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# The Campus Map: The Case of Wilfrid Laurier University

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# THE CAMPUS MAP: THE CASE OF WILFRID LAURIER UNIVERSITY

by
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## TABLE OF CONTENTS

## ABSTRACT

University campus maps are not generally designed for navigational purposes. However, they are often employed by universities for image-building purposes. A collection of campus maps of universities across Canada have been examined with regards to navigation and image-building. The final focus of this thesis is on the Wilfrid Laurier University campus map.

In order to understand the importance of the navigational process on the campus, it is necessary to examine the professions that depend upon maps to navigate through the environment. Children, orienteers and marine navigators provide us with the basic foundations and some of the finer details of employing a map when travelling through the environment. The most significant finding of the research revealed the importance of landmarks for navigational purposes; if employed correctly these landmarks can also be used for image building.

Unfortunately, some conflicts arise when attempting to satisfy both navigational and image-building requirements. In order to produce a successful campus map for navigation, the navigational requirements must be met first. Image-building features can be added, however they must not interfere with the primary purpose of the campus map - navigation.

**ACKNOWLEDGEMENTS**

I would like to thank Dr. C. G. Head for his time, dedication and patience while assisting me throughout the completion of my thesis.

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Above all to my parents, Paul and Lona Dykshoorn, who instilled me with the confidence and courage to make my university career possible. Thank-you for your love, support and encouragement. I love you both very much.

## LIST OF FIGURES

## CHAPTER ONE: The Variety of Campus Maps

The term 'Campus Map' is most commonly applied to the document that acts as a student's guide to and from the various buildings and facilities of a university. Campus maps, however, are produced in a variety of forms to be used for a variety of purposes, and students are not their only users. They are also used by conventioners, perhaps relatives of students, guest speakers, salespersons and those attending concerts and drama presentations. Many of these people are newcomers and particularly need information about building and parking lot locations. For all these people, the maps must be designed so that destination information is clearly presented and so that finding one's way through the campus is easy and pleasurable.

There is a further realm of users for very different campus maps, The users are people who are very familiar with the campus. Floorplans of the individual buildings, overhead geometric views of the overall campus plans, engineering drawings, plot plans, ariel photographs, and surveys are used to document the internal workings of the physical plant of the university. Physical Plant and Planning, (PP&P) and other campus employees, explained Robert Vanderspek, a Facilities Engineer for the Physical Plant and Planning Department, consider these maps highly important for understanding "networking". The maps may be architectural,

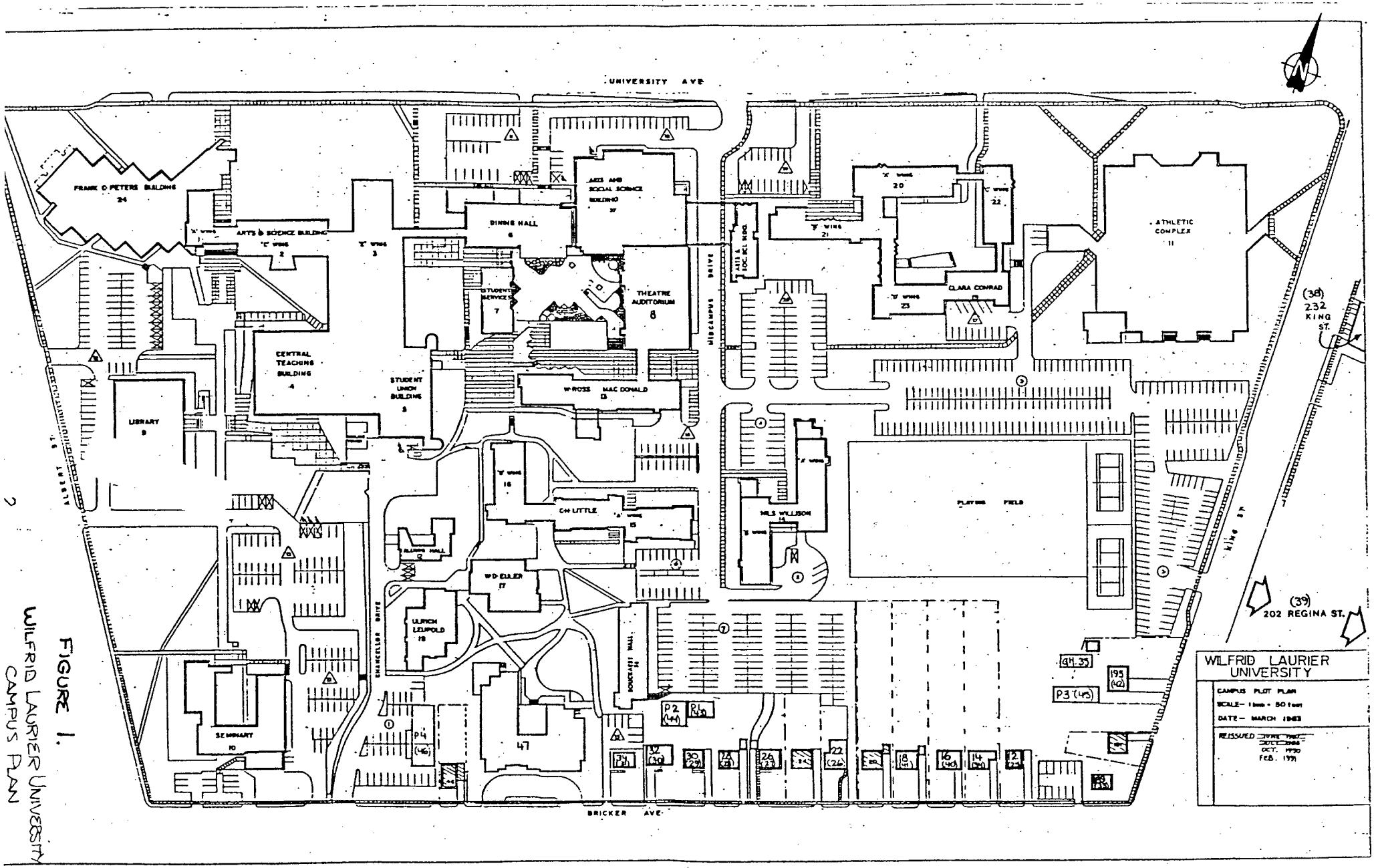



FIGURE 1.
WILFRID LAURIER UNIVERSITY
CAMPUS PLAN

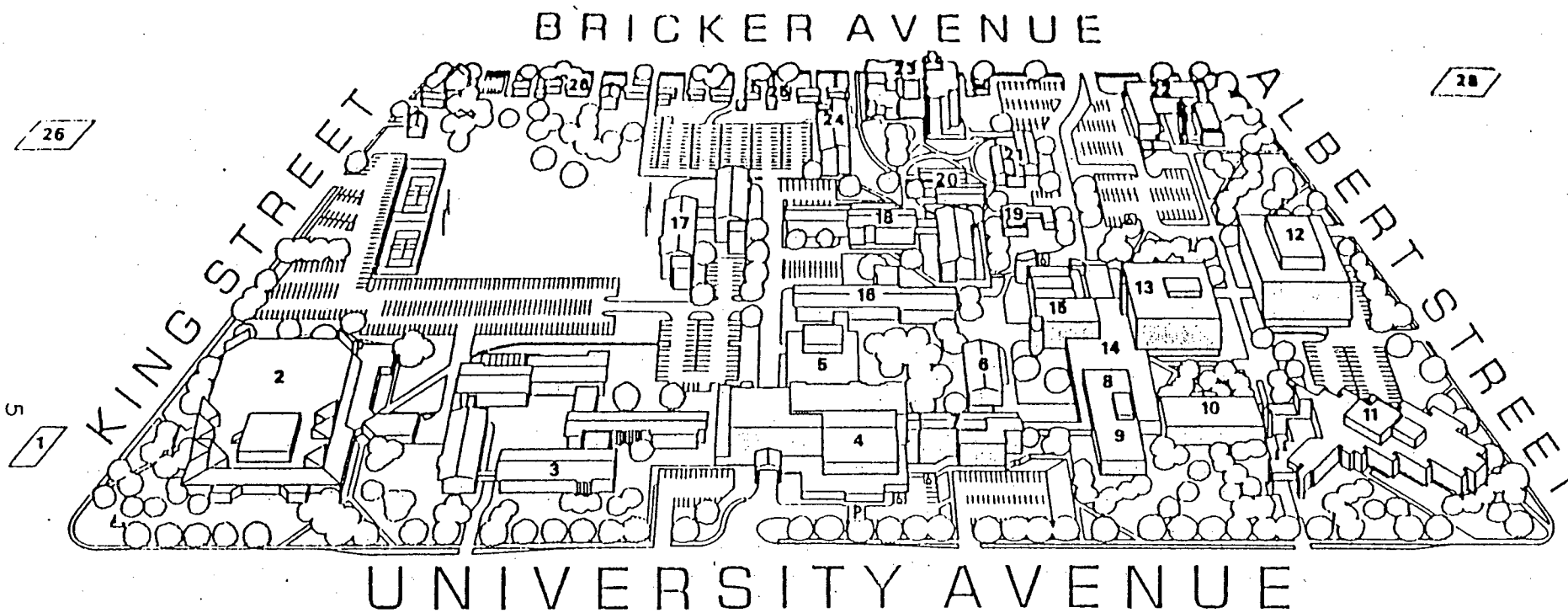
mechanical or technical. One of these campus plans (figure 1) is used to locate communication lines, high voltage cabling and plumbing. Other drawings are usually used for the renovation tasks of different buildings. The plot plans and surveys are referred to when planners are locating potential growth sites for the university. Faculty members may be concerned with the location of the various store rooms and offices and therefore will use the building floor plans. A staff member of PP&P may need to locate underground sewer systems, hydro cables and telephone lines when planning the construction of a new building. Much of this information is now being transferred to computer software that operates through Microsoft Windows. A large amount of information can be stored this way that can be easily accessed without rummaging through drawers upon drawers searching for a particular map. In addition, computer-stored information is seen as much easier to revise and update, a feature that is beneficial in light of a campus that is continuously changing. These architectural, mechanical or technical maps and plans are of crucial importance to long-term members of the university community, and may be used heavily over and over again by this group; they act essentially as information storage devices. (R.Vanderspek, Personal Interview, April 23, 1992).

These maps on computer and paper used internally by

faculty and staff are only one form of campus maps found at Wilfrid Laurier University. These "private" maps are of little interest and use to those coming onto campus for public purposes. This latter type of audience requires a totally different kind of map which opens a whole other realm. The "campus map" that will be the focus of this thesis is aimed at a public generally unfamiliar with the campus. We are interested in a map that has its major aim as not merely the storage, but rather the communication of information. It should function particularly to assist in locating specific points or buildings and in the navigation of a newly arrived population through the campus. Secondarily, it may communicate an image - good or bad - of the university. To do either job well its roles must be carefully and precisely assessed and its design carefully considered and executed.

The Campus Map of Wilfrid Laurier

The campus map in use currently at Wilfrid Laurier University is employed for a wide variety of purposes and audiences. Generally, Laurier tries to make do with only one map (figure 2). This has been amended over the years as the university grows and changes. For example, figures 2, 3 & 4




1. 232 King Street North
   - Co op and Internship
   - Part-time Studies
   - Personnel
   - Student Awards
   - Telecollege
2. Athletic Complex
3. Conrad Hall (Women's Residence)
4. John Aird Centre
5. Theatre Auditorium
6. Student Services
7. Dining Hall
   - Paul Martin Centre
8. Torque Room
9. Arts and Science Building 'E' Wing
10. Arts and Science Building 'C' Wing
11. Peters Building
12. Library
13. Central Teaching Building
    - Computing Services
    - Registrar's Office
14. Bookstore (Concourse)
15. Student Union Building
    - The Turret
    - Wilfs
16. Macdonald House (Men's Residence)
17. Willison Hall (Men's Residence)
18. Little House (Men's Residence)
19. Alumni Hall
    - Admissions Office
    - Graduate Studies Office
20. Euler Residence (Co-ed)
21. Leupold Residence (Co ed)
22. Waterloo Lutheran Seminary
23. Bricker Residence (Co-ed)
24. Bouckaert Hall (Women's Residence)
25. Alumni and Development Office
20. 202 Regina Street
    - Archaeology Department
    - Centre for Social Welfare Studies
    - Cold Regions Research Centre
    - Laurier Institute
    - Laurier Trade Development Centre
    - Printing Services
    - Purchasing Services
    - REMAT
    - Stock Market Competition
    - WLU Press
    - WLU Women's Centre
27. Purple & Gold Store
28. Seagram Stadium

Revised 11/91

Wilfrid Laurier University

FIGURE 2.

