, 2006, p. 20), that is, multiple uses in one designed space, while also physically and visually declaring that the stairs are for able-bodied people.

During my field research, I specifically chose to visually photograph the buildings from a "straight on" viewpoint. This methodological decision was made to reduce the dramatic effects of sharp angles and the subjectivity (Stanczak 2007; Goldstein 2007) of contrasts between buildings. My aim was to undertake a reasoned analysis and present to the viewer as much visual

information as possible in an equitable manner. Further, the images were captured to represent how the building was designed, alluding to an architectural elevation.

The south elevation of the Administration Building is the only photograph that was captured from an oblique angle. At the time of the site visit and the taking of the photograph, I recognized that, if captured from a right angle, the visual information pertaining to the architecture would be "negligible" because of the dense, mature foliage. However, this is not the entire account. The dense and mature plantings are a form of visual information themselves. This ability to revisit the photograph and visual information is a definite strength of visual methodology (Emmison and Smith 2000; Stanzcek 2007; Goldstein 2007) because it enables the considered revisiting of an experience and the reanalysis of the collected data.

Figure 7.3. Administration Building (north). Credit: author (2014).

According to Ellin (2006, p. 63), the north elevation of the Administration Building would be classified as low porosity because of the inability to see through the space, whereas, the south elevation of the building would have a much higher visual porosity to the campus participant because of the limited visual interference at this location. A negative aspect of the north facade's low porosity is the obscuring of important signage, specifically the wheelchair accessibility sign as it is screened by foliage and only legible once the campus participant is within arms length from the stairs. This situation not only neglects a user group but demonstrates the need for high visual porosity when it comes to way-finding signage.

AB is in many ways a gatekeeper, both welcoming campus participants obstructing their direct path to the quad. Its geographical location frames the south end of the quad for those on the inside but does not permit information to be disclosed for those on the outside. AB's architecture and materiality is one of constraint, as demonstrated through rational and symmetrical design, that is neither ostentatious nor overtly modest. The south facade of AB serves a more deliberate function of hybridity/connectivity through the design of the benches integrated into the front steps. The north facade, though being on display for campus participants within the UofA quad is more stark when compared to the south facade with steps, signage, and foliage that makes it difficult to accommodate all campus participants or support Ellin's hybridity/connectivity.

2) Pembina Hall (1914)

Figure 7.3. Pembina Hall. Credit: author (2014).

Moving from the Administration building north, the campus participant enters the Alumni Circle (see Figure 7.4), a brick-paved circle enclosed by radial brick and concrete benches, a central bronzed plaque embedded in the brickwork and two prominent columns demonstrating an edge of the quad. The Alumni Circle, part of the Alumni Walk, opened in 2004 (http://alumni.ualberta.ca/about-us/history) to celebrate the University of Alberta's Alumni Association. To the left of the Alumni Circle is the Student Union Building, recessed from the quad. As the campus participants exits the Alumni Circle and moves north, Pembina Hall emerges from the trees on the West.

Figure 7.4. UofA Alumni Circle at the edge of the quad being used by campus participants. Credit: Author.

Pembina Hall was built in 1914, as the third of the Three Halls designed by Montreal architects Nobbs and Hyde and overseen by University Architect Cecil Scott Burgess (http://www.thecanadianencyclopedia.ca/en/article/cecil-scott-burgess/). The Three Halls refer to the side-by-side geography and nearly identical form of the three historical residence halls which face east and look onto the quad: Athabasca Hall (1911), Assiniboia Hall (1912) and Pembina Hall (1914).

Pembina Hall was originally built to be a female residence; however, due to the resources lent to Canada's military by the University of Alberta, Pembina Hall housed males known as "khaki graduates" because of the army fatigues they donned (www.ualberta.ca/~phsa/

history.html). In 1918, Pembina Hall served as a makeshift hospital in response to the outbreak of a flu pandemic that swept through Edmonton (http://www.su.ualberta.ca/services/infolink/connections/entry/252/spooky-places-on-campus/). Pembina Hall did not fulfill its original intention of an all female dorm until five years after its construction, in 1919. Similar to Assiniboia Hall and Athabasca Hall, Pembina Hall underwent a major renovation due to fire code issues of the 1970s (www.ualberta.ca/~phsa/history.html) but because Pembina's frame was constructed of concrete, it did not require complete reconstruction like that of the other two halls. Pembina Hall functioned as a residence until 2009 and currently houses Native Studies, the Canadian Institute of Ukrainian Studies, East Asian Studies, and the Circumpolar Institute.

Pembina Hall is a symmetrical three storey building with a basement that is adjacent the quad facing due east. The Hall embodies a residential conception, contains a predominant path that leads directly from the quad to the front door of the Hall; front lawn; and warm red brick material. It is interesting from a design perspective that Pembina has a front lawn, other than the quad, that is visually allocated to the building as if it is part of the building's "property." The central portion of Pembina containing the main entrance and bay windows on both sides of the main stair is architecturally pronounced, advancing towards the quad approximately one metre. This jog towards the quad demonstrates the hierarchy of the building, differentiation between front, entrance, and wings and indicating to the campus participant the function of enter / exit.

Architecturally, Pembina Hall is similar to the other two halls, yet, does contain visual differences in the architectonics. For example, similar to Athabasca Hall and Assiniboia Hall, the parapet of Pembina Hall contains machicolations, however, these are less pronounced than in the other halls by the fact that there are fewer of them and they are only found in the centre portion

of the hall. Although this architectural detail is less pronounced within Pembina than the other two halls, the window detailing, coat of arms relief sculpture in the parapet, UofA motto inscribed above the door, and the name of the hall inscribed also above the door, indicates a visual and material uniqueness of Pembina Hall among its counterparts. One reason this may have occurred, is that since this was the last hall built, there was an understanding, based on the experience of building the prior two halls, of a cultural need for a material expression to be embedded into the architecture that clearly articulated Pembina Hall's association with the University of Alberta.

The concept of hybridity/connectivity has limited capacity when applied to the main entrance of Pembina, due to the building's main staircase; however, the material artefacts that exist adjacent the main entrance, such as benches, bike racks and lawn all afford campus participants opportunities for flow. As evidenced by the photograph, Pembina Hall does not contain any forms of accessibility for non-able bodies persons at the main entrance.

Pembina Hall does not contain much visual porosity due to little foliage in front of the building; the focus of a viewer is on the building with no visual obstructions. This focus is coherent due to the eastern facade augmented by architectural detailing throughout the central portion of the hall. As Ellin (2006) argues in support of her theory of Integral Urbanism, evolutionary psychology attributes a stronger experience to place when our perception of that place is segmented. To Ellin, this means that when a place is experienced in parts rather than all at once, a person's positive experience of that place increases. Based on my analysis, I argue that this does not completely apply to Pembina Hall because of it's scale, the intricate architectural detailing that is visually coherent, and the "near-new" building condition. Further, to critique

Ellin's theory, is it actually possible to experience a place or building in its entirety? For example, although a campus participant may stand in the quad and look across it, I would argue that they are not experiencing the entire quad and therefore, inherently, their experience is segmented as they move through the space. When a campus participant views a building are they viewing all four sides and the roof and the interior spaces? This is not possible. Therefore, while Ellin's concepts of hybridity/connectivity and porosity are useful for analyzing the relationship between buildings and space, as I do here, the concepts could be effectively and further refined when applied to the way that a campus participant may actually move through the space of the quad.

In the case of Pembina Hall, although a strong sense of place may already exist, it could become even stronger if aspects of visual porosity were enabled. For example, one aspect of visual porosity that will improve naturally over time, if facility operators allow it, is the creeping ivy that is beginning to climb the eastern wall of the North wing. This ivy will visually obscure the red brick adding another material and range of green hues to the existing palate and increasing the visual porosity of Pembina Hall.

In summary, Pembina Hall has a storied history that performed multiple and unique functions besides its academic role at the beginning of its existence. Pembina Hall was constructed as the only dedicated female dormitory on the UofA campus. The form of Pembina is an uncomplicated one, with a large central portion and two flanking wings on either side. The central portion which contains main exterior stair case visually communicates the intended use of entrance / exit while limiting the opportunities for hybridity/connectivity. Visual porosity is negligible; however, the strategy to direct the focus seems purposeful to draw the attention of campus participants to the architectural detailing which exist within the facade of Pembina Hall.

As observed, the creeping ivy is attached to the exterior walls and it will be interesting in the future to see if the vines are permitted to flourish, adding another element to the visual porosity.

3) Athabasca Hall (1911)

Figure 7.5. Athabasca Hall. Credit: author (2014).

Moving north along the path with the quad to the right, the next building encountered is Athabasca Hall to the left. Athabasca Hall was the first completed building on the UofA campus and its central position adjacent to the quad is significant. Drawn by Provincial Architect A.M. Jeffers and inspired by ideas from Percy Nobbs, then, professor of Architecture at McGill University (http://www.ualberta.ca/ALUMNI/history/buildings/77fallath.htm), Athabasca Hall is

a symmetrical three storey building with a basement that is adjacent to the quad facing due east. Differing from Pembina Hall in function, Athabasca Hall was originally built to not only be a residential hall with occupation by men and women, it also included faculty members and domestic staff. Further, when it open in 1911 it also housed all of the university faculties, seven classrooms, five laboratories, and a library (http://www.gsa.ualberta.ca/en/01AboutTheGSA/Celebrating100Years.aspx).

Similar to Pembina Hall in form, Athabasca Hall contains a predominant path that leads directly from the quad to the front door of the Hall; a front lawn and the primary materials of warm red brick. It is interesting from a design perspective that Athabasca Hall has a front lawn, other than the quad, that is visually allocated to the building as if it is part of the building's "property." The location of Athabasca adjacent the centre of the quad establishes it as an important building due to geographic associations (Dober, 2000) given that it aligns with the traditional, Beaux-Arts planning principles of symmetry and axiality. The central portion of Athabasca, containing the main entrance and bay windows, is architecturally pronounced, advancing towards the quad. This jog towards the quad demonstrates the hierarchy of the building, with a clear differentiation between front, entrance, and side wings.

Hybridity/connectivity has limited capacity at the main entrance of Athabasca; however, the material artefacts that exist adjacent to the main entrance, such as benches, bike racks and lawn afford campus participants opportunities for flow. As evidenced by the photograph, the main section of Athabasca Hall does not contain any forms of accessibility for non-able bodies persons at the main entrance.

As with Pembina Hall, visual porosity is non-existent at Athabasca due to little foliage; again, the viewer's focus is on the building. This focus is coherent due to the eastern facade being augmented by architectural detailing throughout the central portion of the hall. Symbolic porosity exists through the perceived territory of the building's front lawn, as discussed above. According to Ellin (2006), "Even when there are no walls or fences...we perceive a boundary" (p. 79) and therefore do not enter such a space due to the assumed connection of a defined space to another's ownership. This aspect of symbolic porosity furthers the argument for Assiniboia's residential atmosphere, as Ellin uses the example of symbolic porosity being most prominent with single-family dwellings and their lawns and the avoidance of encroachment on such space.

During my field work, I noticed that Athabasca Hall was in extraordinarily good condition. Upon close investigation of the photograph, visible wear was negligible which seemed astonishing as the building had been in use since the early twentieth century. This finding prompted further investigation which uncovered that in 1976, Athabasca Hall underwent a complete renovation led by Bittorf-Holland-Christianson Architects. This renovation included replacing wooden structural components with steel structural components and concrete floors (http://www.edmontonsarchitecturalheritage.ca/structures/athabasca-assiniboia-and-pembina-halls/). This renovation instated functional change away from that of a student residence and into office space (http://www.ualberta.ca/ALUMNI/history/buildings/77fallath.htm). Reopened in the autumn of 1977, Athabasca Hall received a Heritage Canada Award for the renovation which preserved the building's historic integrity (http://www.registrar.ualberta.ca/calendar/General-Information/History-Traditions/241.html). Currently, Athabasca Hall houses the Computing Science Centre and the Canadian Institute for Ukrainian Studies.