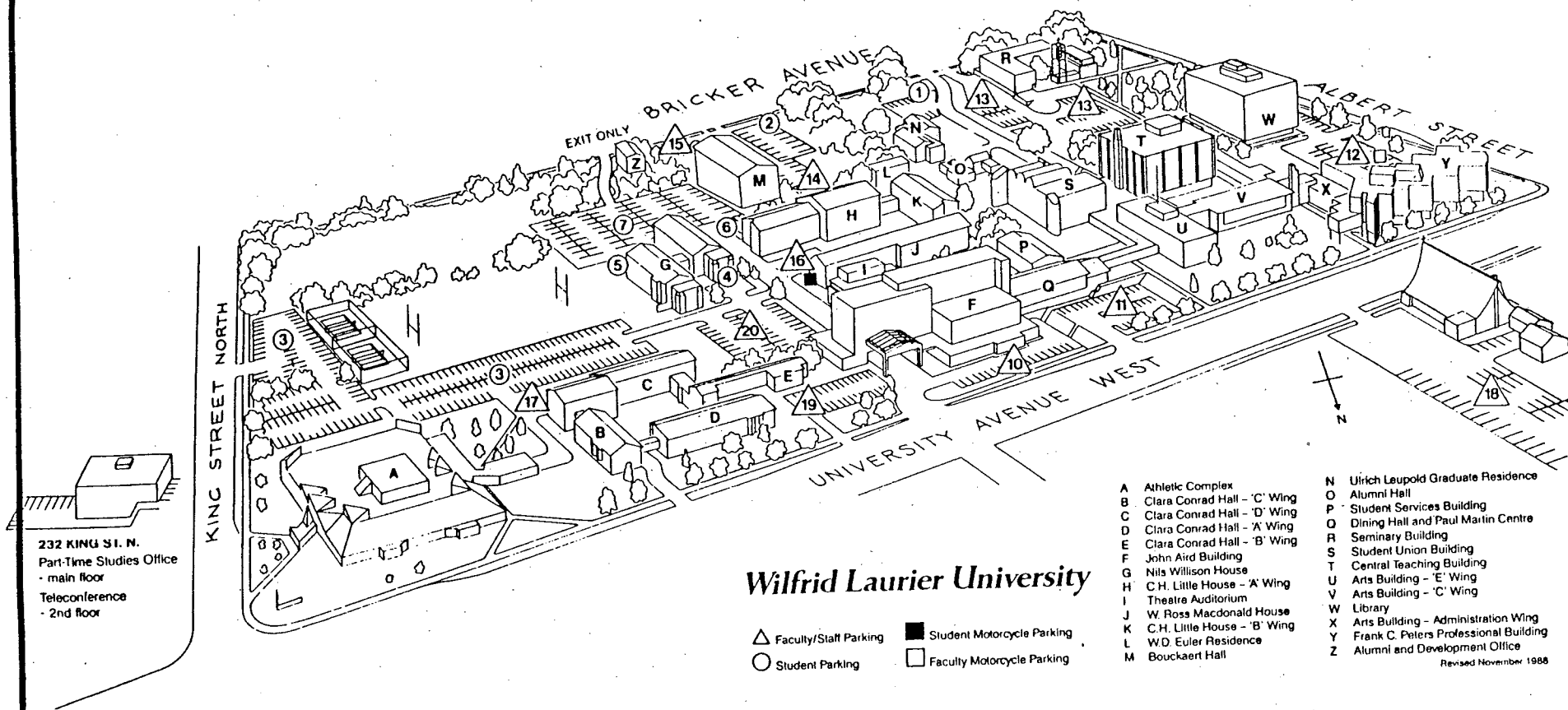
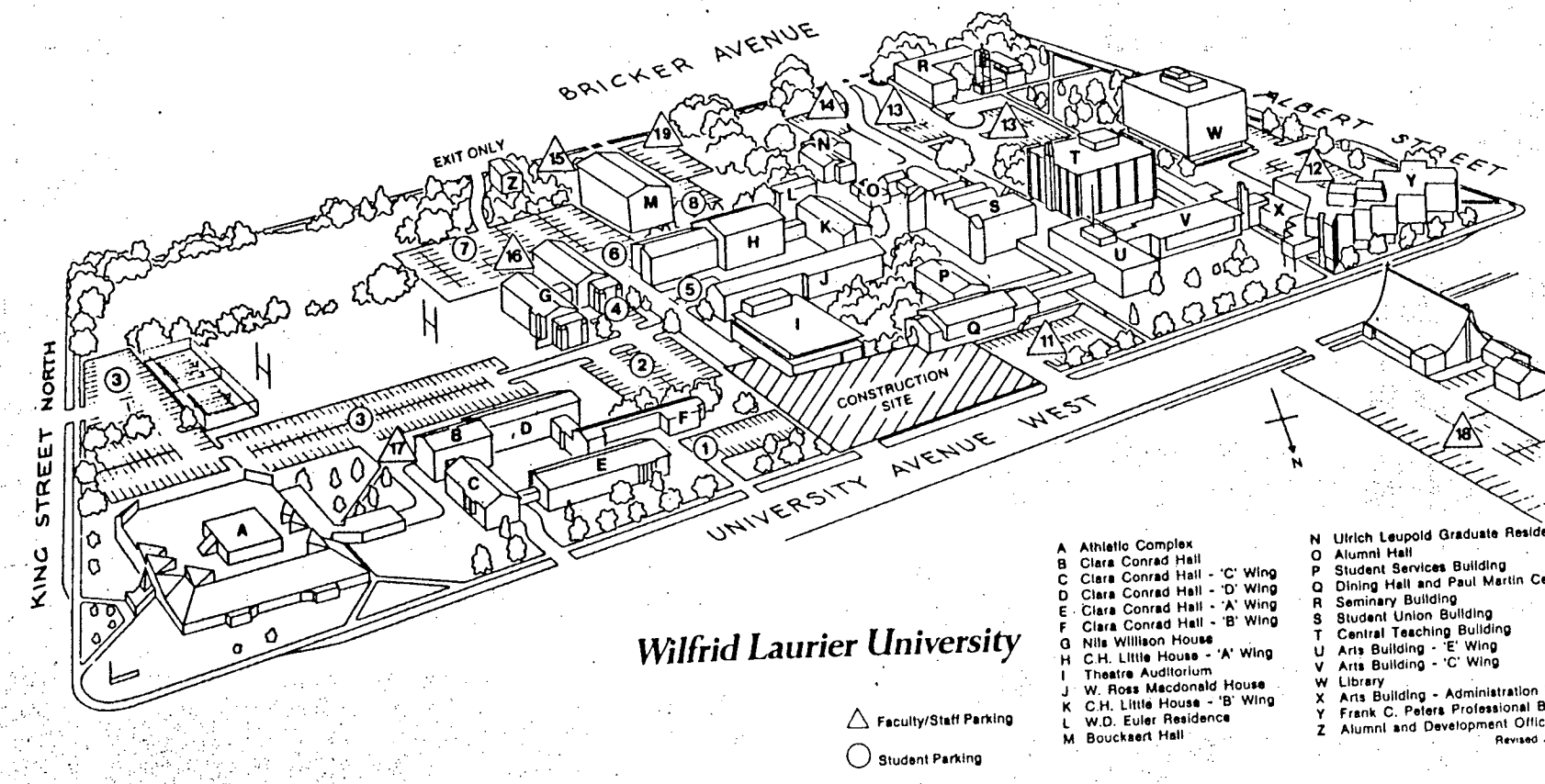

BRICKER AVENUE
EXIT ONLY
ALBERT STREET
KING STREET NORTH
UNIVERSITY AVENUE WEST
N
232 KING ST. N.
Part-Time Studies Office
- main floor
Teleconference
- 2nd floor
Wilfrid Laurier University
Faculty/Staff Parking
Student Parking
Student Motorcycle Parking
Faculty Motorcycle Parking
A Athletic Complex
B Clara Conrad Hall - 'C' Wing
C Clara Conrad Hall - 'D' Wing
D Clara Conrad Hall - 'A' Wing
E Clara Conrad Hall - 'B' Wing
F John Aird Building
G Nils Willison House
H C.H. Little House - 'A' Wing
I Theatre Auditorium
J W. Ross Macdonald House
K C.H. Little House - 'B' Wing
L W.D. Euler Residence
M Bouckaert Hall
N Ulrich Leupold Graduate Residence
O Alumni Hall
P Student Services Building
Q Dining Hall and Paul Martin Centre
R Seminary Building
S Student Union Building
T Central Teaching Building
U Arts Building - 'E' Wing
V Arts Building - 'C' Wing
W Library
X Arts Building - Administration Wing
Y Frank C. Peters Professional Building
Z Alumni and Development Office
Revised November 1988

FIGURE 3.


BRICKER AVENUE
EXIT ONLY
ALBERT STREET
KING STREET NORTH
UNIVERSITY AVENUE WEST
CONSTRUCTION SITE
N
Wilfrid Laurier University
Faculty/Staff Parking
Student Parking
A Athletic Complex
B Clara Conrad Hall
C Clara Conrad Hall - 'C' Wing
D Clara Conrad Hall - 'D' Wing
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R Seminary Building
S Student Union Building
T Central Teaching Building
U Arts Building - 'E' Wing
V Arts Building - 'C' Wing
W Library
X Arts Building - Administration Wing
Y Frank C. Peters Professional Building
Z Alumni and Development Office
Revised June '86

FIGURE 4.

indicates how additional information has been added to the original. The Aird Building appears in the second map and the Bricker Residence is added in the third. The base map is the same in all three instances; only amendments have been made to include the new structures.

Although the same basic map is used, different aspects, depending upon its specific identified users, are highlighted. For example, "parking maps" are given to those with parking permits. These consist of the most recent basic map with the parking lots highlighted and numbered. The staff and student lots are differentiated by placing the number within circles for students and triangles for staff. A more common general map caters to visitors that are new to the campus. This basic map numbers the buildings and parking lots with Arabic numerals (1, 2, 3...) and continues to use the circles and triangles for the parking distinction. The purpose of the symbols paired with the parking lot numbers is twofold; not only does it distinguish between staff and student lots but also between building and parking numbers. (Until recently there was no need to differentiate. In the past the buildings were referenced by the capitalized letters of the alphabet. As Wilfrid Laurier expanded there were not enough letters to represent all the necessary information and a switch to numerics resulted.) Another example of altering the basic map is the "residence maps" sent to all potential

new students. These basic maps have the residences shaded in a red ink to differentiate them from the other buildings on campus. One other type of map that is created for a very different purpose is that created for conventions and conferences. Again, the same basic map is used but a wider variety of information must be represented. People attending these conferences are concerned with the parking facilities, residence accommodations, location of registration and of the seminars. For these maps various methods of highlighting and numbering are necessary. Fortunately not every parking lot and building must be identified, only those involved with the conference. In all these cases the specific additional information is presented by over-printing with a second colour of ink, thus requiring only one extra run through the press, a simple job for the university printing services.

The Department of Institutional Relations is responsible for the current maps. This department produces revisions as new features are added to the campus environment. Each is dated and as the university grows the revisions become more frequent. Unfortunately, with budget cuts occurring, many departments may continue to use outdated maps because the change of information may not be pertinent to their needs. For example, Laurier's Music Department may not be overly concerned with the addition of the new Bricker Residence. They require maps for the purpose of directing people to the

Aird Building for concerts and recitals, and handicapped clients to the music therapy program. Therefore they will probably continue to use the old maps without the residence being indicated until they run out rather than purchasing the updated maps. Thus, there may be many versions of the basic map in current use, and not all are equally useful for all situations.

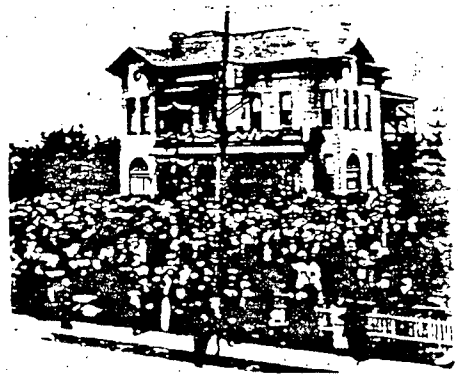
A larger problem and one of greater concern is the rapid growth of the Laurier campus. Purple and Gold - the universities bookstore outlet for Laurier-crested clothing and other university souvenirs, was opened across the street from the main campus block on the north side of University Avenue. In addition, Laurier has recently purchased Seagram Stadium which is located on the west side of Albert Street on Seagram Drive. Each of these facilities have been developed or bought within the last three years and all are located beyond the main campus block. In general, Laurier has been expanding to the east with offices on Regina and to the west with the addition of the stadium. It is now becoming difficult to represent the campus entirely and effectively on the 8-3/4 by 5-3/4 inch page that is found in the Laurier course calender. This year's attempt to do so was not very effective as the off-campus facilities were given poor representation compared with the main campus block (Figure 2). Unfortunately, due to budget restraints, this was the

best that Institutional Relations could provide. Mr. Barry Lyons of Institution Relations would, of course, like the Laurier campus map to be something much more sophisticated, but that, of course, would also be much more costly. A map of greater size could give all of Laurier's facilities their proper representation. And a more artistic approach is needed, he notes, to make the map more appealing. Actual photographs depicting some of the university's buildings and of university life, may be included. A history of the campus or a written walking tour with pictures throughout to aid in the description would be further possibilities. In the early eighties Laurier did produce a brochure that was titled "Campus Walking Tour". On one side of the pamphlet when unfolded was an orthogonal map with red arrows marking the path. On the other side was a written description of the buildings encountered and what facilities they contained, along with a brief history of the structure.

Figures 5 and 6 show a portion of the written tour and the map provided.

**WLU YESTERDAY**

1911 Waterloo Lutheran Seminary opened with four students after the official opening and dedication held on Thanksgiving day, October 30.



1914 From the beginning it had been necessary for the Seminary to offer preparatory courses as a requirement for students preparing for the ministry. These courses were separated and Waterloo College School was born.

1924 The school was reorganized and a three-year Arts course was offered and Waterloo College came into being.

1925 Waterloo College began its lengthy affiliation with the University of Western Ontario for degree-granting purposes. Many students took their first year or years at Waterloo College before transferring to the larger London University.