In summary, Athabasca Hall was the first building to be completed on the UofA campus and initially housed all the university functions. The central location of Athabasca Hall opposite the quad is significant and is a product of Beaux-Arts design ideology. The form of Athabasca Hall is an uncomplicated one, with a large central portion and two flanking wings on either side. The central portion which contains the main exterior stair case visually communicates the intended use of entrance / exit while limiting the opportunities for hybridity/connectivity. Visual porosity is negligible; however, the strategy to direct the viewer's focus seems purposeful, to draw the attention of campus participants to the architectural detailing that exists on the facade of the Hall. My field work prompted further investigation into the history of Athabasca Hall which uncovered that Athabasca Hall's exceptional building condition is in large part due to the full renovation completed in 1977.

4) **Assiniboia Hall (1912)**

Figure 7.5. Athabasca Hall. Credit: author (2014).

After viewing Athabasca Hall, one continues to move north, parallel to the quad, to arrive at Assiniboia Hall on the left, tucked into the corner opposite the quad. Built in 1912 and designed by Allen Jeffers (http://www.edmontonsarchitecturalheritage.ca/structures/athabasca-assiniboia-and-pembina-halls/), Assiniboia Hall was originally constructed as a residence for males but temporarily housed the department of National Defense during WWII (http://www.ualberta.ca/~phsa/history.html). In 1964, Assiniboia Hall underwent electrical upgrades and minor renovation to be converted to offices and classrooms with the capacity for its residents

shifting to the recently opened Lister Hall; however, even after the upgrades the hall was closed due to safety concerns (www.ualberta.ca/~phsa/history.html).

Assiniboia Hall is a symmetrical three storey building with a basement that is adjacent to the quad facing due east. The architecture of Assiniboia Hall embodies a residential conception. The predominant path leads directly from the quad to the front door of the Hall, while passing through the front lawn, similar to a single family dwelling. Assiniboia Hall is built from warm-coloured red brick. The fenestration is equally spaced and the size of the window openings are consistent throughout.

As with Athabasca Hall, the exterior of Assiniboia appeared to be extraordinarily clean and in exceptionally fine condition. There was a major renovation to Assiniboia Hall in the early 1970s which eventually closed the Hall to its primary functions (ibid.). Assiniboia Hall was closed and its interior along with its brick exterior were completely rebuilt (http://www.gsa.ualberta.ca/en/01AboutTheGSA/~/media/gsa/AboutTheGSA/Celebrating100Years/AHbrochureNew.pdf). Pragmatic design is evident throughout Assiniboia's elevation, as indicated by its lack of architectural detailing and the simple and consistent material palette of materials. The small amount of architectural detail that does exist, is located in the parapet which contains machicolations (in medieval architecture these openings were used for strategic defense tactics) establishing a unique "skyline" when viewed from the quad by the campus participant and possibly symbolically demonstrating an image of castle-like security and safety.

Opportunities for hybridity/connectivity are most conspicuous in Assiniboia's front lawn. However, the capacity is reduced by the wide concrete path that intersects this soft space (Trancik, 1986) of Assiniboia's lawn leading to the main entrance. It is interesting from a design

perspective that, as with the other Halls, Assiniboia also has a front lawn, other than the quad, that is visually allocated to the building as if it is part of the building's "property." This may speak to the scale of the UofA quad, or the importance at one point in history when each university residence hall had a stronger territoriality and a piece of land separate from the university "commons." This lawn would have been seen as essential to the identity of the hall.

Two trees are located near the centre of this divided front lawn which appear to interfere with flow and limit the scale of activities for which the space can be used by campus participants. According to Trancik (1986, p. 91-92) aspects of landscape design have often idealized nature to create a pictorially impressive composition that visually contrasts with the architecture instead of improving the functionality of space. The concept of hybridity/connectivity is further minimized and so reduces opportunities for people to gather and perform various social activities, since the front entrance of Assiniboia is served by a single flight of concrete stairs with a metal handrail dividing "in" and "out," "up" and "down."

Reflectively, as an able-bodied researcher in the field, the notion of accessibility was not initially on my list of items to consider, since my research question was to investigate the materiality and spatiality of the quad and its immediate surroundings; however, after the second iteration of the visual analysis of the Assiniboia Hall photograph, I realized the lack of accessibility measures available. As evidenced by the photograph, the main section of Assiniboia does not contain any forms of accessibility for non-able bodied people at the main entrance. As previously discussed above, Assiniboia Hall underwent renovations in the 1960s and was closed in the early 1970s. After which the hall received a complete rebuild of the hall in including a structural steel frame in 1976 (http://www.edmontonsarchitecturalheritage.ca/structures/

athabasca-assiniboia-and-pembina-halls/). Currently, Assiniboia Hall houses the Office of the Senate, the Office of the Chancellor, the Department of Linguistic Studies, the Women's Studies Program, the Department of Philosophy, and the Centre for Writers.

As discussed above, porosity exists in multiple iterations at Assiniboia Hall. Similar to Pembina Hall and Athabasca Hall, symbolic porosity exists as in the perceived territory located at the front lawn. According to Ellin, "Even when there are no walls or fences...we perceive a boundary" (p. 79) and therefore do not enter such a space due to this assumed connection of space to another's ownership. Ellin uses the example of symbolic porosity being most prominent with single-family dwellings and their lawns and the lack of encroachment on such space. This aspect of symbolic porosity furthers the argument for Assiniboia's residential atmosphere, as the front lawn appears to be owned by Assiniboia inviting only those that have an affiliation with the hall to engage with the front lawn. Opportunities for visual porosity are increased by means of maturing foliage with a large tree canopy extending over the main stair case and front door. The naturalization of this space through planting clearly establishes a visual porosity. This porosity changes seasonally through the changes of nature's properties and serves as a contrast to the pragmatic space of Assiniboia's front entrance. The trees perform both a function of protection from the elements and a visual screening of a campus participants view of part of the hall.

In summary, Assiniboia, has a nearly identical form to the previously discussed halls. The last to be built of the Three Halls, Assiniboia, like Pembina and Athabasca, housed a military function for a short period of time. Unlike Pembina and Athabasca, Assiniboia contains less architectural detailing in its facade. Hybridity/connectivity is minimized by the design of the stairs located at the main entrance and further minimized within the front lawn by the location of

the trees that break up the space. Yet, the level of porosity at Assiniboia is greater than the other two halls. Specifically, the visual porosity seasonally adjusts with the location of the tree that covers the main entrance. The symbolic porosity is stronger both due to location of the building and the perception of the "ownership" of the front lawn to the building itself.

4) Centennial Centre for Interdisciplinary Sciences (2011)

Figure 7.6. Centennial Centre for Interdisciplinary Sciences. Credit: author (2014).

When viewed from the south, the Centennial Centre for Interdisciplinary Sciences (CCIS) is located prominently at the head of the quad. The striking glass facade of CCIS is contrasted by the opacity of the neighbouring red brick buildings. CCIS is the latest addition to the UofA quad,

enclosing the north end of the space. Built in 2011, CCIS was designed by ONPA Architects of Edmonton, Alberta.

Evident through the architectural form and materials, CCIS embodies contemporary architectural philosophies, such as environmental design considerations, and it significantly improves the connection between the quad and the building when compared to some other buildings. The five-storey glass and brick-accented building has a large front concrete patio approximately 30 metres wide with southern solar exposure that enhances the outdoor experience of campus participants. The concrete patio is nearly the width of the entire building with six benches facing south into the quad. Intensification of place is highly possible at this locale, with the large patio supporting aspects of Ellin's (2006) "high porosity" where "a variety of uses blend together indiscriminately" (p. 62). Or, said another way, the concrete patio is so large, that multiple social activities could take place simultaneously without the impression of interfering with other campus participants. However, when campus participants are few, the patio could be perceived as too large, offering little protection from the elements. Visual porosity, similar to the Three Halls, is nearly non existent at CCIS with the expansive exterior space of the patio that is fully exposed to the view of other campus participants. However, as the landscaping and trees located at the front of CCIS mature, aspects of visual porosity will increase, at least in a minor capacity.

There are three concrete stair risers that lead from the lawn of the quad up to the patio and that establish flow between the two; however, the patio does not contain accessibility infrastructure from the lawn and so establishes a level of exclusion for people who are non-able-bodied. This inaccessibility between the lawn of the quad and the main elevation of the patio

reduces the possibility for hybridity because it reduces connectivity between the two spaces. If a ramp existed between the lawn of the quad and the concrete patio, the majority of people could be accommodated. Although CCIS's patio is better connected to the quad than the majority of the other buildings, it misses fulfilling a complete accomplishment of hybridity/connectivity because it does not take into full consideration the level of physical ability of all persons.

Glass plays a leading material role in the facade of CCIS's architecture, thereby establishing Ellin's (2006) notion of glass as a performance screen (p. 63). The glass functions not only as a performance screen for the campus participant's experience but also for nature, as the sky and clouds are clearly mirrored in the glass. The material of the accentuating red brick, with its minimal detailing is reminiscent of the "historic" architecture of the Three Halls, yet it plays a supporting role to the dominant glass in a porous / impermeable visual dichotomy. Similar to the Three Halls, the interaction between patio and quad acts as a characteristic "front lawn," though with a less-strong sense of territoriality than that accorded to the Three Halls. There is a perception that CCIS "owns" part of the lawn because of the manner in which the patio integrates with the lawn of the quad. Here, Ellin's (2006) notion of symbolic porosity is minimized, I believe, in part due to the few stairs leading from the quad's lawn but, most importantly, because the scale of the patio allows for multiple campus participants to interpret the space for their own requirements without excluding others' use of the space.

In summary, CCIS acts as the symbolic head of the UofA quad when viewed from within the quad. Its prominent glass facade demonstrates modern materials, construction and architectural form, thereby updating the UofA quad. CCIS' large southern facing concrete patio is well integrated with the lawn of the quad and is a unique feature exclusive to CCIS. The concrete

patio plays a significant role in providing opportunities for the intensification of place as campus participants interact with the architecture and exterior space of CCIS in a manner that is unmatched elsewhere within the UofA quad. Ellin's concept of spatial hybridity/connectivity has considerable potential here; however, due to the three stair risers, the patio's full capacity is negated. Visual porosity is minimal due to the openness of the patio, however, symbolic porosity is discouraged through the integration and scale of the patio.

5) Gunning / Lemieux Chemistry Centre (1960)

Figure 7.7. Gunning / Lemieux Chemistry Centre. Credit: author (2014).

Moving away from CCIS to the east, the Gunning / Lemieux Chemistry Centre is the next building encountered. Originally called the Chemistry Building, and built in 1960 by the Department of Alberta Public Works (http://capitalmodernedmonton.com/essay-david-murray-marianne-fedori/), the Gunning / Lemieux Chemistry Centre revised it's name in 2001 to honour distinguished chemists, Harry Gunning and Raymond Urgel Lemieux (http://www.ualbertacentennial.ca/organization/presidents/gunning.html).

The Gunning / Lemieux Chemistry Centre is a five storey building with a brick enclosed mechanical room on the roof and an appended metal clad out-building that advances into the quad. The physically and visually "hard" and nearly impenetrable facade of the Gunning / Lemieux Chemistry Centre, which faces due west, is composed of red brick with small punctured window openings which change neither in size nor in their regularity of location within the wall. Horizontal concrete strips visually divide the exterior into a grid form which emphasizes the flatness of the facade, a flatness this is heightened further by the entire wall being on the same vertical plane from the main floor to the top floor. Through examination of the photograph and logical deduction of the function of the building based on its name, the regularity of the exterior could be in part due to the required internal chemistry laboratories that prioritize functionality. When doing a visual analysis of the photograph, there is no visual information to the campus participant as to where to enter / exit Gunning / Lemieux Chemistry Centre. The lack of a defined threshold further confirms the lack of connection between the Gunning / Lemieux Chemistry Centre and the quad.

The Gunning / Lemieux Chemistry Centre and its appended out-building have an imposing relationship adjacent to the quad with no form of hybridity or connectivity to the

building's surroundings. As evidenced by the photograph, Gunning / Lemieux Chemistry Centre does not contain any forms of accessibility for non-abled persons at the main entrance.

Visual porosity, the act of seeing through a space but not being free to move through a space (Ellin, 2006, p. 63) is very low in the Gunning / Lemieux Chemistry Centre, and in this context it is comparable to Ellin's examples of a gated community or walled-off area. Additionally, symbolic porosity, the notion that an invisible boundary occurs at the edge of a space (Ellin, 2006, p. 73), strongly exists in relation to this building since the campus participant has no visual cue of an invitation from the architecture to enter, let alone where to enter, due to the facade acting as a visual bulwark. Upon further investigation while conducting fieldwork, within the field, the south side of the out-building contains a door into the addition of the Gunning / Lemieux Chemistry Centre and allows for building accessibility. This observation and critical analysis of my research and methodology of visual analysis of photographs emphasizes the importance of also conducting research in the field.

The architecture and relationship between Gunning / Lemieux Chemistry Centre and the quad is precisely the type of urbanism that Ellin is arguing against. Compared to CCIS, which visually and physically connects itself to the lawn of the quad, or to The Three Halls and their residential qualities and strong visual cues to the campus participant of architectural hierarchy and function, the Gunning / Lemieux Chemistry Centre is a building that does not connect effectively, or show an interesting facade, to the quad. Accordingly, the Gunning / Lemieux Chemistry Centre does not support any form of hybridity as the concrete path moves people adjacent to, but away from, the building, reducing any potential flow by campus participants, both in relation to the function of the building and its architectural form.

In summary, Gunning / Lemieux Chemistry Centre is a visually strict building due to the monotonous appearance of its facade and the lack of an effective relationship with the quad. The building offers little visual information to campus participants with regard to indicating the location of the entrance and exit. Hybridity/connectivity is non-existent because there is no space to be used or interpreted in a different manner due to the functionalist aspects of the building and its immediate proximity to the quad. Further, paths move campus participants adjacent to, but away from, the Gunning / Lemieux Chemistry Centre rather than towards it. Visual porosity is extremely low because of the perception of a gated and impenetrable facade. In effect, the Gunning / Lemieux Chemistry Centre acts more as a wall of the quad rather than a built space to be interacted with by campus participants who are in the quad.

6) Central Academic Building (1970)

Figure 7.8. Central Academic Building. Credit: author (2014).

Advancing south from the Gunning / Lemieux Chemistry Centre, Central Academic Building (CAB) is the next building to view. CAB was designed by architect John A. Macdonald (http://capitalmodernedmonton.com/essay-david-murray-marianne-fedori/), faces due east and was constructed in 1970.

Architecturally, CAB is unique when compared to the majority of buildings adjacent to the quad. Modern materials such as glass and concrete and the minimalist manner in which they are executed demonstrates that CAB was designed and constructed later than the majority of

buildings that surround the quad. Its relatively plan facade does not contain much visual hierarchy of rhythm or decoration when compared to the Three Halls especially, all of which clearly indicated their main entrances to the quad. However, despite its relative plainness, CAB is a legible building; although some technical architectural knowledge is required to analyze it visually. For example, the main floor of CAB appears to be "lifted" above the ground via *pilotis* (structural columns). This form represents a style popularized in the 1960s by the architects Skidmore Owings and Merrill (Wright, 2008, p. 159) and further testifies to CAB's association with its mid-century modern era. A Cartesian grid system is evident in the facade, indicating a contrast of materials in space: a rigid and ordered man-made surface juxtaposed to the soft lawn and the natural forms of trees. Although this could be said about the majority of buildings adjacent the quad, CAB's hard-edged materiality heightens the contrast.

The only location of possible intensification of place for campus participants is at the front entrance where aspects of pedestrian flow exists due to the four paths converging near CAB's front door. However, the potential to proliferate flow at this location is severely limited due to the nonexistence of infrastructure that supports sociability, such as benches. Although one may argue that the role of architecture is to attract people *into* a building, the integration of architectural aspects such as outdoor seating that encourages congregating, or in Ellin's terms, "flow," exemplifies architecture's bidirectional role of supporting activities both within the building and also outside it, yet connected to the building. CAB does not support hybridity/ connectivity along the east elevation as "larger contexts and multifunctional places" (Ellin, 2009, p. 9) are non-existent due to CAB's limited visual hierarchy that would indicate the building's function, along with the inherent difficulties of navigation caused by the use of homogenous

materials. In Ellin's theory of hybridity/connectivity, she argues against the segregation of function and form which Modernist planning, as demonstrated through CAB, established. In the context of CAB, there is a strong sense of spatial segregation: a threshold to enter / exit, a perpendicular path to move along, and an edifice to temporally inhabit. As evidenced by the photograph, CAB does contain accessibility for disabled users at the main entrance.

Visual porosity is limited as CAB's fenestration appears black and highly reflective, as if to no provide campus participants outside of the building visual information about its inner workings. This use of reflective glass, according to Ellin, can also function as a performance screen (2006, p. 63), a material device that displays the campus participant's reflection. In Rob Shields' (1988) translation of sociologist Henri Lefebvre's, *The Production of Space*, the reflected image, vis-a-vis a mirror, is positioned to "...reveal the intersection between body and conscious[ness] of being a body..." (p. 216) (http://www.ualberta.ca/~rshields/f/prodspac.htm). Although Ellin does not discuss at the same level of theoretical abstraction as Lefebvre, Ellin's analysis of the effects of the materiality of glass and how it is physically positioned in the built environment is accurate. Ellin's consideration of how glass is used was preceded by the work of Jane Jacobs. Jacob's, a highly influential critic of urbanism, coined the popular aphorism "eyes on the street" to discuss how the use of glass allows our gaze into the building for the intent of security and potential safety. However, due to CAB's dark-tinted glazing, the campus participant located outside of CAB, is unable to view the interior activation. Instead, the surface acts as a one-way mirror. As discussed above in this chapter, proximity plays a role in the gradient of opacity concerning visual porosity because of CAB's tinted glass. Further, environmental

conditions, such as the time of day, intensity of sunlight, and solar inclination all play a role in the continuum of visual porosity concerning CAB's exterior tinted glass.

In summary, CAB is a unique building with an architectural form and tectonics that differentiates its production within the Modernist era clearer than most within the UofA quad. The main entrance has four paths that converge, encouraging intensification of place; however, the lack of a visual hierarchy indicating function and the lack of artefacts like benches limits the potential for flow. The black tinted glazing of CAB limits visual porosity, yet, acts as a mirror, and as argued by Lefebvre, increases the potential for consciousness of being while potentially performing security functions. Proximity, as well as environmental conditions, though not discussed by Ellin nor others, plays a significant role in visual porosity of glass, especially CAB's tinted glass that is especially reflective.

8) South Academic Building north wing (1951)

Figure 7.9. South Academic Building (north wing). Credit: author (2014).

Next to CAB is the north wing of the South Academic Building (SAB) which is connected to CAB internally through a pedway. Originally constructed in 1951 as the Civil Engineering Building (http://www.campusmap.ualberta.ca/) and designed by architects Rule Wynn and Rule (http://capitalmodernedmonton.com/essay-david-murray-marianne-fedori/), the Civil Engineering Building / SAB transitioned into a building that housed administrative functions as well as classrooms during the late 1960s and early 1970s. Through this transition, the name of the building changed as well to more accurately reflect its internal functions, thus becoming South Academic Building (SAB). The new Engineering Centre located on the West side of campus was being constructed in multiple phases (1968-1972) (http://www.registrar.ualberta.ca/calendar/General-Information/History-Traditions/241.html) and allowed for a longer transition of activities away from SAB.

An interesting anecdote published by the UofA student newspaper, *The Gateway*, explains that when the Civil Engineering Building internal layout was being planned, it was assumed that women were not interested in becoming professional engineers and therefore the building did not provide female washrooms until many years later (http://thegatewayonline.ca/index.php/blog/comments/touring-ualberta-historical-walk-through-campus-feature). Today, according to a UofA Student's Union demographic 2014 publication, the Engineering Faculty currently has a population of 20% females (https://www.su.ualberta.ca/media/uploads/580/20140728_SGO_GenderInUASUElections.pdf) and has since modernized the building to account for such shift in demographics. This aspect of the original design of SAB most certainly does not align with hybridity/connectivity as it alienates and disregards the entire female population of campus participants, even those passing through the building.

SAB is a four-storey, red brick and concrete building with a basement that emphasizes its verticality through its narrow form and the contrasting use of transparent and opaque materials on its facade. SAB faces due west with a concrete path that intersects the quad leading to SAB's main door. A central design feature of SAB is the fully glass-enclosed stairwell juxtaposed by a large concrete wall which contains an art installation by Edward Norman Yates (1923-2014), titled, *Untitled* (http://collections.museums.ualberta.ca/uaac/uaac/publicart.aspx). This artwork is arranged from the base of the wall to the top of the wall. There is little information about Yate's 1966 bas relief piece attached to SAB and no plaque or textual information exists on the exterior of the building or inside the entrance (http://collections.museums.ualberta.ca/uaac/uaac/details.aspx?key=2042) to provide information on site. This installed sculptural artwork serves to emphasize the verticality and prominence of SAB's main entrance and its visual hierarchy. Similar to the architectural form and function of the protruding central section of each of the Three Halls', SAB's entrance is visually differentiated by a handful of architectonic cues: the towering glass wall above the entrance; the short but solid wall which protects and acts as a handrail to the perpendicular stair well; and, the jog of the building towards the quad at this main door location.

Ellin's concept of hybridity/connectivity has the potential to exist at the front entrance of SAB since two paths connect here. First, the outer quad path which runs perpendicular to the main lawn, and second, a path which intersects the quad and merges with the outer perpendicular path. Together, these create a small location of possible intensification of sociability amongst campus participants. There is visual evidence of such intensification in the lawn of the quad which appears to be worn down to dirt, indicating that people frequently move through the space

of the quad towards this junction. However, as the photograph indicates, there are no forms of seating that allow for people to really congregate for a sustained period of time. Seasonally, there are moveable picnic tables approximately twelve metres from the entrance to SAB. However, as evidenced by the photograph, the North wing of SAB does not contain any forms of accessibility for non-abled persons at the main entrance.

Porosity is most evident in SAB in the location and materiality of the stairwell as an architectural element. The glass which encloses the stairwell allows campus participants in the quad to see the building activated by people in the stairs and vice-versa, that is, campus participants in the stairs of SAB North are able to see the quad activated. This indicates not just an inward looking aspect of SAB but a "visual conversation" that can take place between campus participants at different elevations due to the porosity of the architecture. Although all buildings adjacent the quad have windows that could be perceived as inward looking, the actualization of increasing the visibility of campus participants by locating visually porous materials, in this case, glass, framing the physical act of campus participants ascending or descending stairs, is a unique architectural feature of SAB. As the photograph demonstrates (see figure 7.9), signage placed on the windows of the stairwell (and therefore clearly visible from the quad) states, "ECE RUL S." The author's interpretation of this signage refers to, Electrical-Civil Engineering, or more accurately, the University approved name, Civil-Electrical Engineering faculty that was once housed in the building. This informal signage was likely posted by students. However, when I revisited this building on December 13, 2014, the signage had been removed from the glass. These aspects partly demonstrate how the architecture of the UofA quad is inward looking and the buildings adjacent the quad contextualize it. While in the case of SAB, the architecture and

the materiality, specifically glass, frames bidirectional views both for and of campus participants in the quad or in the buildings.