1927 The Alumni Association was organized in October.

1929 The College admitted its first women students.

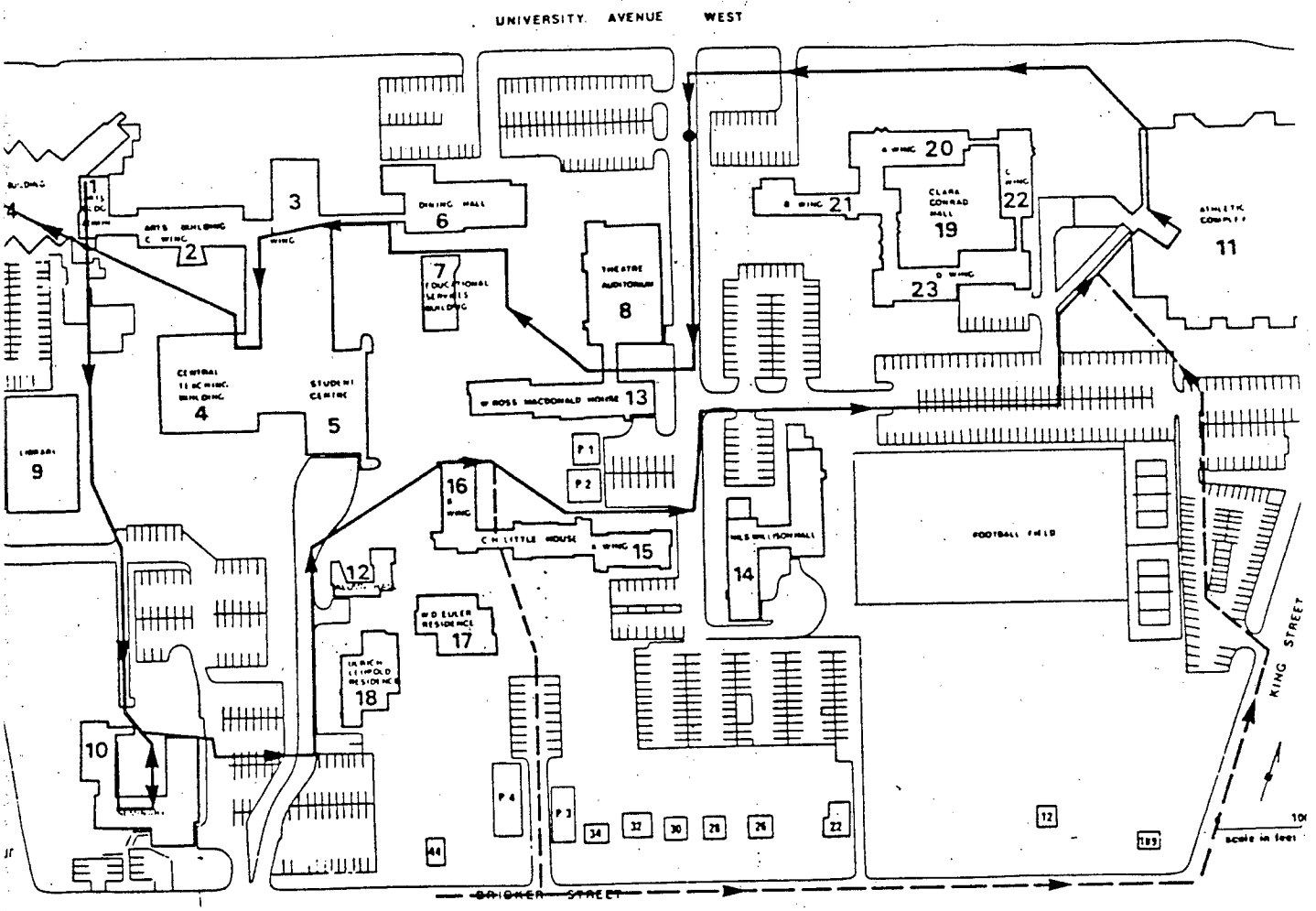
1939 Fourteen students, one of the larger classes to that date, graduated in a year that marked the end of the depression but the beginning of the Second World War.

1947 With the end of the war, the Waterloo Expansion Program was launched to raise funds for a new teaching building.

FIGURE 5.
WALKING TOUR: HISTORY

This was an excellent method of introducing newcomers to the environment and informing them of the university's facilities. It was however, Mr. Lyons noted, a costly approach and with the changes on campus occurring so rapidly it would be difficult to keep up with additions and keep the costs down. A larger fold-out map incorporating the previously-mentioned ideas could be very successful. Mr Lyons is enthusiastic about improving the Laurier campus map, but the execution of these changes may be delayed due to present funding. (B.Lyons, Personal Interview, March 20,1992)

Well-designed campus maps can serve several functions. They can allow users to locate individual buildings; they can allow newcomers to navigate about the campus; and finally, once the primary objectives have been attained, they can be used to create images of the university.




# 1 ARTS & SCIENCE BUILDING
# 2 ARTS & SCIENCE C WING
# 3 ARTS & SCIENCE E WING
# 4 CENTRAL TEACHING BUILDING
# 5 STUDENT UNION BUILDING
# 6 DINING HALL
# 7 STUDENT UNION BUILDING
# 8 THEATRE AUDITORIUM
# 9 LIBRARY
#10 SEMINARY BUILDING
#11 ATHLETIC COMPLEX
#12 ALUMNI HALL
#13 W.ROSS MACDONALD HOUSE
#14 NILS WILLISON HALL
#15 C.H. LITTLE HOUSE A WING
#16 C.H. LITTLE HOUSE B WING
#17 W.D. EULER RESIDENCE
#18 ULRICH LEUPOLD RESIDENCE
#19 CLARA CONRAD HALL
#20 A WING
#21 B WING
#22 C WING
#23 D WING
#24 FRANK C. PETERS BUILDING

**BRICKER STREET**

#44 SOCIOLOGY, ANTHROPOLOGY & ARCHAELOGY
#34 GEOGRAPHY DEPT. GRAD HOUSE
#32 GERMAN
#30 DEVELOPMENT & ALUMNI AFFAIRS
#28 FINE ARTS STUDIOS
#26 ARCHAEOLOGY LAB
#22 BIOLOGY MUSEUM
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Waterloo, Ontario
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(519) 886-6840

FIGURE 6.
WALKING TOUR: MAP

The Campus Maps of Other Canadian Universities

For comparison, a selection of campus maps from other universities in Canada was collected in order to observe what methods they used to represent the campus information. Several universities realize the important role of the campus map and obviously had larger budgets to create such productions. Many had large fold-out brochures ranging in size from 11" by 17" to as large as 18" by 24". Others were on standard-size sheets of 8 1/2" by 11". All of the maps indicated the buildings with either numbering or lettering schemes and some even used text labels. Several of the larger productions employed two or more colours to assist in the reading of the map and differentiating the information. Several examples have been included for observation and as a reference throughout the following discussion.

Lakehead University Campus Map (Figure 7) is created on a 7" by 11" page with one inset map to the right of the page. The inset is an enlarged image of the residences found on campus. This is an important feature to the potential and current students. The academic buildings are all indicated with a solid black fill and a lettering system. Residences and parking lots are indicated directly upon the map with text. The map is a straight overview (an "orthogonal" map) which portrays the campus as a ground plan with no impression of a third dimension added. This style of map is simple and

useful for single point location map reading but would be difficult to use for navigational purposes because it lacks a crucial feature referred to as landmarks (to be discussed in further detail in chapter 2). The map is created in black and white only. The overall perception of the map is not particularly attractive and therefore the creation of a strong positive image for the university has not been a priority in its production.

Trent University (figure 8) uses a fairly simple sketch map. They, too, use a numbering system for the building structures on campus. The buildings are portrayed as three-dimensional structures but unfortunately the overall image is not very clear. Trent is currently updating and designing a new map that will hopefully meet the necessary requirements for navigation and image building.

McMaster University (figure 9) produces its campus map on an 8 1/2" by 11" page. The campus map is drawn into the context of the existing roads that surround the university. This will assist the reader in locating the university and referencing the campus with other information that may already exist within their knowledge. McMaster also portrays the buildings as three-dimensional structures. These symbols look like miniatures of the real world elements. This form of symbolization is referred to as "replicative". The residences are indicated with a brown colour to distinguish

them for the remainder of the buildings. The buildings are numbered and the legend on the front of the map lists all the buildings in alphabetical order. This method of order is useful if the user is familiar with the campus; otherwise, it is not very efficient if the user is a newcomer. If the newcomer is using the map to locate their position in the environment, they will not necessarily know the name of the building next to them. By using the map they can determine the number of the building. They then waste time looking through the alphabetical list for that particular number. The alpha-listing will work if the user has been given a building name and wishes to locate it. On the back of the map is a listing of all services and facilities and in which building number they are located. This function list is the "complement" of the alphabetical list. Another map is provided on the back of the campus map that references the university in regards to the surrounding regions of Hamilton. Accompanying the map is the distance information in kilometres from various large cities in Ontario, Quebec and the United States. This is a useful piece of information for those who are travelling to the university for the first time.

Brock University (figure 10) produces an 8 1/2" by 11" map without any use of colour but does utilize several shades of gray. The addition of the grays assists in representing

and distinguishing the information but without the expense of a multi-coloured press or two press runs. The buildings are represented by three dimensional images similar in appearance and shape to the buildings in reality. The major difference between Brock and other university maps that use three-dimensional replicas is that Brock does not incorporate any additional detail. They do not include building windows or details upon their images. Details like these may help to improve the overall appearance of the map and can help further as landmarks for navigation. Brock uses several coding methods upon their map and this makes it somewhat confusing to read. The buildings are named directly upon the map including an abbreviated version that is used in the legend. Numbers are used to distinguish between the student villages. Large capitalized letters are used for different branches of another large complex on the campus. Small capital letters are used for the different parking lots and the abbreviations of the building names are also in small capital letters. The directory on the map lists the various services and facilities alphabetically according to the different departments. The legend lists the abbreviations and what they represent. This seems to be a waste of space because the abbreviations are already given on the map along with the full name of the building they represent. Either the legend or the full names on the map can be eliminated to

simplify the overall appearance of the map. Brock has attempted to show a great deal of information upon one map. The amount of information could be reduced and spread across several maps depending upon the purpose of the graphic representation. Once again, Brock could be working within a tight budget that limits them to only one production, Therefore they must pack this full with as much information that the map can hold in order for it to be a multi-purpose tool.

The University of Toronto (figure 11) also appears to have a very complicated map but for very different purposes. Toronto has several campuses and is by far the largest university discussed so far. The map used for this discussion is of the St. George Campus. It is produced on a 11" by 17" sheet of paper with two colours, blue and black. The reason for the map to appear so complicated is that it is such a large campus with many buildings upon its grounds. The buildings are simply numbered in blue and the streets within the campus are neatly labelled upon the map in upper and lower case lettering. The directory on the map lists all the facilities in alphabetical order using the numbers for location reference. On the backside of the map is a directory listing according to number which is useful for navigational purposes. For example, suppose you are a first time visitor to the campus and you are attempting to travel

through the grounds to become familiarized with the layout. As you are walking about you pass a particular building that you are curious about. Unfortunately you do not know its purpose but you have been following your path on the map and are able to locate the building and its number on the image. It would be rather tedious to read through all the names listed alphabetically in the directory in search for the number associated with the name of the building you are questioning. The directory on the reverse is much simpler to use for this purpose because it is listed numerically. Therefore it is important to note that numerical or letter coded maps should provide a legend/directory that list the features according to their codes for those potential users that are unfamiliar with the campus. Directories that list the facilities in alphabetical order are useful for those who know the buildings primarily by name. The map also contains coordinates along the horizontal and vertical axis. The directory on the reverse also provides these coordinates of the map features as a quick locating device. The Toronto University campus map uses three-dimensional symbols replicating the real world structures including a great amount of fine detail such as windows and doors. Perhaps if some of this additional detail was eliminated the map may appear somewhat simpler. However, the detail creates a more attractive image which improves the appearance of the map and

aids in wayfinding.

Queen's University (figure 12) appears to have put forth a great deal of effort in designing its map. It folds out to 18" by 24" and employs several colours. The map is placed upon a grid with the coordinates across the horizontal axis as letters and the vertical axis referenced in numbers (similar to the University of Toronto). This device used for locating is commonly found on smaller scale maps but may also be very useful on this map with a larger scale. The affiliated buildings on campus are represented with three dimensional replicas and include window and design detail along with gray-shaded roofs. The shaded in roofs helps to distinguish the school affiliated buildings from the other information upon the map. The buildings are numbered with red filled circles containing the numbers. Handicapped accessible facilities are indicated with yellow squares containing the wheelchair symbol. The west campus is represented with an inset using the same colour scheme. The entire map and inset is placed upon a blue background that indicates the lines of the coordinate grid. The directory is in two parts, one being indexed by function the other indexed by building. Within each of the indexes the information is listed alphabetically. Beside each listing is a number in red corresponding to the numbered buildings on the map contained within red squares. In addition the

coordinates of the facility is given in letter/number form for quick location upon the map. This is a very different and useful technique that is not frequently employed by the majority of other campus maps discussed up until this point. For instance, if you know the number of the building you are looking for and there are nearly one hundred numbers (or more) the coordinate method can prove to be much more efficient than searching the entire map randomly for the number. Queens is also one of the few universities to accurately represent vegetation upon their map. Laurier is another and Trent indicates vegetation as well, whether it is accurate though is questionable. Queens depicts all the trees upon the campus with miniature symbols. This not only adds to the attractiveness of the campus and the map, but, can also be used as a navigational aid. The only wording found upon the map is used to label the roads found within the campus grounds. On the reverse of the fold out map some background information about the university is provided, including enrolment figures, degrees and diplomas offered, graduate studies, information telephone numbers, budget and a brief history. This additional information provides the user with a well equipped package. This map is not only useful for point location and wayfinding, but, it provides an excellent public relation as it creates a very strong and positive image.