In summary, the north wing of SAB is a storied building where the programming of the building's interior assumed much and was consequently sexist due to industry expectations at the time of the building's construction. SAB contains an external and integrated artwork by Norman Yates into the facade of the building which is unique within the UofA quad. Hybridity/ connectivity have potential to exist at the main entrance of the north wing of SAB; however, as observed in multiple buildings within the UofA quad, the lack of accessibility for non-able bodied campus participants limits the potential for full hybridity/connectivity. Visual porosity is specifically demonstrated in the stairwell of SAB that is encased in glass. This visually activated space allows for a bi-directional visual interaction for those within SAB and those within the quad.

9) South Academic Building south wing (1951)

Figure 7.10. South Academic Building (south wing). Credit: author (2014).

Continuing on from the north wing of South Academic Building (SAB), moving south along the path, the south wing of SAB is the next building encountered. Although physically connected to the other part of SAB, the south wing appears to be a completely different building. SAB south is of a different scale, material, height, entrance form, and architectural detailing. from SAB north. Despite these difference, it is difficult to tell where one building stops and the other begins, because they run in a continuous, joined-together structure.

The south wing of SAB is a two storey building with a basement. Composed predominantly of red brick accentuated by weathered concrete window sills and a roof capping detail, SAB has a visually prominent main entrance that is demarcated by three concrete stair risers, a cantilevered roof covering the main entrance, and a large two storey rectangular window directly above the main entrance. The front entrance slightly projects towards the quad to give depth and profile and to indicate where one enters SAB. The location and appearance of the entrance establishes architectural hierarchy and suggests function. Similar to the north wing of SAB, the southern component is adjacent to the outer concrete quad path with an intersecting concrete path that leads directly to the main entrance. However, unlike the north wing, this south wing has a smaller informal front plaza that contains three benches which allow for social intensification of the use of this place. It is interesting to note, as demonstrated by the photograph, that Ellin's notion of intensification of place may exist in part due to the activity of smoking. The photograph depicts a smoking pole, (i.e. a free-standing apparatus where a smoker deposits their used cigarette butt), approximately eight metres away from the main entrance's adjacent benches. This notion of a prescribed activity, where one smokes, along with the co-located benches, provides evidence for the congregation of campus participants in this specific

area, leading to Ellin's idea of intensification of place. Further, the proficiency of access to the activity of smoking, located near the main entrance of SAB, visually indicates it as important to many people.

Hybridity/connectivity does not appear to have much capacity to exist in this location. As evidenced by the photograph, the south wing of SAB does not contain any forms of accessibility at the main entrance. Also similar to the north wing of SAB, as evidenced in the photograph, the lawn of the quad appears to be worn down to dirt, indicating a potential desire line (i.e. a path worn by pedestrian use rather than placed through formal planning). Such worn paths often indicate that people move through the space of the quad towards the junction adjacent the front entrance of the south wing of SAB.

Visual porosity exists in a similar, though more minor capacity to that of the north wing of SAB, through the use of a large window above the main doors that allows for views into and out of the main stairwell. The building can be visually activated and those visitors who are on the stairs can view the activation of the quad. The views in and out afforded by these windows achieve an aspect of medium visual porosity.

The south wing of SAB, though connected to the north wing, is architecturally differentiated through scale and materiality. A visual hierarchy does exist indicating the entrance / exit functions of the main entrance. Adjacent to this main entrance, and clearly visible in the photograph, is the smoking pole situated next to two benches. This physical arrangement is unique to SAB and demonstrates, the importance of access in a demarcated zone for the activity of smoking. Though potentially perceived as a negative aspect in contemporary Canadian society, this function has a strong capacity for the intensification of place. Similar to the north wing of

SAB, hybridity/connectivity is hampered in part due to the inaccessibility for non-able bodied campus participants. The visual porosity is similar, though in a more minor capacity, to that of the north wing of SAB, as a bi-directional visual interaction for those within SAB and those within the quad exists.

Summary

The intent of this chapter was to provide a "visual walking tour" for the reader by leading them through the space of the UofA quad in a logical manner, especially for those that have never or may never experience the UofA quad. Aspects of building description were added at the beginning of each building to add visual context to the analysis, but were intentionally kept to a minimum.

Visual methods were used to collect data, specifically, I used an architectural site plan that was provided by the UofA University Architect's office and author-captured photographs. These photographs of the architecture that surrounds and contextualizes the UofA quad enabled me to analyze this visual data through the lens of Ellin's notions of hybridity/connectivity and porosity. As Illinois Institute of Technology professor and architect, Harry Francis Mallgrave (2011) notes when, discussing the difficulty of making sense of still images from a neurological perspective: "The brain must invert the image, create a single perception out of a doubly experienced sensation, construct the third dimension, and then add distance to complete the space" (p. 58). In part, recognition of this complexity lead me to also add descriptions for the buildings to ensure clarity and accuracy for the reader.

It is interesting to consider, that the UofA quad has distinct spatial characteristics based on the era in which the surrounding architecture was created. Beginning at the south end of the UofA quad, a sense of formal arrival at the quad is established by the Administration Building's traditional red bricked exterior and its balanced symmetry of form.

The impression of residence provided by the stand alone Three Halls of the west side of the quad contrasts with the connected-together and visually monolithic perception provided by the buildings of the east side. Both the west and east portions of the quad consist of architectural regularity. On the west, the same form and dimensions are replicated three times in Pembina Hall, Athabasca Hall and Assiniboia Hall. Similarly, on the east side, although all buildings are different "wall" of buildings, and the minimal variation in each building's distance from the quad, establishes a perception of repetitive sameness. The Three Halls to the west have individual paths that lead to their main entrances, perpendicular to the quad. On the east side, the flow of campus participant is parallel to that of the west, given the path that runs alongside the Gunning / Lemieux Chemistry Centre, CAB, and SAB. The north end, which CCIS inhabits, acts as a collector of pedestrian flow (Ellin, 2006). This flow is supported by the slight elevation decline of the quad's topography towards CCIS, the large concrete patio with southern exposure, and the building's modern form and materials.

As we have seen in this chapter, Ellin's notions of hybridity/connectivity exist within the UofA quad, albeit in varying capacities. Specifically, the open landscaped space of the quad supports a diverse range of programming and confirms that the UofA quad is a space of social hybridity/connectivity. However, overall, the contextualizing architecture of the UofA quad has a deficit capacity for hybridity/connectivity due to the era during which most buildings were

constructed and the leading architectural philosophy at that time. That is, Ellin (2006, p. 82) points to how Modernism and Postmodernism paradigms have perceived, planned, and actualized space and argues how Integral Urbanism is a solution to breaking away from these strict traditions. To Ellin, Modernism sought the transparency of space as an ideal while Postmodernism sought urban fortification (ibid.). In contrast, her theory of Integral Urbanism seeks flow. This notion of flow is itself a hybrid between the complete transparency of Modernism and the "walling-off" or segregation of Postmodernism. Therefore, as we have seen through this analysis of the architecture that surrounds the UofA quad, a mix of architectural philosophies exist as the buildings have been constructed between 1911–2008. This fairly large range of time has enabled a series of buildings to be created that result in varying levels of hybridity/connectivity and multiple forms of porosity. Moreover, it is actually this assortment of buildings and their varying styles that leads to Ellin's goal of social intensification.

As Ellin's theory of Integral Urbanism is more of a "post-mortem" theory, analyzing either conceptual designs or existing buildings and their capacity to support social intensification, based upon my analysis of the UofA quad, having examples where buildings have a low capacity for hybridity/connectivity diverts the social intensification to those places, such as CCIS, or the lawn of the quad, to support campus participant's activities. If every building within the UofA quad was designed to the principles of Integral Urbanism, heterogeneous spaces would no longer exist and social intensification of campus participants may become too scattered or thin. Instead, in agreement with Trancik (1986) and Gehl (2013), the places which support social intensification will be used by campus participants and perceived in an overall positive manner, and those places which do not, will, over time, be reconsidered. Therefore, Ellin's theory of

Integral Urbanism has proven useful in my analysis of the UofA quad, as it has provided a framework and specific language in which to examine the buildings, materiality and spatiality of the quad. With the goal of establishing a place that supports social intensification for all campus participant, this methodology assisted in locating both strong and weak aspects of hybridity/ connectivity and porosity within the quad to be potentially considered for future designs within the UofA quad.

Chapter 8: Conclusions

Near the beginning of my research on the UofA quad I was constrained by the notion that I needed a large number of research subjects to indicate the worth of my analysis. There was some fictitious correlation in my mind that for my present work to be of interest it had to include the discussion of many university quads. However, after a research trip in September of 2013 to southern Alberta, Montana, Idaho, Oregon, Washington State, and British Columbia, I realized that, though there is some value in a large quantity of research subjects, the actualization of each university quad is unique to its particular institution. Therefore, an in-depth investigation into an individual quad provided richer findings that could be focused in relation to Ellin's theories.

Though university quads may share similarities, such as a large lawn, or paths, or public artwork, and can be classified as a typology of spatial design, each quad I visited on the research trip reinforced my recognition of nuances of material and/or spatial design that were distinctly important to that university. I decided to closely explore such nuances in my research in order to gain and in-depth knowledge of one specific quad, rather than superficial knowledge of many.

The realization that depth rather than breadth was important when studying the UofA quad was realized when I read David Spooner's (2011) article titled "Ten Minutes Wide: Human Walking Capacities and the Experiential Quality of Campus Design" which takes the topic of a human's capacity for transportation and narrows the investigation to focus on the scale and design of the campus, and how it does or does not fit this human capacity. Spooner advocates for a critical analysis of how campuses are designed, drawing on architects and planners, such as Christopher Alexander (1977), Jan Gehl (1987, 2010), and Kevin Lynch (1984). Although, Spooner does not explicitly use the term "visual methods," he uses architectural site plans and

photographs as a means to reach his conclusions about the campuses. Therefore, following Spooner's lead, the research presented here on the UofA quad, in terms of its empirical focus, has been micro in scale (though somewhat expanded through the lens of Ellin's theory).

Instead of analyzing all of the university quads listed above, I focused only on the materiality and spatiality of the UofA quad since, as Spooner maintains, a major factor of the university campus is related to an individual's experience with all material and spatial objects (this is similar to what Le Corbusier noted in his first encounter with American universities). Spooner's consideration of what people encounter on a campus includes: the buildings, paths, gates, and topography. Similarly, Kostoff (1995) argues these material and spatial artefacts need to be considered as a 'total context' to be able to critically analyze the quad which, through my architectural education and professional training, has enabled me to make this contribution to the field of architectural and spatial analysis.

Even before I undertook this research, I had many theories of why the university quad has existed in such a similar and typological form for centuries. However, after much investigation into the literature of campus design and campus histories, discussions and debates with colleagues and supervisors, and extensive field work at the UofA quad, I realize that the quad is particularly informed by the contextualizing architecture that surrounds it. As an internal space the UofA quad contains artifacts, that is things made by humans (Dant, 1999); for example: paths, benches, artwork, and the intentional placement of vegetation and trees. All these point to the material culture of the UofA quad and the intentionality of the planning of the quad to be a place that encourages people to gather. But to investigate such materiality in a meaningful way I had to appropriate a relevant framework through which to conduct my analysis. The broad

perspective offered by material culture studies proved valuable when it was focused through the particularity of Ellin's work.

Archeologist Ian Hodder (2012) finds that material culture studies, "is often a medium in which alternative and often muted voices can be expressed" (186). Given this notion, I was able to analyze and carefully interpret what the built environment of the UofA quad expressed to me. According to Hodder's approach, by examining the objects within the quad, both micro and macro (pathways, benches, vegetation, and buildings) I have given such items a "voice." However, objects and their meanings are highly contextualized (Hodder, 2012) and therefore I also provided information about other aspects of the UofA quad, particularly its history and its links to quad spaces in other times and places.

By discussing the history of the university quad, beginning in the ancient Mediterranean and moving to the UK and finally to North America, this research was able to demonstrate the quad's historicity as well as provide evidence to counter Turner's (1984) assertion that campus planning is strictly an American invention. This overview of history traced the development of the quad to demonstrate how it has morphed from an environmental design requirement that allowed campus participants access to natural light and air circulation, to later developing into to a typology that provided protection and security for its inhabitants, and finally to one that proclaimed luxury and university reputation.

The university quad, as discussed by Akin (2004) is found to be an integral component throughout the development of the university. The quad has been traced from the humble beginnings of an enclosed courtyard in eleventh century Bolgna, Italy, to Greece with the *agora,*

a public open space that was used for assemblies and markets. This, I argued, is an influential socio-cultural force that further developed the typology of the quad as it is today.

In the North American context, the University of Virginia was discussed as an influential institution that transformed architectural composition by going against the established classical principals of uniformity and symmetry. Instead, Jefferson advocated for distinction between individual buildings and aimed for the order of the university's built environment to enhance collegiality (McCarter and Pallasmaa, 2012; Coulson, Roberts, and Taylor 2011). The idea that the built environment can affect sociability has had lasting effects as seen on many North American campuses today, with the removal of the enclosed monastic quad.

In Canada, without the long-standing architectural traditions found in Europe or the USA, a new form of institutional architecture was built at universities across the country. Occurring in three different provinces, the single-structure campus (Muthesius 2001) was designed as an internalized megastructure that housed all the university functions in one building while minimizing the effects of the harsh Canadian climate.

The quad at the UofA has a unique history stemming from political unease in the greater region of the city (specifically the struggles between Edmonton and South Edmonton which eventually became Strathcona). In 1909, Nobbs and Hyde, the original architects of the UofA campus, laid out the master plan for the university which included the quad as a central tenet of the campus. The architects who were schooled in the traditions of Beaux-Arts architecture and planning, a neoclassical style which emphasized symmetry and composition, and presented the experience of the campus through architectural drawings as a completed and unified whole "to show the campus as it was hoped it might develop" (Johns 1981, p. 41). This typology was

employed to enhance the University of Alberta's campus design. By leveraging the symbolic qualities of a visually cohesive design the UofA's symbolic language of building and space helped the young province of Alberta to emphasize the importance of university education in modern society.

On a warm September morning in Missoula, Montana, I awoke to the realization that my car key had been lost and access to my research equipment, camera, video camera, pens and notepads, were no longer accessible. This experience informed my understanding of methodology and as according to Luck et al. (2006), the importance of methodological flexibility especially while in the field. Visual methods were used in this research to conduct an exploratory case study because of the lack of extensive prior scholarship or data that was concerned with (Yin, 2003) the material and spatial aspects of university quads. To collect data I used the nonparticipant observation method because of my focus on analyzing the material and spatial aspects of the UofA quad, rather than for example, on its human interactions. Associated with nonparticipant observation was the use of visual methods, specifically, the analysis of architectural drawings and the creation and analysis of photographs. In my study of the UofA quad, the aim was to employ photography as a visual method in order to build multiple layers of visual data. These layers supported the material and spatial analysis, and provided a nuanced description of the spatial and material aspects of the quad. This approach provided critical insight into why the quad appears as it does now.

Taking Ellin (2006) as a theoretical staring point, this thesis employed her theories to increase the depth of understanding of the material and spatial aspects of the quad. Specifically, through the use of Ellin's theoretical lenses of hybridity/connectivity and porosity, aspects of the

UofA quad, those that support hybridity/connectivity and those that do not, were uncovered and interpreted. For example, hybridity/connectivity was seldom located at the main entrance of the majority of the buildings due to how the campus participants often engage with the threshold of the buildings. Tall front-entrance staircases, such as those at the Three Halls, provided limitations to disabled campus participants while the architecture of the Central Academic Building communicated ambiguous information concerning its entrance / exit functions. While porosity was found in multiple modes throughout the UofA quad, specifically: visual, historic, temporal, and symbolic, this theoretical perspective enabled me to uncover new data points about the quad. For example, the porosity between Athabasca Hall and the Computing Science Centre became apparent once the theoretical lens was applied and a language could be used to describe and explain the relationship between the two buildings.

The analysis of the architectural drawings provided a unique perspective of the materiality and spatiality of the UofA quad and the adjacent buildings. As Emmison and Smith (2000) discuss, material culture and the latent traces of objects such as buildings, exist in the three dimensional realm of visual research; such objects establish a mark and leave traces, which allow for accurate inspection. Therefore, the combination of visual methods in this research provided significant findings especially when paired with Ellin's theory of Integral Urbanism. For example, the historic porosity existing in the Computing Science Centre was only realized through investigation of the UofA site plan which provided a different perspective from that of being in the field. The analysis of the UofA site plan allowed for a better understanding of Ellin's notion of symbolic porosity compared to that which would have been acquired by empirical field work alone, because of the plan-view perspective. For example, I was able to better understand

that the linear geometry of the pathways adjacent to the Three Halls contrasts the meandering geometry of the central portion of the quad. This difference of geometries indicated different functions: with the linear geometry demonstrating symbolic porosity (as related to perceived ownership of space with the Three Halls) and the discouragement of campus participants were to leave the path. In contrast, the meandering geometry of the open lawn communicated openness and social inclusion.

As discussed earlier, the scale of this single case study is very small and based only on my interpretation. However, the theorized analysis undertaken here has the potential to begin a larger conversation about the university quad. That is, as the literature demonstrates, little attention has been paid to the built environment of the university campus as a whole, let alone the more unique spaces such as the quad. The research presented here can provide insight into how to use visual research methods that explore in detail the nature of a specific built environment. Further, the use of a theoretical lens for interpretation in this research, may promote other theoretical investigations (such as a phenomenological study of the university quad). By applying different modes of analysis, a deeper and more nuanced understanding of the dynamic space of the university quad may be obtained. As Christopher Alexander et al. (1977) state:

> "...places are created and modified by the people who pass through them, the university will gradually be shaped by an accumulation of actual human experience and, as such, will be a place for other, newer human experiences – a place far fitter than any impersonal and inflexible environment could ever be" (p. 49).

This statement resounds with me as the subject of the university quad is ripe for future research since it is continually being reshaped: as “desire lines” through the lawn are established, as buildings are torn down, as buildings are built, as weekend events occur and ultimately, as people continue to revere the quad as a distinct university component that enhances the experience of

campus participants. Further, Ellin (2006) declares that the participant of a space instinctively knows when it has achieved flow. This rather subjective and anecdotal claim is not necessarily inaccurate, as confirmed by architect Christian Norberg-Schulz (1980) who has written at length on the notion of "*genius loci,"* (which translates from Latin to mean "spirit of the place"). Norberg-Schulz discusses the perceptible facets which make places unique to people; therefore, an understanding of how the UofA quad affects people and / or how it is used by campus participants could have important future design implications related to both the materiality and spatiality of the quad.

In concluding this research, it is important to acknowledge some of its limitations. Since this thesis has employed primarily visual methods to investigate and interpret the materiality and spatiality of the UofA quad in relation to Ellin's theory of Integral Urbanism, I have attempted to provide a multidimensional exploration of the quad. However, in taking this interpretive focus I have not, for example, talked to the users or designers of the quad. Such research could be undertaken in the future to provide a further depth to this study.

Although visual methods were considered the appropriate form of inquiry for this research, a disconnect between Ellin's notion of temporal porosity became apparent due to the static nature of the architectural plan and photographs I was interpreting. That is, instead of being able to accurately analyze the temporal porosity of people's use of the space through analyzing the site plan and photographs, I was able to generalize that temporal porosity does have the capacity to exist within the UofA quad. Temporal porosity of campus participants occurs throughout the year due to the scale, limited topographical variance in the site, and socio-cultural acceptance of the quad as a place for events. The variability of use is due to the inherent temporal

attributes of ephemeral events that are programmed for a specific duration and do not provide architecturally-specific information that could be captured in photographs or fieldwork.

To conclude, the central aim of this research was to investigate the material and spatial nature of the UofA quad through Ellin's (2006) Integral Urbanism. This research has demonstrated that the facets of Integral Urbanism exist in different capacities within the UofA quad and that Ellin's theory is an effective tool for analysis. Specifically, we have seen how the materiality of the contextualizing architecture has both supported and limited hybridity/ connectivity at specific nodes and between the campus participants and the varied uses of the quad. Also, the spatiality of the UofA quad has demonstrated the existence of the continuum of porosity between buildings. What has been conclusive is that, as philosophies of architecture and planning metamorphose over time, these philosophies that have been manifested in the built environment can be torn down and replaced with a philosophy that is more relevant and corroborative to the campus participant's needs. Although the materiality of the UofA quad may be more visible than the spatiality of the quad, it is important to recognize that the quad has been the only spatial-material constant since the conception of the University. Therefore, using Ellin's (2006) Integral Urbanism, we can conclude that the UofA quad is a successful place overall that has achieved aspects of flow but, to its detriment, is hampered through forms of architecture and the interstices between that architecture and the space of the quad. The theory of Integral Urbanism, if used to support future planning, has the potential to improve the dynamism of the UofA quad to ensure its role as a sustainable socio-spatial landscape.

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Figures

Figure 1.1.
Aerial image of the University of Alberta quad. Credit: Google Maps (2013).

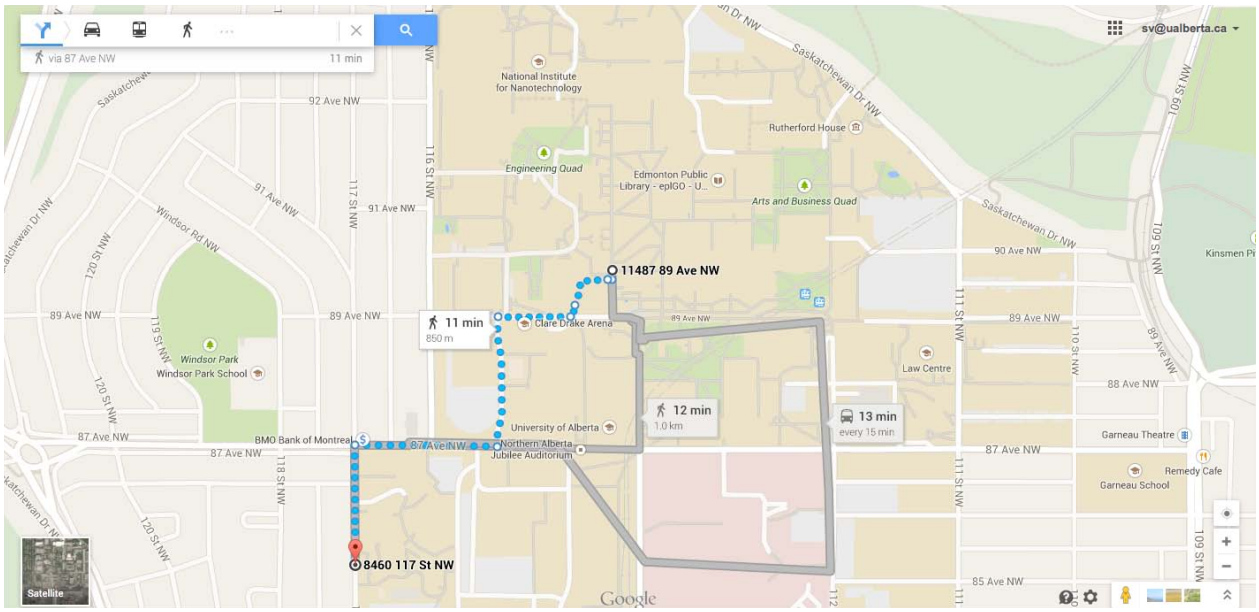

Figure 2.1.
Map indicating distance from Lister Hall, UofA's major student residences, to the quad. Credit: Google Maps (2013).