The final map to be discussed to wrap up this segment is one that appears very costly to produce. It is a map to make you want to go there, not one whose priority is to get you around once you are there. (A marvellous example of the appropriation of the map by the image-makers!). The University of British Columbia (figure 13) campus map is by far the most elaborate of those examined. It takes a unique approach. The map itself employs over a dozen colours to depict the university's facilities and services. The base map itself is orthogonal in style with a simple ground plan of all the structures on campus. There are no three dimensional figures used to symbolize the information. Colours are used to differentiate between the buildings. For example, dark gray represents all academic buildings, blue identifies cafeterias, purple indicates seasonal cafeterias, green is used to distinguish recreational facilities, yellows depicts housing and so forth. All the structures and facilities are labelled directly upon the map. This is the only example of a campus map that does not employ a legend or directory. A legend is unnecessary since there are no symbols used that need to be identified. Fortunately the campus is fairly large and spread out so the wording does not appear to be crowded. The University of British Columbia campus map also uses the coordinate feature on the map yet it makes no reference to it because it has no legend or

directory. The map itself is only 8" by 16" but the entire brochure is 18" by 22". The remainder of the space is filled with colourful graphics and interesting information about different aspects of the school. The information is not academic in nature yet the majority of it can be viewed as educational entertainment. Various gardens and environmental research projects that are available on campus for viewing purposes, along with museums and recreational facilities are just a few examples of the type of information that is listed within this brochure. The graphic art is very colourful and eye catching which adds to the overall impression of the map. On the reverse side of the pamphlet is a variety of six different graphic images. Each is unique and colourful and depicts six different of individuals to accompany the theme 'You'll go home a different person'. The entire map front and back is overwhelming compared with many of those previously discussed. It sends out a strong image of quality, adventure and prestige. The brochure is produced on a semi-gloss paper which adds to the quality and enhances the colours. The map itself is well organized and can be useful for point location and wayfinding. However, it is not the most efficient method for these purposes. As well, it provides no recognizable features since it as a direct overview. The three-dimensional maps allowed the reader to visualize the appearance of the actual building. Therefore

when travelling through the real world campus they can easily identify the buildings because they can recognize them from the map. Considering the size of this university's campus the style they employed may have been the best method. Rather than dimensions and extra detail like trees they chose to use colours which has created a very attractive map. However, for the purpose of navigating through the environment it falls short in several areas that will be discussed in the next chapter.

By observing the other examples of campus maps and attempting to understand the methods employed and their effectiveness we can acquire some very useful and creative ideas. For example, we can see in some the effectiveness of employing colour and the usefulness of the incorporation of other information about the university that may provoke the reader's interest. Ideally, a map design that takes into consideration the requirements for producing a wayfinding tool and that can also incorporate the positive features of the previous maps discussed could result in a very useful and attractive brochure. By attempting to understand the concepts and abilities involved in route planning and wayfinding, guidelines on how to develop a useful navigational map can be produced. The next chapter, therefore, will discuss the topic in further detail.

## CHAPTER TWO: The Navigational Process: Lessons for the Campus Map

What should a map accomplish? This seems to be a generally straight-forward question, yet many map designers neglect the basic principle that a map has a purpose. Designers often become quickly engrossed with the map's general aesthetic appearance. The aesthetics are of course, important to initially attract the reader's attention. The appearance is also associated with the university's image, and thus the campus map can attempt to improve the reader's perception of the school. Unfortunately, the image aspect often takes priority over what should be the primary purpose of the campus map: a guide that can be employed for navigation through the real environment. The navigational needs should be met before image-building aesthetics are incorporated.

Mark Blades of the Department of Psychology at the University of Sheffield in Sheffield, England, has completed a great deal of research on the importance of map use for navigation, particularly for what he calls "wayfinding". "The task of wayfinding with a map requires an appreciation of the relation between the map and the environment which it represents, and an awareness that information can be selected from the map in such a way as to aid travel through that environment" (Blades, 1990, p.3). This definition of wayfinding can also be used to define the term I refer to as

navigation. Blades categorizes down navigation into two components: i) use of the map to get a better understanding of a potential route between an origin and destination when outside the mapped area on the one hand, ii) the use of the map within, and in close comparison with, the environment on the other. We can refer to these two processes as "route planning" and "wayfinding". Both of these components are of concern to my research.

To understand human abilities for map use, we can turn to research in a number of areas. Notable studies have examined the formation of wayfinding abilities within young children, of the sport of orienteering, and the traditional procedures of marine navigation.

Understanding the Navigational Process: Children

Blades has completed extensive research to determine "how children develop the ability to understand physical representations" (Blades, 1990, p.3). Until recently there was very little research done on children and their ability to understand spatial representations. Such studies can prove very interesting and beneficial when attempting to understand navigational and map using abilities. The ability to recognize that a map is a representation of an actual environment is a crucial first step in employing a map to assist in navigation and point location. Blades discovered

that children have an initial difficulty with this preliminary task.

The second step is to select information that will be useful for navigation; and the third step is to locate one's position on the map. Blades' study on three to four year-olds, indicated several interesting factors that affect young children's spatial abilities. He discovered that the "children's ability was based on the identification of unique objects or landmarks which were common to both spaces [the map and the actual environment], and not on a complete understanding of the overall correspondence between those spaces" (Blades, 1990, p.12). He also discovered that the children performed better when the maps were correctly oriented with the environment. Blades' reasoning for these results states, "Firstly, the correspondence between the representation and the environment may be easier to recognize when the two are in alignment. Secondly, if children falsely assume that a representation is aligned when it is not ... this will result in errors when using rotated representations", (Blades, 1990, p.14). The youngest children often failed in many of the location tasks because they only referred to one landmark: "this would not imply a full understanding of the spatial relationship between the maps and the layouts", (Blades, 1990, p.20). Blades discovered that before the age of six, children do not consider two objects

or landmarks, and the concept of "between" to assist them in their wayfinding. Using a map effectively requires the user to understand the map's spatial relationships in order to apply that understanding in reality. Realizing the limitations of children's abilities to use maps, proper map using procedures can be introduced at an early grade level. This will assist children in any navigational activities they may encounter. Knowing why children succeed or fail in wayfinding when using maps also indicates important factors in map design; landmarks - appearing on the ground and on the map - are key elements.

Understanding the Navigational Process: Orienteers

Orienteering is an excellent example of travelling through an environment to reach a specific destination with the assistance of an informative map. The sport of orienteering is a race against time. The competitors must plan an optimal route that will minimize the difficulty of travel, thereby minimizing the amount of time required to complete the course. Orienteers rely heavily upon the map to provide the essential information needed to choose the most appropriate route.

A study by Roland Seiler, regarding the decision making process in orienteering, covers some basic concepts that are relevant to my discussion on maps for navigation. For

orienteering, the map is used to examine environmental conditions since it is a representation of the terrain. It provides information to determine the possible routes. In addition, orienteers are unable to continually stare at the map during their travel. Therefore, they search for key information (landmarks) about the environmental conditions to guide them. His study revealed that experienced orienteers were most concerned with the map contours. This is understandable because elevation differences can influence the difficulty of travel which is crucial for route choice when orienteering. Another piece of information that was also considered important was hindrances: " ... hindrances, ... in the form of terrain obstacles ... was on a hierarchically higher level than holding a high running speed"(Seiler, 1990, p.43). From these results we can conclude that depending on the map user, different forms of information are considered pertinent.

Understanding the Navigational Process: Marine Navigators

Marine navigators most often use specifically designed maps, more commonly known as nautical charts. The processes they use are usually divided into two basic approaches: piloting and dead reckoning. Piloting relies on the use of landmarks to assist in navigation. Some landmarks are intentionally placed to assist navigation, including buoys and

light and fog signals. Others were not originally intended for navigational purposes, but are now used as such, including church steeples, flag poles, prominent buildings and radio antennae. Piloting through a familiar environment becomes an unconscious effort for navigators: "...planning a suitable route may be done merely by thinking of the landmarks and creating a cognitive image of the area " (Telfer, 1985, p.33). This method is similar to that used by a land navigator, or by a senior student travelling through the school campus.

Dead reckoning is employed when piloting is not possible, as in the case of lack of visibility due to fog or darkness. It must also be used when no distinctive landmarks are available as, for example, in the open sea if star sightings are unavailable. This method relies upon distances and directions. In order to maintain course, a record must be kept of the distances and directions covered during the travel. The majority of the planning work is done on the nautical charts prior the actual travelling, and the directions and distances from the chart are followed through the real environment. There is more room for error with this method as it requires careful calculations of distance and direction for each segment of the trip. The distance travelled while in motion is calculated by 'speed x time'. Unfortunately this is often difficult to determine with precision because of intervening factors like winds and

currents. Because of the dangers involved, dead-reckoning is verified through piloting whenever possible. In his book on Map Use, Muercke maintains that "such mixing of techniques is usually the best strategy and is the essence of practical navigation", (Muercke, 1978, p.340-1)

Large vessels usually contain expensive and sophisticated instruments that are useful for navigation. Gyro-compasses provide directional information and sophisticated devices measure speed. Landmark features can be obtained from radar and sounders. In addition, navigators often customize their charts by drawing on points of interest and landmark features to look out for while travelling. They realize the importance of these obvious features and their usefulness for navigation through an environment. Although they are concerned with water travels, the concepts and skills they use can be applied to travels on land and in designing an effective campus map for navigational purposes.

Lessons for the Campus Map

Like any maps used for navigational purposes, campus maps can be used for both route-planning and wayfinding. For example, often when students are new to a campus they may carry a campus map with them on their travels to and from class to assist in finding their destinations. This is wayfinding. However, after the first or second day of classes

students no longer need to carry a campus map as they have created a mental representation of the areas they travel through. If they need to travel to a new location on the campus they need only to refer to the map prior to their trip to locate their current location (a task they will have done before) and their destination (a new task), then add the additional information to their existing knowledge of the campus. this task will require them to evaluate the optimum route to take. This is route planning.

We have seen that orienteers and navigators have developed these skills in a number of map-use procedures in order to complete their travels with minimum difficulty. These skilled procedures are : i) identifying one's own location; ii) orienting the map; iii) planning an optimum route; and iv) selecting way-marks (intermediate landmarks) along the chosen route (Blades, 1990, p.4.). In each of these procedures, landmarks play a key role. Map users who do not know their location are lost and they cannot begin to move over a planned route until they first fix their location. In order to identify one's own location one must extract information from the surroundings to match to the information on the map. Often people who are completely confused or lost fail in matching because they are expecting something else and may overlook the obvious information, (Murakoshi, 1986, p.104).

In the childhood studies we saw the important role played by recognizing that the map relates to the environment. The lesson for us here is that a campus map must in some way be "attractive" to the potential student user; a "friendly" , aesthetically-pleasing map will more likely be kept, looked at and used. It's design should encourage the user to make comparisons of map symbols with the campus environment (as Blades put it, " ... the identification of unique objects (landmarks) ... common to both spaces" (Blades, 1990, p.12)).

Orienting the map is possibly the most useful preliminary step when employing the map. Overall, the comparison performance is better when the map is correctly oriented with the environment.Depending on the direction of travel this often requires the reader to turn the map as far as 180 degrees to the right or left. Ideally, when travelling straight ahead, the destination should be at the top of the map, so that all rights and lefts will correspond with the real environment. The basic problem, however, is in the map user's determination of the correct map orientation. An orienteer or a marine navigator will use a compass to perform this task. The campus map user will most likely utilize landmarks. The primary lesson, therefore, then, that enough landmarks must be available, particularly in the initial stages of a journey - even on a campus - to allow orientation.

Even if the map user is given enough information to allow efficient map orientation, certain map design factors may inhibit the turning of the map. Chief among them is map lettering. We are conditioned to read from left to right with the titles at the top and the wording right-side-up. As a result people often confuse a left turn on a non-oriented map to also be a left turn in reality and ultimately become lost and confused.

If people were aware of the usefulness of a well oriented map they would realize the need for proper orientation when planning an optimum route of travel. It is much easier to plan a route if the directions correspond with the real environment. Right/left is naturally one of the most common orienting confusions of humans. Imagine the confusion and difficulty if every left on the map was, in reality, to the right and vice versa - mistakes are bound to occur with this approach. As well, identifying landmarks is much easier to do if the map is correctly oriented. A key landmark feature may be totally overlooked when attempting to organize lefts from rights or west from east, Therefore, successfully orienting the map is a valuable skill that underlies the effectiveness of all other map using skills for navigational purposes.

Our brief look at map use with the sport of orienteering reinforces the importance of landmarks. Furthermore, it is clear that we must be specific in our determination of the

user population when defining landmarks. Orienteers rank changes in elevation and their representations as contour lines as highly significant, as these provide not only landmarks but may also suggest hindrances to travel. Thus, campus landmarks may be chosen in part for their significance to certain groups of users. For example, at Wilfrid Laurier, handicapped students would also be concerned with changes in elevation. The provision of ramps at these locations would be necessary because stairs would be considered a hindrance to those in wheelchairs. Therefore, when attempting to determine how people use maps for navigation, we must also consider the characteristics of the population who will use the map, in order to cater to their specific needs.

Finally, from examining the procedures of marine navigation, we learned that the successful professional navigator will use both dead-reckoning and piloting. An example of combining the two methods of piloting and dead reckoning in an environment like Wilfrid Laurier University campus might occur in travelling from the new Science complex (to be located at the corner of King Street and Bricker on the Laurier campus) to the "quad" (figure 14). Stroll three minutes northeast along the path adorned with wooden benches and flower bed borders until the fountain is reached. From there jog to the left past the Theatre Auditorium, then walk one minute arriving in an open area with

two large trees known as the quad. The stroll requires a combination of dead-reckoning and piloting since it employed direction (northeast) and landmarks (wooden benches). The segment of the trip after the turn also uses a combination of the methods because it relied on time and unique features.

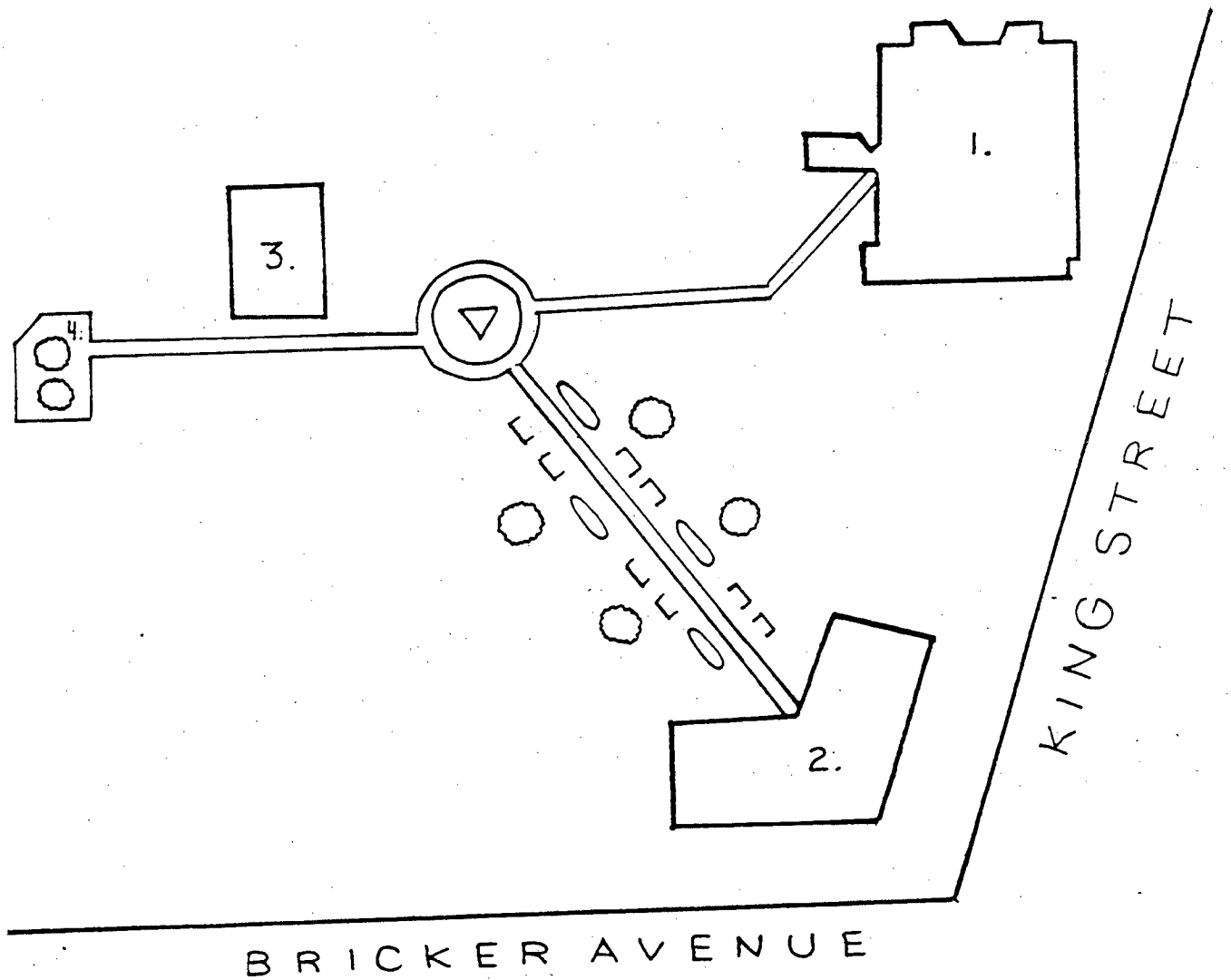



FIGURE 14.
PARTIAL SKETCH

Being unable to recognize key landmarks along the route once travel is in progress ("way-marks") is another possible reason for difficulty in extracting information from the environment to match to the map. Landmarks are key features found in the real environment, that are or should be represented on the map to assist in marking progress along a route or to mark key points at which a change in direction will be necessary. The identification of these "way-marks" is a very important issue for effective map use. Finally, one extremely significant landmark that needs to be identified both in the map design and in navigation, is the destination. You must know when you have arrived!

In summary, then, from all these studies on the navigational process, one component stands out as of primary importance: landmarks. The following section, therefore, examines the locations and necessary qualities of features that we can classify as a landmarks.

## Landmarks

What makes a good landmark? Firstly, the cartographer must research the real environment thoroughly and become very familiar with the grounds in order to chose the main key features or locations to be represented on the map. These key features must not only be easy to recognize in the real

environment, but should also be located at points of importance, such as points of origin, turning points on a path, and points of destination. Secondly, having identified what will provide good landmarks on the ground, the cartographer must depict these landmarks effectively on the map. An effective landmark symbol should be easily identified and associated with its real-world counterpart. For example, suppose a student is travelling onto the Wilfrid Laurier campus from University Avenue and proceed under the Aird Building passage way in search of the Dean of Students' office. A key location is after the Theatre Auditorium building and before the MacDonald house residence. At this location a right turn will lead the traveller in the correct direction towards the Student Union Building (the location of the Deans office). This route is not at all visible according to the campus map now in print ( figure 1), yet it is the most direct, efficient and simple path to take. The key location is the turning point towards the Student Union Building, ideally an appropriate place for a landmark feature. Unfortunately there are no unique features at this location for the traveller to focus on and thus no feature to place upon the map. If Wilfrid Laurier University is concerned with creating a useful map for navigational purposes, perhaps it should first explore its campus to discover where landmarks exist, as well as where they should be created.

General knowledge of the mapped area can be gained by a potential traveller by noting the landmark features depicted on the map to assist in locating particular points of interest in reference to the location of landmark points. Using the example of Wilfrid Laurier University Campus, suppose a charity fund raiser is occurring in the Quad. The Quad has not been depicted clearly or labelled on the campus map (figure 2), but the reader has been informed that the Quad is located between the Student Union Building and the MacDonald House residence. A numbering system is used to identify buildings on campus; the two buildings can be quickly located with the help of the useful legend. The buildings now become landmark features because they are indicators of the target destination. Thus the reader can determine that the quad location is directly between these two features now referred to as landmarks. Another landmark feature that should be clearly depicted on the campus map are the two very large trees located in the centre of the quad. Once the Quad's location has been established on the map with reference to the landmarks, an optimal route of travel can be planned for navigation through the campus to the quad.

Landmarks, however, do not only have to be considered destination associated targets, they can also be used as "way-mark" targets along the path of travel. For example, perhaps the traveller will be entering the campus along the same path

as the person looking for the Dean of Students' Office previously discussed. Therefore, he will use the landmark feature that should be located between the Theatre Auditorium and MacDonald house as an indicator to turn right. This type of landmark is referred to as a "way-mark" target as it is not the final destination, but an indicator that the correct route is being followed. He will proceed along the path identifying MacDonald House because of its similar appearance to the figure on the map. As he reaches the top of the stairs he will see the two large trees in the open area surrounded by MacDonald House and the Student Union Building and will conclude this location to be his destination.

If the map was created for the use of navigation as its first priority, landmarking will receive high design priority. These landmarks, furthermore, can be used to contribute to the aesthetics of the map, as well as for locating features and for navigation. By using these multi-purpose landmarks, the amount of information represented on the map can be reduced to create a less complicated and easier to use map.

Landmarks can exist in a variety of forms in the real world. Many exist naturally without manipulation required navigational purposes. For example, a common landmark feature is a body of water and thus the bridge that provides access over the water. Often when travelling through an unfamiliar environment, a traveller may refer to specific directions that

include descriptions of the physical qualities of the landscape, such as a bridge over a particular river. In a smaller environment like that of Wilfrid Laurier campus, a natural occurring landmark feature may be the large trees on campus. Trees are often excluded from representation on campus maps, as noted in chapter one, yet their portrayal can be useful for landmarking and navigation. In addition, they can also enhance the overall appearance of the campus map by creating a natural setting, improving the universities image.

Landmarks can also occur in man-made forms not intended for the use as a landmark. For instance, the buildings on campus can be used as landmarks as indicated in the earlier example concerning the location of the quad. These features represented on the campus map and in reality have a dual role. They represent the actual physical building and may also be employed as a useful landmark.

Some landmarks will have to be created specifically for navigational the purposes. These may be signs indicating directions of travel by using arrows and/or titles of features that are in the vicinity. Wilfrid Laurier has recently employed this particular procedure on the campus for reference purposes. There are large signs located in front of, or at the main entrance of all the university affiliated buildings indicating the name of the structure and the facilities located within the building. These signs are very useful as

they inform the traveller as to whether they have reached the correct destination. In addition, they can be used as "way-mark" targets along the path of travel to ensure the correct route is being followed. Intentional landmarks do not necessarily have to be textual signs. Alternative suggestions of possible landmark creations could be to plant a tree, shrub or small rock garden or place a sitting bench or boulder of unique shape or material at key locations. The important issue is to realize the need for landmarks and where they are should be located to assist the traveller in navigating through the environment.

Ultimately, once all the key landmarks have been chosen on the basis of recognition and location on the ground they must be depicted on the map. The difficulty in this step is determining how to symbolize these landmarks in order for the map reader to be able to easily identify and match the symbol to the real thing as it comes into view. This matching recognition process is very pertinent and must be easy to perform. If the match is not obvious to the user, the landmarks indicating a point of importance may be totally overlooked, to the reader's detriment. This theory of easy recognition of map symbols (landmarks) was researched (along with other processes) and proven to be necessary for excellent navigational abilities by Jan Lunze (Lunze, 1987). The question which then rises is how to symbolize landmarks on a

map representation ?

The cartographer's method of symbolizing the landmarks and other features on the campus can assist or destroy the communication process. The symbols can be either replicative or abstract. Replicative symbols appear as miniatures of the real world elements they represent. McMaster and Wilfrid Laurier are examples of universities that employ replicative type symbols for the building structures on their campuses (see figures of campus maps). If the replicative method is used for buildings, ideally it should also be employed to portray actual trees and shrubs as miniatures on the campus maps. These features should be included for aesthetic purposes and more importantly for navigational purposes. Abstract symbols are simple point symbols usually geometric in shape. When using abstract symbols the map maker must label them directly upon the map or provide a legend in order for the reader to be able to retrieve information from the map. A map maker must be cautious as to what type of symbolling he should employ because it can greatly influence the effectiveness of the map. Replicative symbols are the most appropriate type of symbol for the purpose of matching the map symbols to the real world elements. They enable the reader to visualize the landmark prior viewing it in reality, allowing for quick recognition of features when actually travelling through the environment. However, they are far more detailed and

complicated to produce. "The selection of map symbols should be based on conventions and standards, appropriateness, reader's abilities to read the symbols, ease of construction..." (Dent, 1990, p.23).

Landmarks or their symbols on the map can contain more information then they directly represent. We have already concluded that landmarks can be a feature with an additional purpose other than that of being used for a landmark. As well, landmarks or features represented on the campus map can transmit additional inherent information that is connected with the feature: "...from the context of symbols we can infer terrain features which are not represented by map symbols" (Murakoshi, 1990, p.17). For example, from a map symbol representing a set of stairs on the Wilfrid Laurier campus a user can infer that there is a significant change in elevation. Therefore a set of contour lines indicating the changes in elevation are unnecessary for general student use since they can obtain this same information by locating all sets of stairs on campus. The stairs will only indicate that there is a change. They can not depict the steepness or length of the slopes like contours can, but this is usually not of any great importance, unless someone was analyzing the run-off patterns of rainwater for example. Yet, it is very crucial that changes in elevation are represented, especially at Wilfrid Laurier since it claims to be an accessible school.

Therefore, all changes in elevation should be depicted and whether stairs or ramps are available should also be included in the representation. This type of inference is not easily recognized by the majority of the population, yet, it is very relevant to handicapped individuals that may be planning to travel through the campus and are searching for the optimal route. This is another consideration of the cartographer who must be aware of all aspects, obvious or hidden, before attempting to create a useful campus map for route planning and wayfinding.

In conclusion, understanding the navigational process for the design considerations of the campus map is very complex and detailed. In order to get a better overall understanding, different populations must be examined and compared. Children, orienteers and marine navigators provide us with the basic foundations and some of the finer details that the average person may overlook due to simplicity (locating oneself upon the map) or lack of knowledge (inherent meaning attached to symbols).