Figure 3.1.
The University of Bologna, Italy, demonstrating the enclosed courtyard. This model differs greatly from contemporary North American quads that include landscaping features such as trees, plants, ledges, seating and a large expanse of open space. By today's institutional standards of large campuses this example would be considered a courtyard rather than a quad. Credit: Bender and Parman (2005).

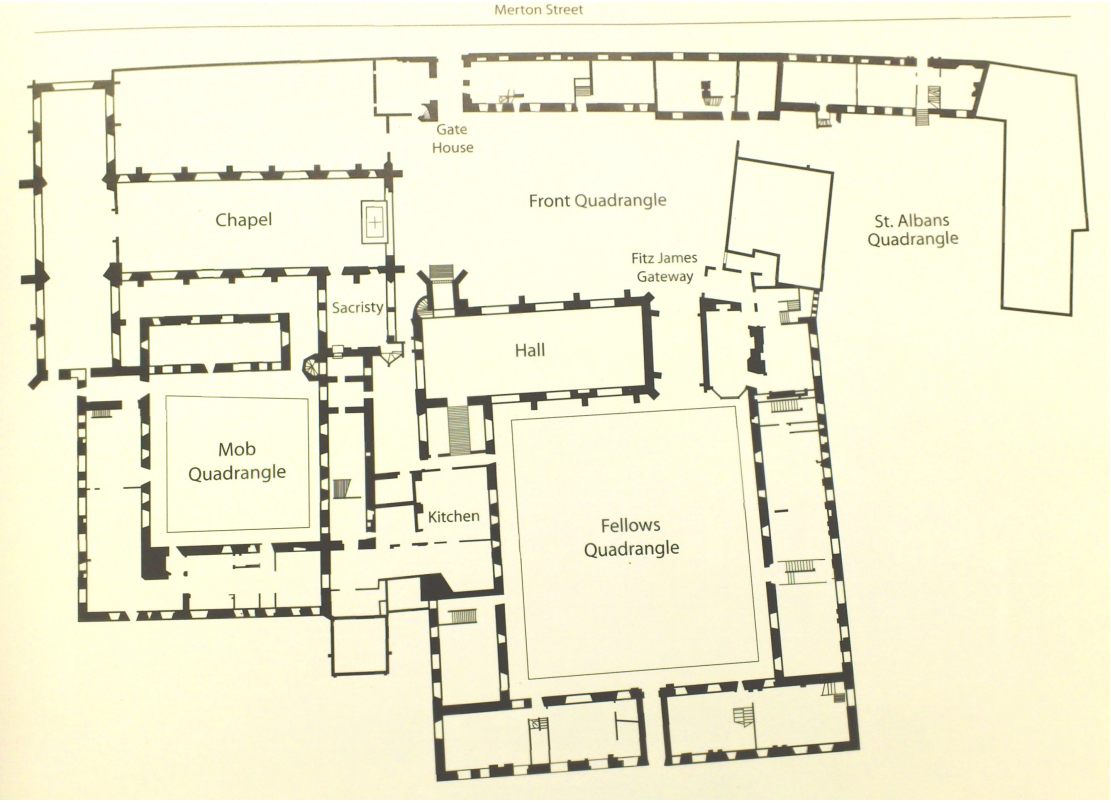

Figure 3.2.
Floor plan of Merton College, Oxford University highlighting the different quads and how they evolved over time from fully enclosed to semi-enclosed. Credit: Coulson, Roberts and Taylor (2011).

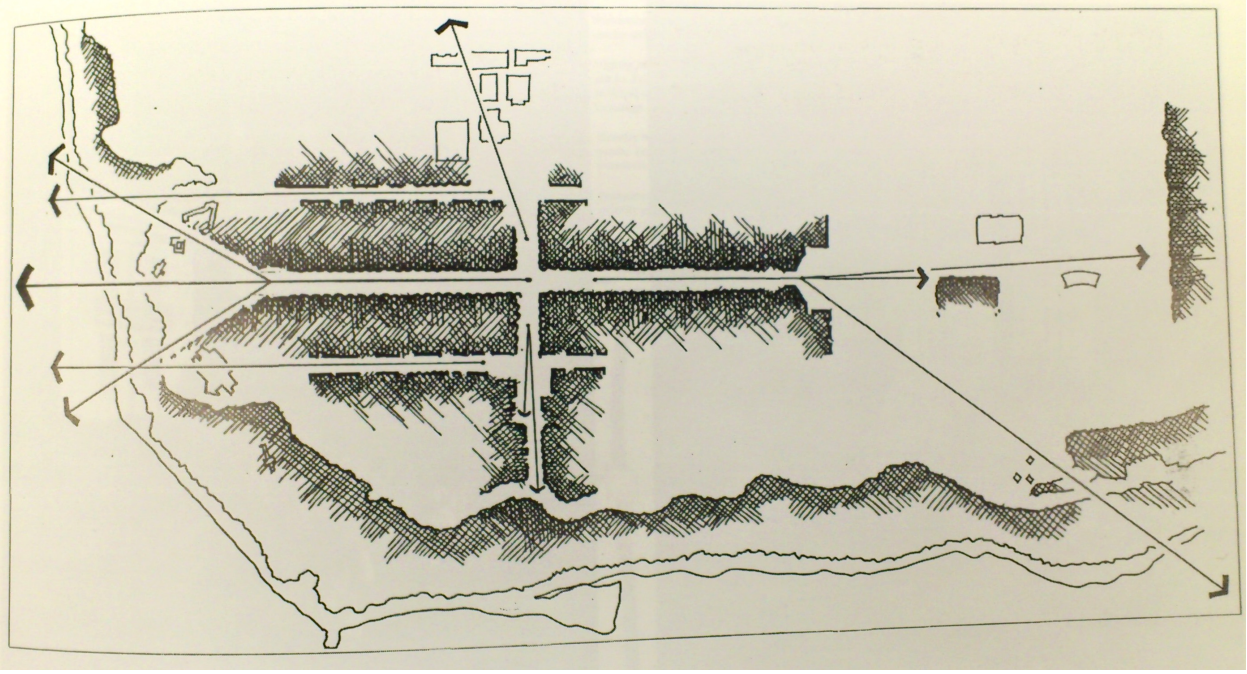

Figure 3.3.
UBC's campus plan demonstrating axiality and pathways oriented towards vistas. Credit: Coulson, Roberts, and Taylor (2011).

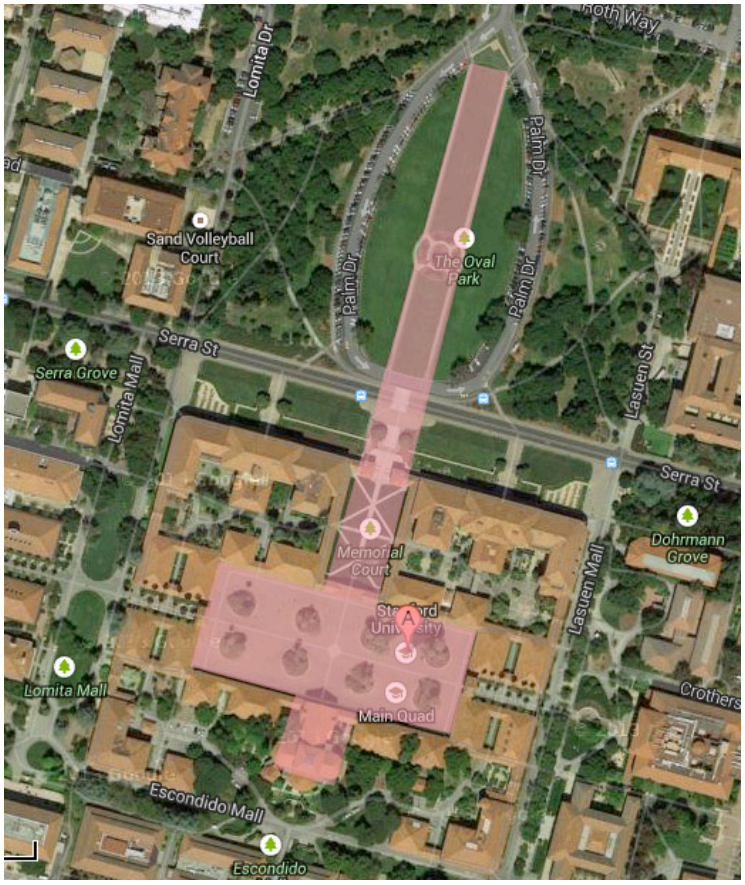

Figure 3.4.
Two intersecting axes at Stanford University's Main Quad. Credit: Google Maps (2013). Edited by author.

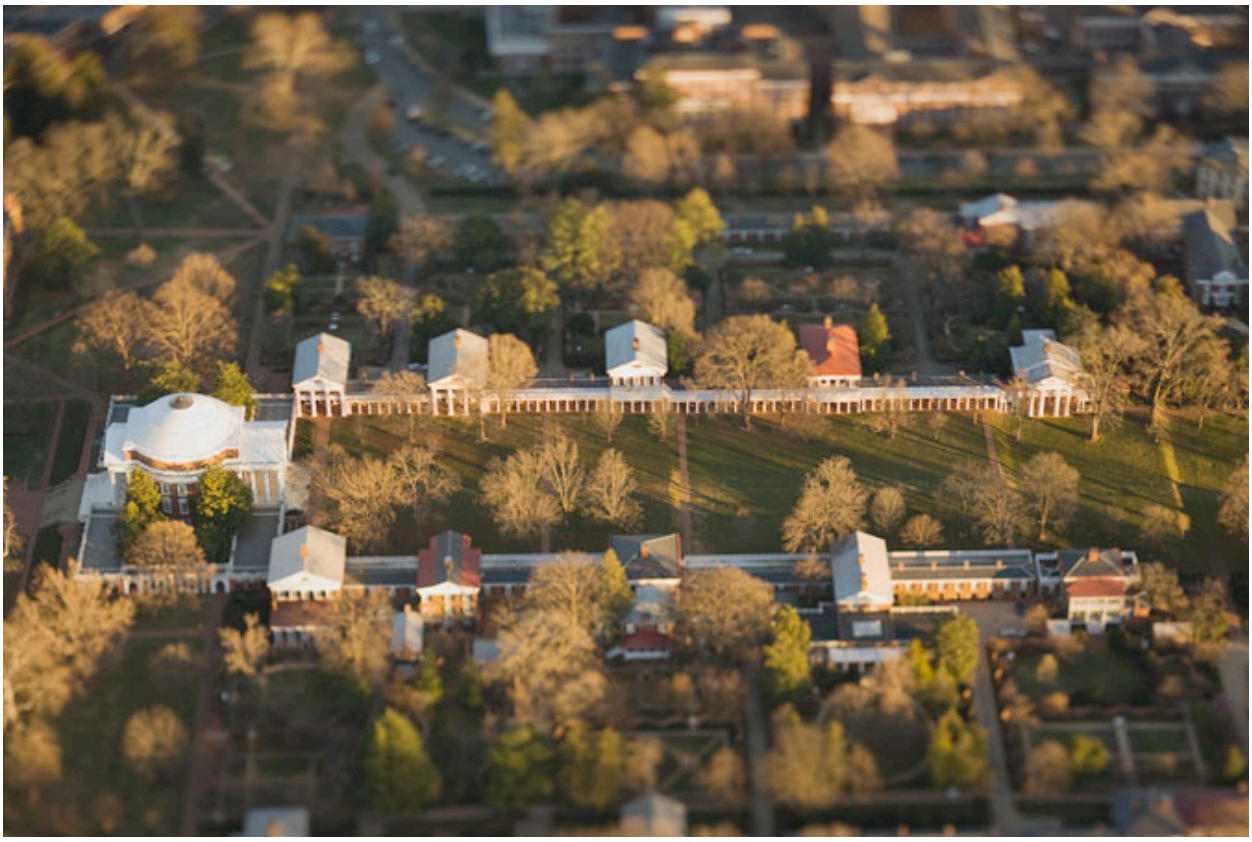

Figure 3.5.
Thomas Jefferson’s design of The Lawn at the University of Virginia. Credit: Professor David Phillips (n.d.).

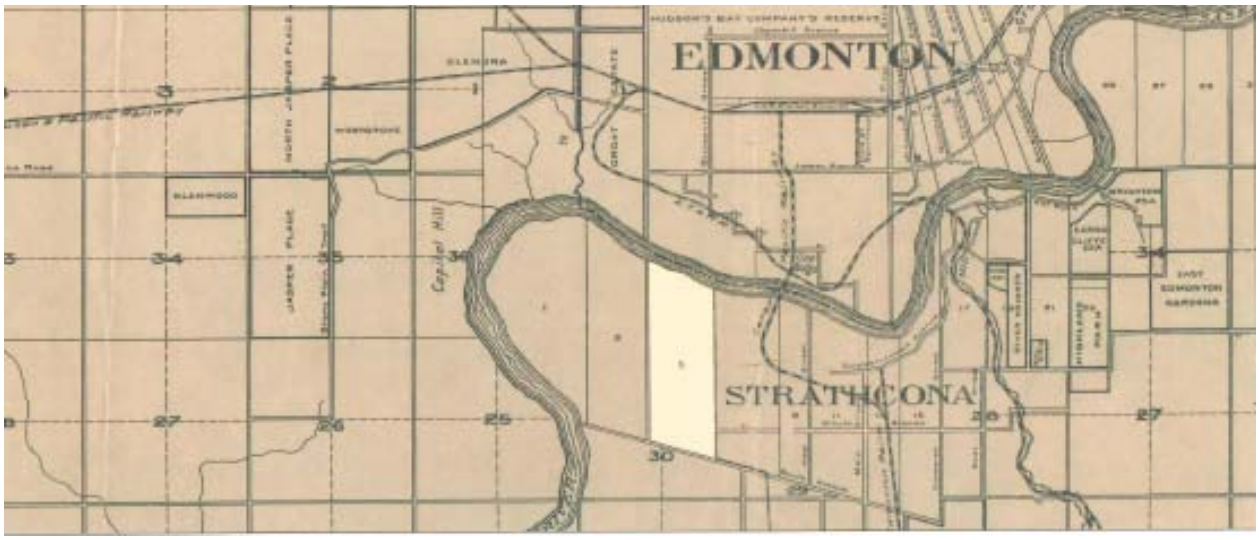

Figure 4.1.
Map of Edmonton and Strathcona as separate entities. Credit: Ellen Schoeck (2006).

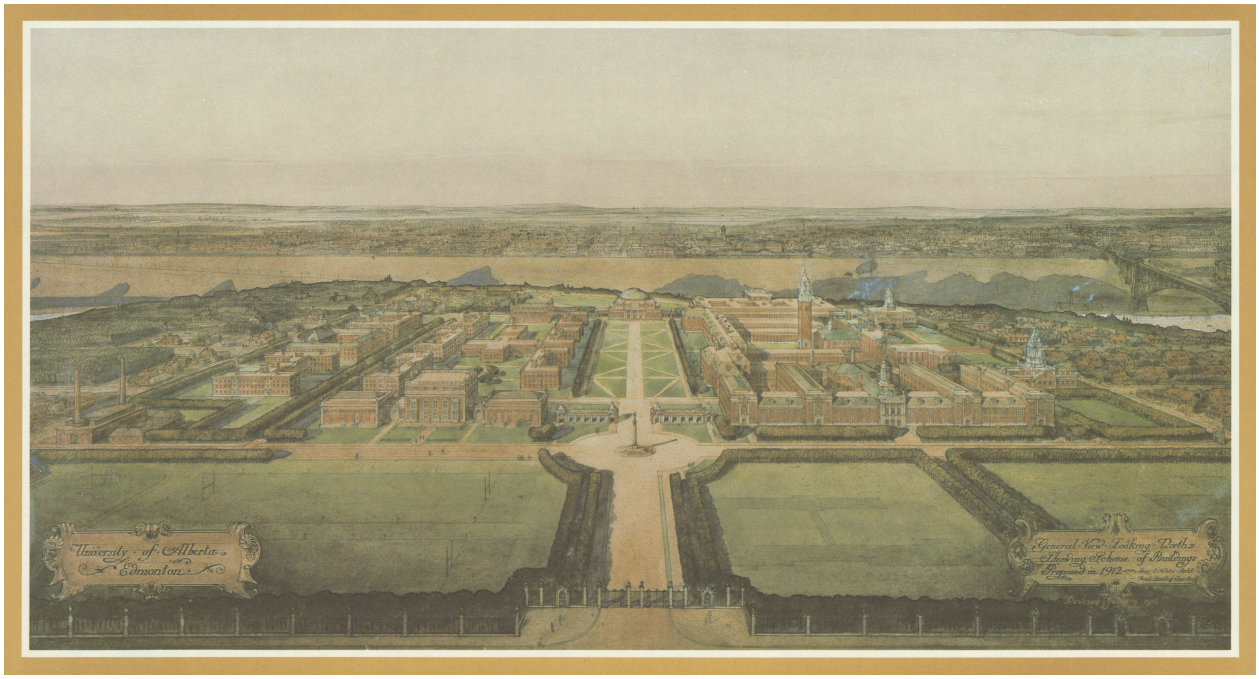

Figure 4.2.
The image of the original rendering by the firm Nobbs and Hyde for the University of Alberta with the quad being the central vista. Image Courtesy of the University of Alberta Archives Accession #73-124-1.

Figure 4.3.
A remake of the 1912 Nobbs and Hyde campus blocking plan. Credit: Ellen Schoeck (2006).

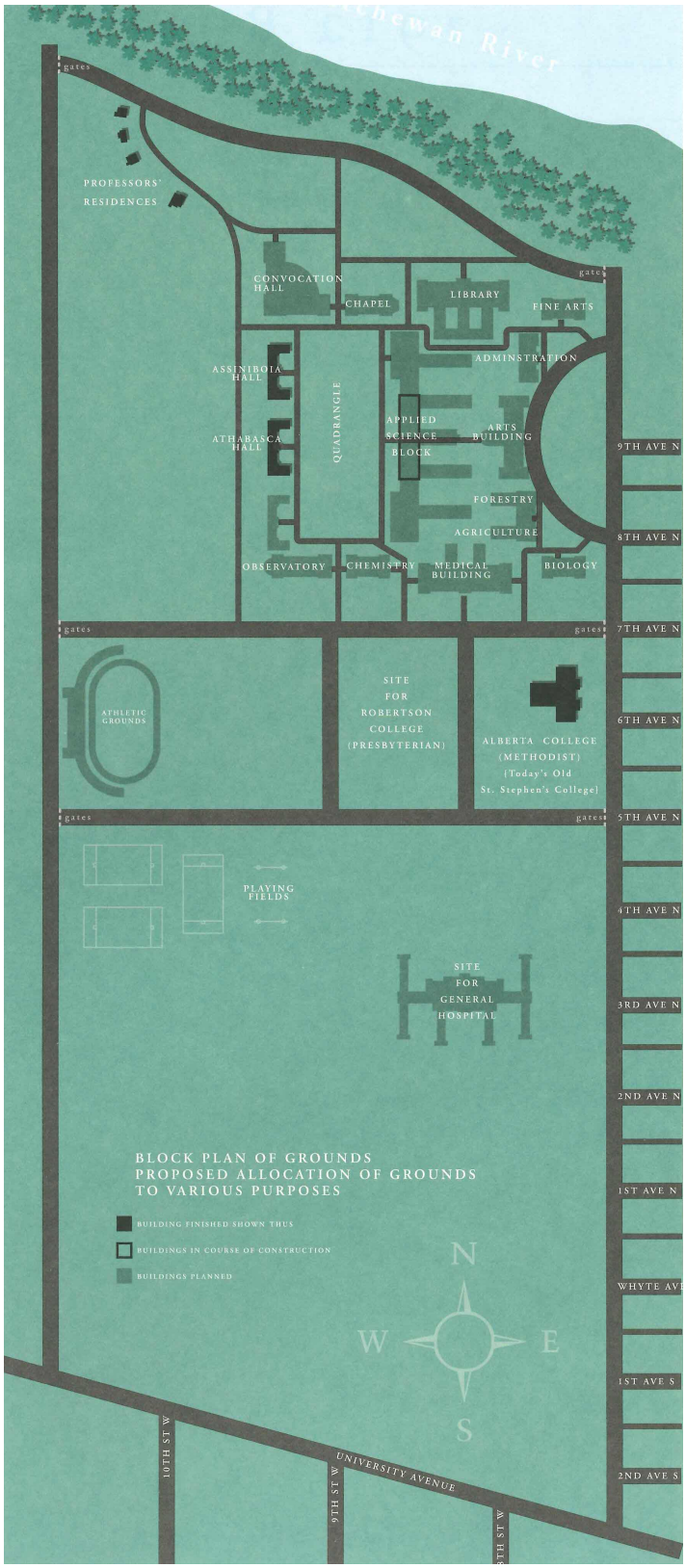

Figure 4.4.
1912-13 campus plan demonstrating existing buildings, buildings under construction, and planned buildings. Credit: Ellen Schoeck (2006).

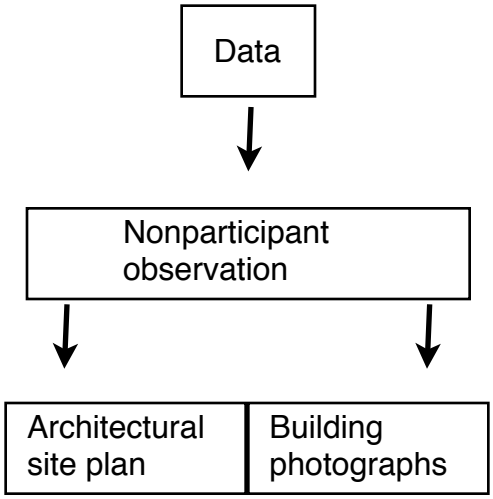

Figure 5.1.
Data collection flowchart for the case study.

Figure 5.2.
An example of a field sketch. Credit: author (2014).