Almost all adults are capable of locating themselves on a floor-plan map in a shopping mall for instance. However, are they aware of the procedure they employ to do so, such as looking about them to identify the stores surrounding them and then searching for these on the map? This procedure requires

the map users to orient themselves with the aid of landmarks (the stores). Landmarks are a crucial element to all skills required for successful navigation through the environment with the assistance of a map. They are necessary for map orientation, identifying one's own location, the location of other points and for route planning. The symbolization of the landmarks on the map determines the effectiveness of the landmark for the navigational process. Landmarks need to be easily recognized on the map in order to be identified in the real environment. Fortunately one of the most effective methods of landmark symbolization is also very useful for the image-building component. Image-building is a very large concern of universities and is discussed in more detail in the following chapter.

## CHAPTER THREE: Image-Building and the Campus Map

In an article that they cryptically calls "Designs on Signs" the cartographers Denis Wood and John Fels shows how maps may be appropriated for more than a navigational message; they may also be image builders. Often when attempting to employ image building techniques the basic mapping elements that are useful for navigational purposes are neglected. The North Carolina state road map is one example. This was the specific map analyzed in the report by Denis Wood. They claim that the map is a piece of promotional material more so than a road map which is to be used for navigating through the environment. "[The legend]...to say nothing of the rest of the map - carries a heavy burden, one that reflects aggressively the uses to which the map was put ... in this case the first and primary 'user' was the State of Carolina, which used the map as a promotional device ... as an advertisement ... given away at Welcome centres ... Visitors centres...booths at the state fair ... " (Wood & Fels, 1986, p.55). As the image building becomes the prime focus elements needed to produce an effective navigational map become neglected. Wood and Fels stress this point with their road map example, "Legends ... are nonetheless still dispensed with more often than not, and never provide explanations of more than a portion of the 'symbols' found on the maps to which

they refer" (Wood & Fels, 1986, p.56). Therefore, it is important to consult various sources of expertise when designing such map-like brochures in order to ensure all the necessary elements are taken into consideration for image-building and navigational map-making.

Every university campus map conveys an image, whether it is designed in or not, whether it is positive or negative. The University of British Columbia is an example of one that has been appropriated to present an image of cultural offerings. Additional information about the university's non-academic facilities has be included. University of British Columbia produces an excellent example of a campus brochure that provides a great deal of additional information about the school that does not necessarily pertain to academics (see map). On one side of the unfolded pamphlet is a plan/map of the campus facilities. It uses approximately one third of the space. The remaining space is used for written text about other facilities and activities found on and around the campus. The information is categorized and each category is depicted with a colourful related graphic image. The subtitles for each category are short and get the reader's attention by shocking them and arousing their curiosity. Several examples of these subtitles are: "In Better Shape", "Ready for Tomorrow", "Thoroughly Entertained" and "More Sociable". Each of these titles encourage the reader to read

for more information about the facilities which will improve their impression of the university.

On the other side of the University of British Columbia's brochure can be found six large colourful graphic images. These pieces of work are of an artistic nature. Artistic fashion is another image building tool that is frequently employed by universities. Universities often hire artists to draw the actual campus map. The end results are aesthetically pleasing, however, the map is useless for practical and navigational purposes such as those discussed in the previous chapter. Other graphics may be employed throughout the brochure to catch the readers attention and keep them interested. Often the artwork alone is enough for the potential student to be proud of and they may chose to hang it on their wall. The University of British Columbia's campus map is an excellent example of artwork. The images do not relate to the actual campus map, however they are representative of the theme that the university is trying to sell; it reads as follows: 'You'll go home a different person'.

Themes and concepts are another aspect that the university may chose to promote. The University of British Columbia's is again a good example of such a technique. Their theme, as previously mentioned, is indicated clearly in bold letters directly below the graphic artwork. Along the

left side of the brochure, on the same side as the pictures, is a narrow column outlining different concepts about the university. They are titled as follows: "A Promise", "A Perspective", "A Point of View", "An Invitation", and "A Starting Point". Under each heading is a brief description that is well written and very powerful. The facts and positive attitude that these descriptions express would make an lasting impression on the reader. Although these messages are in smaller text and off to one side, they catch the reader's attention because they are printed in different colours.

The most powerful visual tool that can be employed by a campus map designer is colour. Colour can make a rather plain, non-descript image come to life. It enhances the information by making it appear more attractive and eye-catching. The University of British Columbia employs many colours to create a strong effect. Employing colour is a very costly procedure and unfortunately goes far beyond many universities' budgets. Ideally, if carefully chosen, only a few different colours are needed to depict the information successfully. Colours have a greater impact than black and white maps. Often students may read a message in between the lines that indicates that this university is financially comfortable and thus the student will not have to suffer through any cuts in costs if attending this particular school.

Colour, if employed in the right fashion, is also a very useful tool for differentiating the various amounts of information on a navigational map.

However, caution must be taken when producing such a brochure. The image building aspects may overpower or take priority over the actual campus map. The purpose of image building is to enhance the university's reputation with striking visual effects and additional interesting information. Often during the process, one of the main purposes of the brochure (being the campus map) becomes lost in all the flash and pizazz (the image building tools).

The campus map is frequently employed intentionally by the universities for the purpose of image building. The map is specifically designed to attract reader attention and to keep them interested as the University of British Columbia's campus map succeeds in doing. Maintaining the reader's interest is very crucial to the university administration because the majority of the readers of campus maps may be potential students in the future. The universities attempt to entice the new students with their promotional material. These students can be very impressionable since they are recently or currently at a high school level. Upon completing their high school diploma, they will be making a decision that will affect the remainder of their lives. For some it will be their first taste of freedom and this may influence their

decisions, (they may only apply to universities far away from home). However, the majority will be concerned with choosing a school of superb qualifications and ideally one with an excellent reputation. Universities in general are expected to have high academic qualifications but their individual reputations are more vulnerable and less controllable by the administration. It is the school's reputation that can make it appear more favourable over other educational institutions. For example Wilfrid Laurier University and The University of Western Ontario are well known for being the top business schools in Ontario and produce graduates that are highly successful in the business world. Although many other universities offer similar programs in business and commerce, the reputation associated with Laurier and Western is a strong determining factor for potential applicants. Universities with such strong reputations are often thought of as having higher employment opportunities after graduation because degrees awarded from these institutions are highly recognized. This is an important issue to most students.

Universities may employ their campus map as a tool to enhance their reputation through visual effects. As a result of this application the universities often generalize the term 'campus map' to represent a large variety of information. The term 'map' is what often becomes misused. The basic characteristics of maps are simply defined by Robinson, "All

maps are concerned with two fundamental elements of reality: locations and attributes at locations. Locations are simply positions in a two dimensional space ... attributes at locations are some qualities or magnitudes ... from these two basic elements many relations can be formed", (Robinson, 1984, p.4-5). Many universities neglect these basic elements of a map that are crucial for creating a tool that is useful for purposes other than image building, as discussed in the previous chapter. Instead, the schools are concerned with producing a pamphlet about the university that resembles a travel brochure that is trying to sell its product by creating a pleasing image.

"Campus brochures" would be a more appropriate term for what many universities refer to as a campus map. Image-building should be recognized as an important element in the designing of such a brochure. There are various techniques that can be employed to assist in the process. Many universities use photographs that depict the atmosphere of the university or the attitude they are trying to portray. They often use pictures of students participating in the various activities associated with university life on that particular campus. Professional photographers are employed by the university, often on a full-time basis to capture various aspects of the university on film. Many of the pictures are staged and carefully planned by the photographer. He can

manipulate the subjects and the backgrounds of his photos to create more pleasing results. The photographer often selects his subjects based on their photogenic qualities and abilities to pose or participate in various activities that would assist in creating a positive image for the university. Spontaneous and candid shots are used when they contribute to the image. The background of the photos can be blurred and left out of focus if the subject matter does not correspond or interferes with the image the photographer is trying to capture. (For example, a picture found on the Laurier Undergraduate Calendar depicts several bicycles in a bike rack. This is associated with the average student life because it is the typical form of student transportation. However, the background is totally out of focus. The background is actually a parking lot full of cars. This does not fit into the image and is not as pleasing to the viewer as the green grass in the foreground.)

Other examples of potential image-building photos that may interest the reader are: shots of sports activities like football games, pictures of large rolling lawns, flower beds and large green trees (indicating a natural setting), and scenes depicting student interaction. Pictures of classroom situations or the average student buried in books at the library are not as appealing. The majority of the students applying to university are already aware of the work load that

will burden them. They will be more concerned with the surroundings that will be available to make such undesirable situations somewhat more bearable.

Another method of image building using the campus brochure is to provide a brief history about the school and its foundations. This allows the reader to perceive its character and experience as a educational institution. It provides the reader with a background about the school's origins, growth, and possibly its future potential. A school that has grown in physical size and enrolment number may appear very attractive to a new student. It indicates that the school is highly demanded by many potential students and therefore has grown in size to meet the continually growing demand. Unless this history is provided the student would be unaware of a dynamic growth that can be appealing.

Wilfrid Laurier University has done a superb job of using its university course calenders, and various booklets such as the individual department booklets and brochures to promote a strong, attractive image for the university. The campus map could be - and if produced in colour probably will be - used as a vehicle for doing similar things. There will be room on a carefully designed map product to promote Wilfrid Laurier University as a well developed and experienced learning institution. It can be portrayed as an institution with a very personal atmosphere and plenty of interactions between

students and faculty since it is a smaller university compared to other schools in Canada. As well, it can identify Laurier as a pleasant environment within which to learn and one with many interesting student activities. The way these messages can be communicated is through the photographs of student life, similar to those used in the school calendars. The map could also contain additional pieces of interesting and briefly-written text outlining some of Laurier's special features such as small class size and the availability of work/study programs. Themes and concepts can be employed throughout the map to keep the reader's attention by arousing their curiosity.

Conclusion/Discussion

Ideally, the Institutional Relations Department and the cartographers of the Geography Department of the university should work together. With their combined knowledge they could produce a brochure that is not only useful for image building but that also contains a campus map useful for navigational purposes. Image-building and navigational qualities can co-exist. The actual campus map should be designed first and foremost for navigation and point location. But surprisingly, furthermore, the same qualities needed in a navigational map can be very useful in enhancing the university's image. For example, three dimensional buildings are useful for recognition purposes which is crucial for

navigation, but they may also appear very attractive when depicted on the map. The remaining space within the brochure can be used to enhance the university's image through photographs, history and graphics. If colour is an affordable tool, it can be employed for both aspects in an attractive fashion.

Not all universities in Canada are able to produce elaborate campus maps with a full range of colours printed on glossy paper. All universities can, however, produce an effective map for navigational purposes if they are aware of how to do so. They must recognize the criteria and contents that must be included in order to produce a useful map. Some universities will have a tradition of very strong information brochures using careful design and full colour on glossy paper. Laurier is one of these, and may well be able to combine these attributes and image functions with a high quality navigational map. The key points that Laurier can address in designing a map for navigational purposes are discussed in the next chapter.

## CHAPTER FOUR: The Most Significant Map Contents at Wilfrid Laurier University

The first stage in the map designing process should involve the selection of the most significant map contents. In our case, the contents will be those necessary for navigational purposes. To determine what is significant and what is not, the cartographer must research the area thoroughly in order to understand what is used and/or needed to assist the average traveller of the area. Ideally, origin - destination studies should be completed to discover the most frequently travelled routes. These studies reveal the most common paths the traveller takes depending on the origin or the destination. The cartographer may then study these paths - indeed, travel along them - to a) identify features that can be used as landmarks and/or to b) identify where landmarks should be created to assist in navigating through the area.

As far as can be determined, Wilfrid Laurier has never completed an origin - destination study on its campus. Such a study may seem to be unnecessary because Wilfrid Laurier has one of the smallest university campuses in Ontario. Small size, however, is no guarantee of simplicity. Laurier has a high student population, and is crowded. Many of the buildings on campus are hidden from view. An origin-destination study and landmark identification will provide important information for the design of a successful

navigational map.

The most frequent user of the Laurier campus is the university's students. (For the purpose of this paper a very simple origin-destination explanation of the Laurier campus will be provided based on the student population only. Ideally a complete origin-destination study should provide detailed information on every possible route taken, by all types of users, not just students.) The student's residence accommodations will determine what routes are most often utilized for travelling about the campus grounds. Basically, the student population can be broken into two categories to study and understand travel routes: those who live in the residences (we will call these "on-campus students") and those who live in private housing or at home (we will refer to these as "off-campus students").

On-Campus Students

On-campus students are usually those in their first year of studies. Upon their arrival in the fall they are newcomers to the university and the campus is a foreign territory to them (increasing the need for a well-designed map). Residence in the campus dormitories is very convenient for the new arrivals because all of the school's facilities are within a few minutes walk at most. For the purpose of navigating, the dormitories can thus be considered as either the main origin or destination for first year students. In addition, this

population will be attending classes a great deal of the time or participating in other academic activities such as doing research in the library. (For the purpose of this paper only the academic interests of the students will be discussed for the origin-destination study in order to keep things simple.) Thus, the other common origin or destination of student travels will be the classroom or the library.

The classrooms are located in different buildings according to the field of study. Business students have most of their classes in the Peters building in the far northwest corner of the campus (see map ?). Depending on which residence the students live in, there are a variety of possible routes that can be utilized. Arts students will find the majority of their classes in the Central Teaching building or the Arts and Science building. These two particular buildings are located in between the Peters building and most of the residences. Therefore, regardless of the field of study, most students travel to and/or through these buildings to get to their destination. As a result, the routes used to reach these buildings are very important to an origin-destination study.