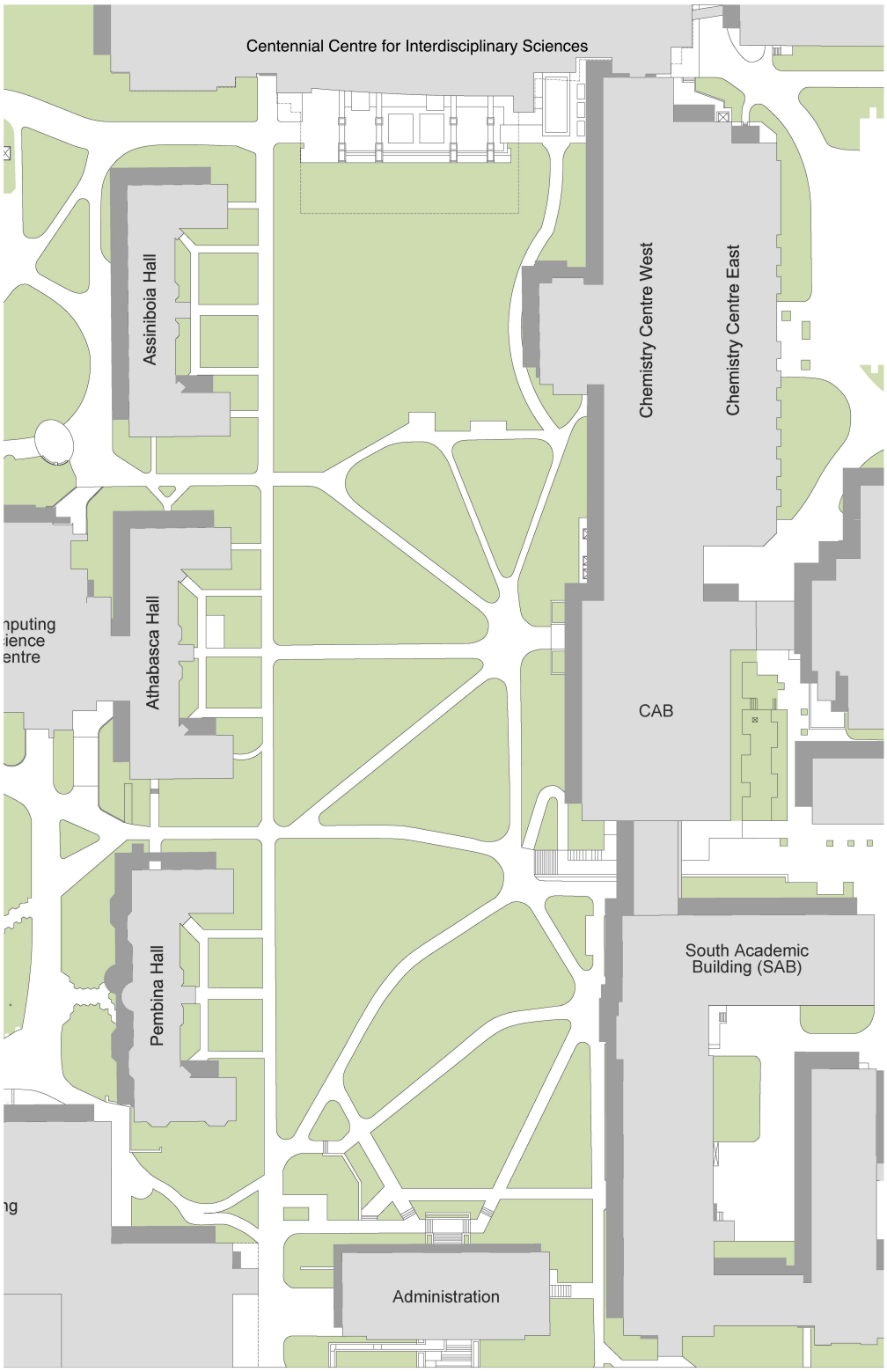

Figure 6.1.
UofA site plan supplied by the University of Alberta's office. Credit: Office of the University Architect (2013).

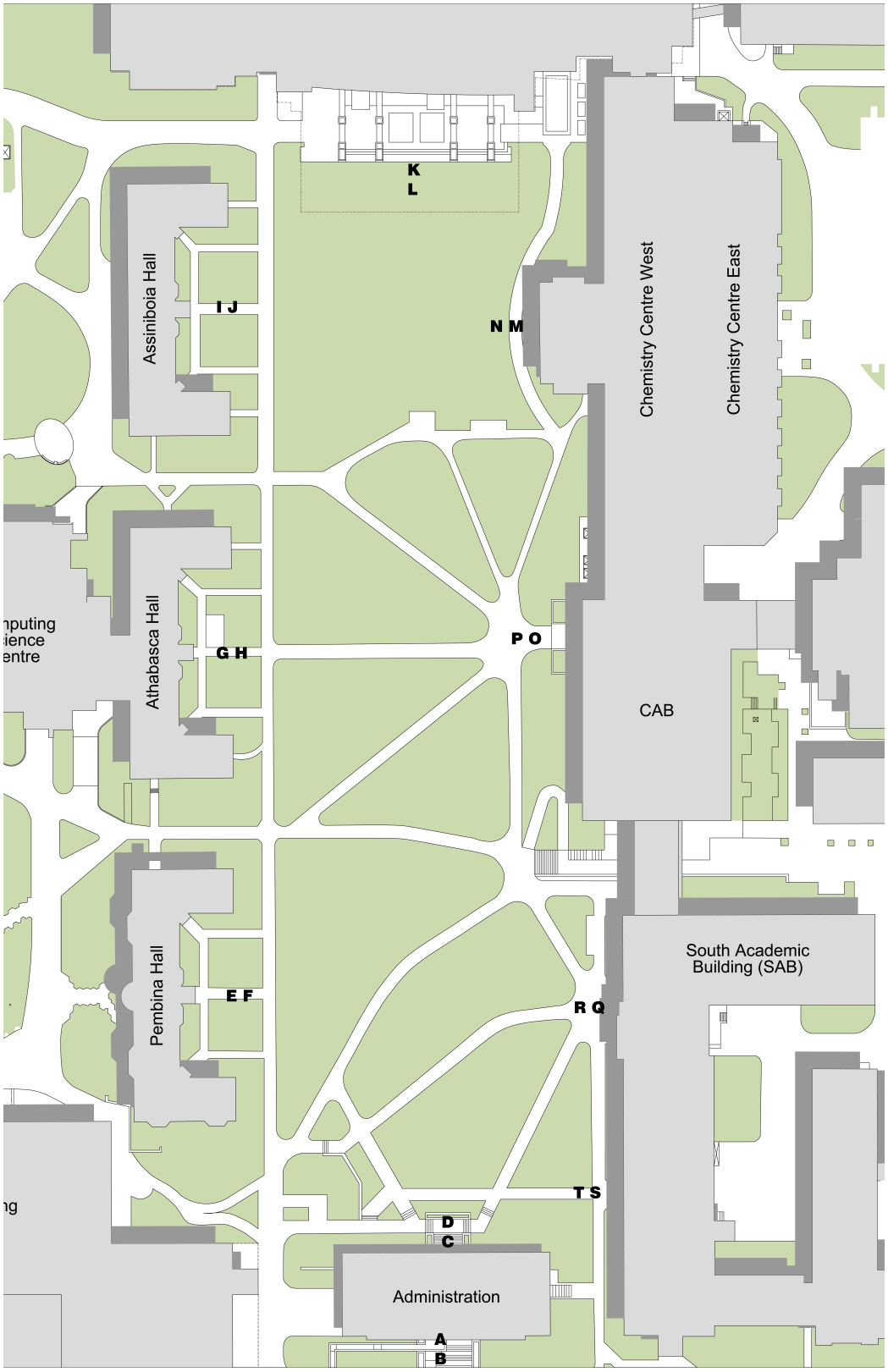

Figure 7.1.
UofA site plan with correlating letters to the direction of the photographs (2013). Credit: Office of the University Architect (2013). Edited by author.

Figure 7.2.
Administration Building (south). Credit: author (2014).

Figure 7.3.
Pembina Hall. Credit: author (2014).

Figure 7.4.
UofA Alumni Circle at the edge of the quad being used by campus participants. Credit: Author.

Figure 7.5.
Athabasca Hall. Credit: author (2014).

Figure 7.6.
Centennial Centre for Interdisciplinary Sciences. Credit: author (2014).

Figure 7.7.
Gunning / Lemieux Chemistry Centre. Credit: author (2014).

Figure 7.8.
Central Academic Building. Credit: author (2014).

Figure 7.9.
South Academic Building (north wing). Credit: author (2014).

Figure 7.10.
South Academic Building (south wing). Credit: author (2014).

Appendix A: Perspective From the Architecture

A) Looking away from Administration Building.

B) Looking into the quad from Administration Building.

C) Looking into the quad from Assiniboia Hall.

D) Looking into the quad from Athabasca Hall.

E) Looking into the quad from Pembina Hall.

F) Looking into the quad from Centennial Centre for Interdisciplinary Sciences (CCIS).

G) Looking into the quad from The Gunning / Lemieux Chemistry Centre.

H) Looking into the quad from Central Academic Building (CAB).

I) Looking into the quad from South Academic Building (SAB) (north wing).

J) Looking into the quad from South Academic Building (SAB) (south wing).

Appendix B: The Open Space of the UofA: ongoing work

In 2014, the University of Alberta administration undertook a critical look at its open spaces on campus with the intent to find new or different functions for such spaces. UofA hired the Calgary firm O2 Planning + Design in 2014 to complete an assessment titled “Open Space Master Plan” (http://www.communityrelations.ualberta.ca/en/Notices/2014/March/OpenSpaceMasterPlanConsultationsandsymposium.aspx) Although the interrogation of these proposed plans is out of the scope of this thesis, it is important to address the concurrent investigations that are taking place within the university regarding space and the quad. Further, the existence of such a spatial investigation has significance as it confirms the importance of my critical study to provide another perspective on space at the University of Alberta, especially the quad. Although the consulting work on the Open Space Master Plan is currently in a conceptual stage, there are a few significant aspects that have a significant impact on the UofA campus fabric directly relating to the quad that I would like to point to here.

The exercise of master planning is both a standard planning practice yet is inherently unique as it is site specific and depending on which firm is retained, results may significantly vary depending upon philosophy, current trends within the industry as well as the post-secondary domain. In the 1975 classic book *The Oregon Experiment* by Alexander et al., master planning of universities, specifically the University of Oregon, is critically discussed. According to Alexander et al., "Master plans take many forms; but almost all of the have one thing in common. They include a map, which specifies the future growth of the community, and prescribes the land uses, functions, heights, and their qualities which may, or should be in different areas" (9). The published documents on the UofA Community Relations website contain the dimensions

discussed by Alexander et al. The master plan acts as a guide, a vision of what could be, however there are downsides to master plan documents. For example, Alexander et al. (1975) argue that a master plan "can create a totality, but not a whole" (10). As a master plan may take many years to implement as projects are often phased when project funds become available, the notion of stasis becomes evident for such a plan. Similarly, Nan Ellin (2006) argues that a master plan provides guidance and vision but is "too rigid" of what "ought" to be and most often ignores the input of the community. However, the University of Alberta has provided multiple opportunities to stakeholders to provide input and feedback. Unfortunately, when I attended the symposium and public presentation in April 2014, there were less than ten others in attendance. Hardly a representation of the university community let alone the community of Edmonton.

As previously discussed in this study, axiality plays a role in the design of space and how campus participants experience space. O2 Planning + Design is proposing the removal of the Administration Building to the south of the quad. The removal of such a building provides improved sight lines into and out from the quad. What is especially interesting is how this proposition harkens back to the original design of the UofA quad with a strong north south vista along 114 street.

There are two socio-political artifacts that are integrated into the Open Space Campus Master plan that seem to be assumed as essential: the Presidents' Circle and Alumni Walk. The Presidents' Circle is to be a monument to Alexander Cameron Rutherford, the first Premier of the province of Alberta and Henry Marshall Tory, the first President of University of Alberta. With the proposed removal of the Administration Building, the quad will provide the backdrop for the planned effigies which further mythologizes both the quad as a place of prominence as it is

visually associated with the persons and reciprocally, the historical persons of Alexander Cameron Rutherford and Henry Marshall Tory are connected to the quad as a site of university tradition and permanence. In conjunction with the Presidents' Circle, the Alumni Walk, which was installed in 2004 adjacent to the Students' Union Building and the quad, is proposed to be improved for the Alumni Association's 2015 centenary celebration. Details regarding the design of the Alumni Walk has not been made publicly available, however, I have been personally contacted by the Alumni Association to provide input on the design at a future date.

A major concern that the Open Space Master Plan does not address is the philosophy of space. How is "open space" within the UofA campus perceived? Is it an aggregation of voids needing to be filled by artifacts? By people? By programming? To prove to the provincial government that the University of Alberta is either utilizing its land efficiently or to prove that it is running out of space and requires more land to grow? Both are plausible explanations and there may be some truth in each as long term political strategies. However, the work by O2 Planning + Design does not address any of the political motivators behind the work and it assumes growth and change is both essential and positive for the UofA by *not* stating that any of the open spaces should remain the way they are.