Students from Clara Conrad residence usually travel through the Aird building ( and will remain there if taking music or language classes), through the dining hall, up the stairs past the Paul Martin Centre, to the lower hall of the

Arts and Science building. From this point they can turn left towards the Concourse which links to the Central teaching building or go up the stairs to the main floor of the Arts and Science building. Those needing to attend classes in the Peters building can continue to travel through the lower hall which links up with Peters building through an underground tunnel and up a flight of stairs. These students are fortunate during cold or wet seasons because the most efficient route of travel for them is entirely indoors, whereas students travelling from Bouckaert and Little House residences follow very different routes, mostly outdoors.

Bouckaert and Bricker students travel along a path underneath the overpass that connects the two wings of Little House, along side B-wing of Little House, up the stairs into the Quad and through the doors at the base of the Turret of the Student Union Building which connects to the Central Teaching building and the Arts and Science building.

Little House residents exit their building and join up onto the same path at the same point of the underpass or at the base of the stairs leading to the Quad, depending on the exit used. If the students (from Little House, Bouckaert, or Bricker) are going to the Arts and Science building they may chose this same route and complete their travels indoors through the concourse and along a windowed hallway to the lower hall of the Arts and Science building. However, they

may choose to pass by the entrance at the base of the Turret and continue travelling outdoors up another flight of stairs, along side the Health and Career Services building and enter the doors along side the Solarium, which places the student in the lower hall of the Arts and Science building. From this point they can continue to the Peters Building or upstairs to the Science department. They can also reach the Peters building using the other route through the entrance at the base of the Turret and continue their travels through the Concourse and outside through two possible sets of doors, along a path and up a set of stairs to the Peters building.

MacDonald house students have two possible exits: one leading onto the Quad where they can link up with any of the possible routes previously outlined, and the other on a level lower than the Quad, just past the security overpass that connects the Theatre Auditorium and MacDonald house. From this point, a left turn, along a short path and a quick jog up a set of stairs places the student in the Quad from which numerous paths can be taken as previously discussed.

Willison students have one main exit that leads into the parking lot directly located in front of the building. From the parking lot they may chose several possible routes, all of which link up with the routes travelled by the other students. They may chose to walk along the front of Little House and

past MacDonald house, up the stairs into the Quad, or the path directly alongside MacDonald house that is gradually sloping and leads up to the Quad without any stairs (which important for handicapped students to note). A third possible route would be through the parking lot, up the stairs between the Theatre Auditorium and MacDonald house, under the security overpass and up the stairs into the Quad to join up with one of many possible routes.

While outlining these frequently travelled routes, one key location kept reoccurring in the majority of the routes - the Quad. This obviously is a very important location on the Laurier campus. Ironically, as mentioned in a previous chapter, the Quad is very poorly represented on the campus map.

Off-Campus Students

Students that live a fair distance away from the campus drive to school and can park in the parking lots provided by the university. This opens up a great number of potential routes that may be travelled from each individual lot that eventually link up with some of the previously discussed paths. The majority of off campus students walk to school and approach the campus from many different directions. A great deal of these students travel onto the school campus and link up with many of the routes used by on-campus individuals. There are four main entrances onto the university, three of

which eventually link up with the other routes. The three off-campus entrances are: i) from the east, off of King Street, across the parking lot beside the Athletic Complex, up the hill in front of Willison hall, joining up to the path between the Theatre Auditorium and MacDonald House; ii) from the north, off of University Avenue, either through the Aird building and the dining hall and so forth following the same path as the Conrad residents do, or along front of the Aird building, up a set of stairs, through a parking lot, up another set of stairs and through a set of doors across the hall from the Solarium placing them on the path in the lower hall of the Arts and Science building; and iii) from the south, off of Bricker Street, alongside the Bricker Residence following the same path used by the Bricker residents. The forth possible entrance onto the campus is in the opposite direction of all the previously discussed paths. This entrance is from the west, off of Albert street. The students may travel onto the campus from the northwest corner of Albert and University Avenue and enter through the Peters building or they may come from the southwest corner alongside the Seminary up through the path between the library and the Central Teaching building. From either of these points, depending where the student is travelling, they will basically follow the same paths as the students from the other side of campus, but in the opposite direction.

It is very important to realize when choosing landmarks along these frequently travelled routes that they must be reversible, meaning that they are easily recognized from different directions. Most routes from residence accommodations to classroom will be travelled back along in the opposite direction when returning home after classes. Therefore the landmarks chosen or intentionally located along these paths should be easily seen and identified from either direction. Landmarks should occur at key locations such as turning points and at the actual origin-destination locations. In addition, 'by the way' landmarks should be established along the paths to reassure the traveller that they are on the correct route.

Map Content Guidelines

The crucial question is: What should be done to the Laurier campus map and to the Laurier campus to make it useful for navigating through the environment along the previously discussed paths? Laurier already has several features that can be employed as landmarks. For example, sets of stairs are excellent landmark features that should be depicted on the campus map. Their usefulness is twofold as they also serve as a necessary piece of information for handicapped individuals. The signs Laurier has recently built can also serve as landmarks. The Quad requires proper representation on the campus map including the two large trees in the centre of it

that can be referred to as landmarks. The actual buildings can be referred to as landmark features depending on how they are depicted on the map, as discussed in a previous chapter. The overpasses occurring between the Little House wings, in the Aird building and the security overpass can also be referred to as landmark features.

However, as Laurier continues to grow and become more complex, the need for identifying features will increase. These landmarks can appear in a variety of forms depending on where they are to be located. If the university is attempting to beautify its campus, trees and flower gardens serve as excellent landmarks with a dual purpose of creating a pleasing setting. Caution must be used when employing such landmarks because they are seasonal. Therefore, something must be done to keep them distinguishable, such as a sculpture in the centre of the garden that remains there all year round. Directional signs can be put up to indicate the directions of the various buildings and facilities on campus.

Actual photographs can possibly be employed on the campus map to assist the navigator in estimating the amount of time a route or a segment of the route will take to travel with the assistance of an accurate scale. The time aspect is often neglected by those involved in creating and using a campus maps. However, it is a crucial element for sea navigators. A great deal can be learned from these navigators and should

be considered when creating a map for navigational purposes on land or on water. For example, (using the simple example of students travelling from the dormitory to class), a picture taken from the main exit at the rear of the Bricker residence towards the overpass of Little House can help the traveller visualize the actual distance to the first key landmark. If the reader compares this distance with the scale and calculates the remaining distance, he will be able to calculate approximately the amount of time needed to reach his destination. This is a similar process to what water navigators refer to as dead reckoning, calculating time and distance as a method of route planning; however, they use charts instead of photos. The calculation of time need not be done so carefully in campus navigation and indeed with the help of a photo it may be done almost inherently.

Photographs can also help the reader to recognize the features that will be encountered along the way. An actual photograph of a landmark feature will be far easier to understand and recognize than anything drawn by hand or computer to represent it. A photograph from the main exit of each dormitory would be very useful to first year students. Ideally, several maps should be created to cater to different audiences incorporating such pictures depending on the most frequently travelled routes. These photographs can assist in the image building department if professionally done (and if

taken at the right time of year, spring and summer pictures are much more pleasing to view, however, the majority of students attend classes in the fall and winter). Other photographs can be used that include other landmark features found on the campus within the frame. Therefore, if someone is explaining a route to a newcomer they can show them exactly what to look for along their travels.

In conclusion, Laurier is a rapidly-growing institution and is beginning to have many of the same demands and needs as the larger universities. The navigational aspect of the campus map can no longer be neglected as Laurier's campus continues to grow and become more complex. A more in-depth origin-destination study would be very beneficial in the near future. From such a study, the landmark features that need to depicted on the map and located on the ground for navigational purposes will become obvious as the most common routes travelled will be revealed. The portrayal of stairs found on the campus is also a crucial element of the map. If Laurier continues to promote itself as an accessible school, stairs and ramps will have to be indicated on the map. Once the most significant map contents have been determined the cartographers can begin the actual physical designing of the map. They will have many more decisions to make regarding the type of symbolization, the scale, the map orientation and the colours to be employed if colour is financially feasible.

## CHAPTER FIVE: Conclusion: Suggestions For the Wilfrid Laurier University Campus Map

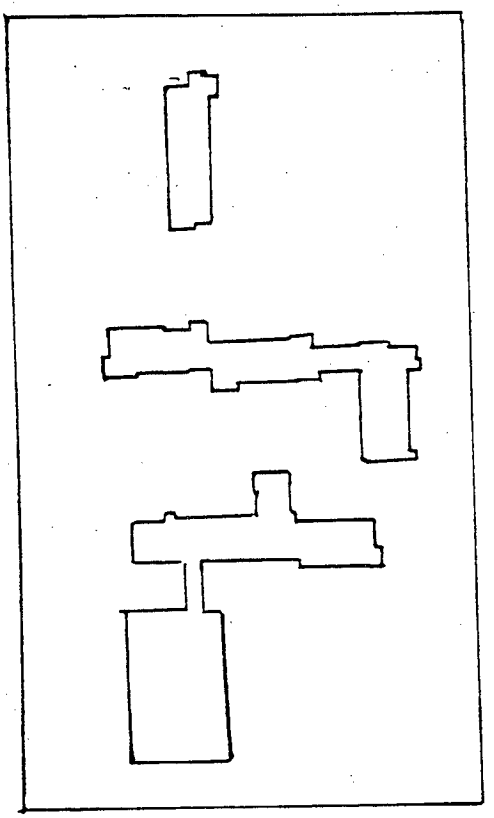
The final stage of the mapping procedure is the actual physical construction of the map. Up until this stage the cartographer and/or the other map designers have been busy researching, collecting information and deciding what should be displayed. Part of their research is to understand the reader's needs and map use abilities. The map designer must also have a thorough understanding of the first and foremost purpose of the map, that being navigation.

The cartographer must realize the important navigational tasks the reader may be involved in while depending on the map for assistance. A map designer should refer to the origin-destination study (if available) to get a better understanding of the paths most commonly travelled. The landmarks that relate to these routes should be carefully depicted on the map to assist newcomers until they become familiar with the area.

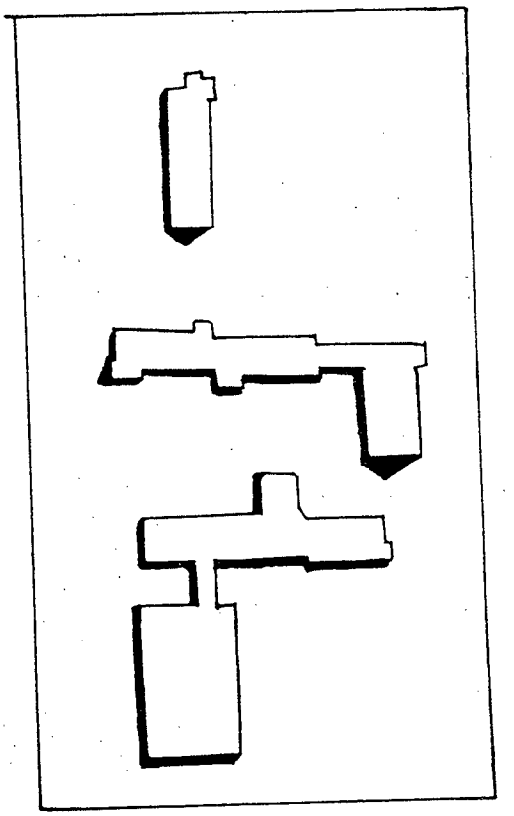
The campus map designer is faced with many challenging problems and tasks. Orientation is possibly one of the more difficult dilemmas. As we have noted, map readers often have difficulty employing maps successfully because of their inability to correctly orient the map. Ultimately the reader becomes confused and lost when using a map that is incorrectly oriented. One of the reasons for this inability is that the

population is conditioned to read words right side up. Thus, if there is any wording on the map the users will likely orient it according to the written text and not the direction in which they are travelling.

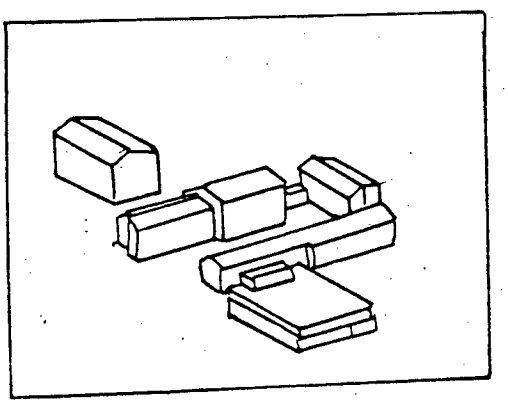
To overcome this problem the cartographer could create a map with no written text upon the front of the paper. Obviously, some type of symbolization other than alpha-numerics will have to be used to distinguish the various buildings and facilities. However, the cartographer must carefully choose the symbolization method. Even non alpha-numeric symbols have a right-side-up feature that will inhibit the reader from turning the map around. For example, a designer may choose to employ the "clover leaf" symbol to depict all the trees on campus. The clover leaf is most commonly viewed with the stem at the bottom, therefore, the reader may orient the map according to the symbols and not the direction being travelled. In addition, there may be some difficulty in creating enough symbols to represent the wide variety of buildings, facilities, and features available on the campus. To keep text off the face, the legend must be placed on the back of the map creating problems with its easy use. An example of a portion of Wilfrid Laurier's campus map without text or other hindrances that may inhibit the orienting of the map is provided in figure 15(a).



(a)



(b)



(c)

FIGURE 15.
PARTIAL SKETCHES

Another limitation when creating a map that is to have no inherent orientations is that it must be orthogonal. A map portraying the buildings as three dimensional representations will immediately have a specific rotation for viewing. An example is provided in figure 15(b) of the same portion of the Laurier campus. It will not be turned since the buildings will have to viewed upside down. This will limit the map for image building purposes as replicative symbolization is a very attractive method to display the information. An alternative suggestion may be to use a shadowing technique. The same portion of the Laurier campus using this technique is provided in figure 15(c) for comparison with the two previously mentioned methods. The map contents themselves are represented on an orthogonal map with a shadow effect that brings some dimension to the image without creating any connotations as to which way is right-side up. This can be quite effective for the building structures on campus, but not necessarily for other essential information that must be included on the map for navigational purposes, such as some forms of landmarks.

Landmarks may be the actual buildings on campus. Therefore, replicative symbolization is the best form of symbolization because it assists the reader in recognizing the features when travelling through the environment. (Most people familiar with the Laurier campus were probably unable

to recognize what portion of the campus was being represented in figure 15(a). However, they likely had a better idea after viewing figure 15 (c).) However, this is in direct conflict with the orientation requirements. Landmarks also appear in a variety of other forms that would be difficult to portray on an orthogonal map. For example, stairways may be difficult to shadow without complicating the image, trees are best indicated on the map with replicative symbols and unique features like statues, flower beds and so forth would require a wide variety of symbols to represent them. Landmarks, of course, are an essential tool for navigational purposes. A useful map for navigational purposes, however, requires a great many landmarks. This can clutter the map making it confusing to read. Another problem is how to represent these landmarks on the map. If the landmark is an actual building the symbolization used will be determined by whether the map will be orthogonal or three dimensional. Landmarks that are unique features such as signs or statues are not as easy to represent. Ideally the symbols should be replicative for easy recognition. Yet it is difficult to draw miniatures of such unique features especially if they are to remain in scale with the remainder of the map. If the designer chooses to enlarge the landmark features on the map, it may have an unrealistic appearance and thus the reader may not view it seriously.

The scale of the map must be determined according to the

amount of space available to the cartographer in the campus map brochure. Laurier's campus is becoming difficult to portray because it is expanding to the east and west, creating a very long and narrow area to represent. In order to fit all the information on the page the image must be reduced using a larger scale. This reduces the size of all the symbols creating a very complicated and detailed image. The detail is necessary to assist in recognizing the features and for the purpose of image-building. If the designer attempts to eliminate some of the additional detail s/he will have to substitute something else in order to keep the image-building requirements satisfied. Colour would be an excellent substitute and even more powerful.

Unfortunately colour is not always financially feasible as it is very expensive to employ. However, just a few colours may be necessary to assist in creating an effective map for navigation and image-building. Colour assists in distinguishing the large amounts of information; this could be of particular use to Laurier map designers because Laurier has so much to offer in so little space. Colour can also be employed to assist the image-building component. If Laurier were to use only two colours perhaps it should use purple and gold (yellow), the school's colours. This would be a very strong yet subtle image technique.

In conclusion, Laurier's campus map designers have many

more issues to think about and research before they are able to produce the actual map. There will have to be some compromise between the image-building and navigational requirements. If Laurier decides to produce a orthogonal map with no labels in order to assist orientation, for example, it will not be able to place any photographs on the map side of the brochure because these may prevent the reader from turning the map. If Laurier's map designers decide to remain with the three dimensional symbolization they will have to introduce more landmarks onto the map to assist the reader in navigating through the campus. Finally, if colour is to be employed the designers must determine the most pleasing combination of colours that is useful to both the navigation and image building needs. A cartographer attempting to produce a map that is to be useful for both navigation and image building will encounter many conflicts of interest. The designers will have to reach compromises in many areas; but the primary purpose of the map must be kept firmly in mind.

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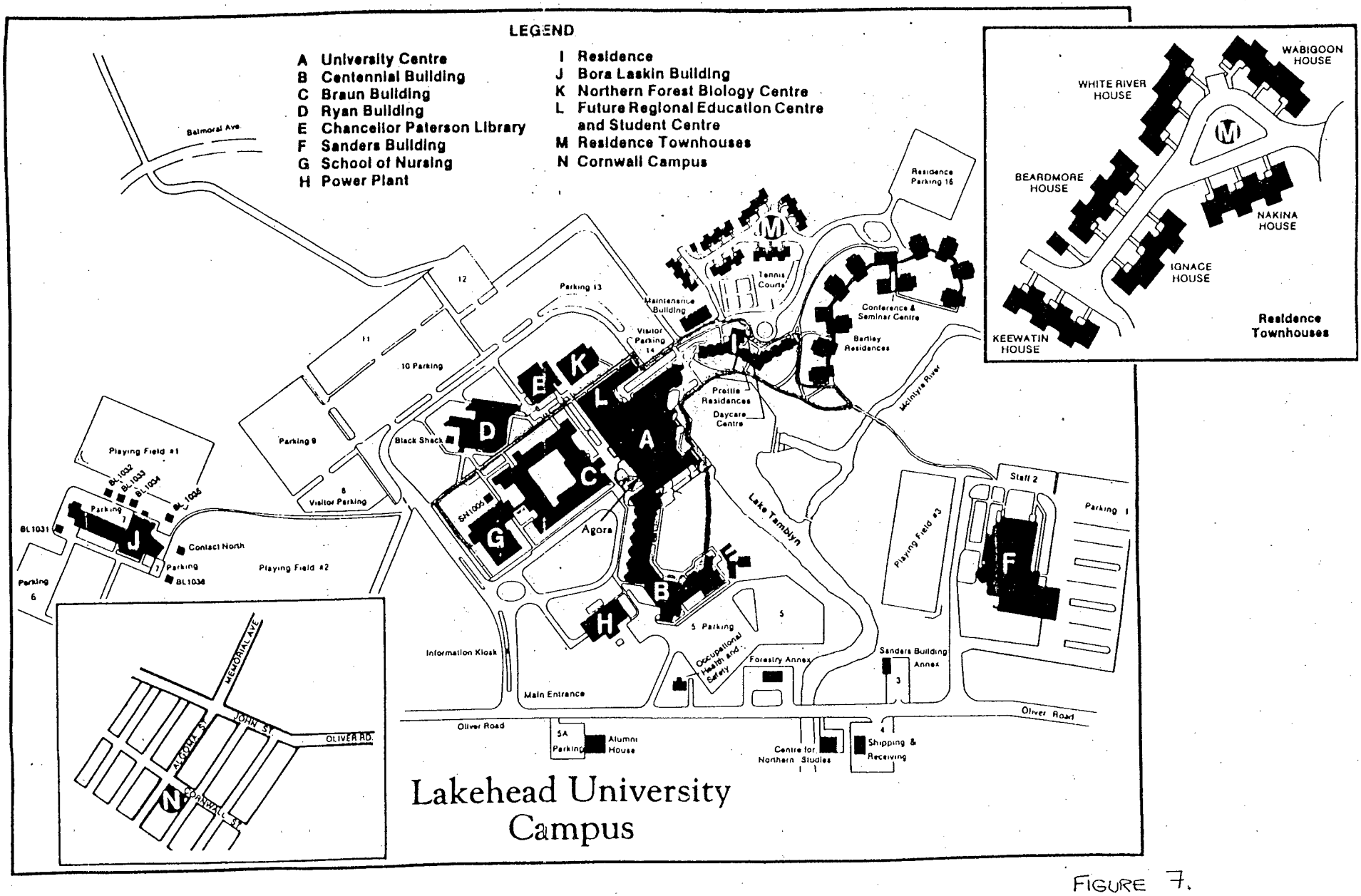
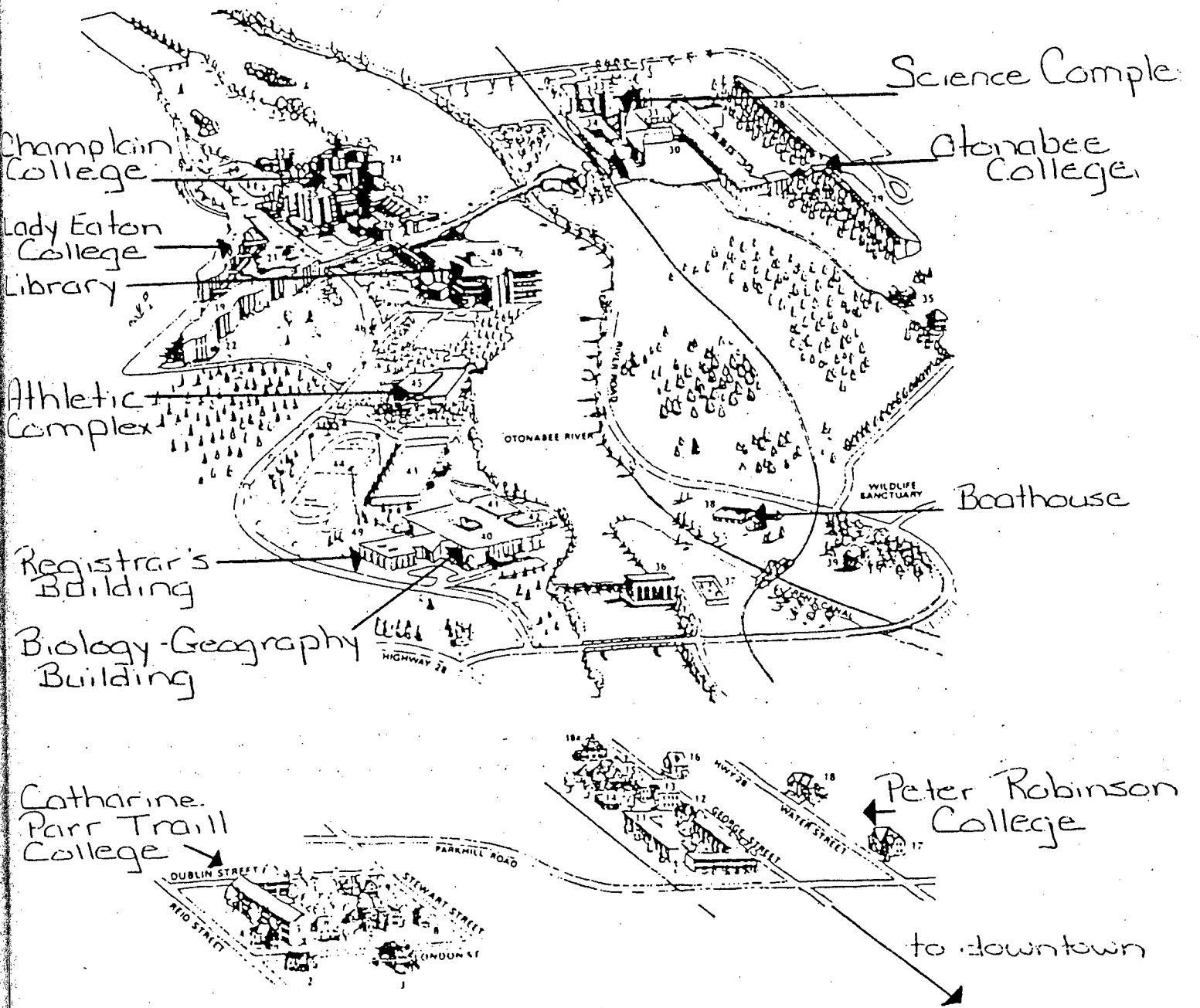

LEGEND
A University Centre
B Centennial Building
C Braun Building
D Ryan Building
E Chancellor Paterson Library
F Sanders Building
G School of Nursing
H Power Plant
I Residence
J Bora Laskin Building
K Northern Forest Biology Centre
L Future Regional Education Centre and Student Centre
M Residence Townhouses
N Cornwall Campus
Balmoral Ave
Parking 13
Maintenance Building
Tennis Courts
Residence Parking 16
Conference & Seminar Centre
Bartley Residences
Visitor Parking 14
Prairie Residences
Daycare Centre
McIntyre River
10 Parking
Parking 9
Black Shack
Playing Field #1
Parking 7
BL1031
BL1032
BL1033
BL1034
BL1035
Contact North
Parking
BL1036
Playing Field #2
Parking 6
Visitor Parking 8
SH1005
Agora
Lake Tamblyn
Playing Field #3
Staff 2
Parking 1
Information Kiosk
5 Parking
Occupational Health and Safety
Forestry Annex
Sanders Building Annex
Main Entrance
Oliver Road
5A Parking
Alumni House
Centre for Northern Studies
Shipping & Receiving
MEMORIAL AVE
ALGOMA ST
JOHN ST
OLIVER RD
CORNWALL ST
WABIGOON HOUSE
WHITE RIVER HOUSE
BEARDMORE HOUSE
NAKINA HOUSE
IGNACE HOUSE
KEEWATIN HOUSE
Residence Townhouses
Lakehead University Campus

FIGURE 7.

Trent Univ.

# CAMPUS MAP




Legend

Catharine Parr Traill College
2. Langton House
3. Bradburn House
4. Principal's Lodge
5. Wallis Hall
6. Crawford House
7. Scott House
8. Stewart House
9. Kerr House

Peter Robinson College
11. Townhouses
12. 733 George Street
13. Reade House
14. Jolly Hangman Pub
15. Sadler House
16. East Lodge
17. Stratton House
18. Abbott House
18a. North House

Lady Eaton College
19. South Wing
20. North Wing
21. Commons Block
22. Principal's Lodge

Champlain College
23. Master's Lodge
24. North Quad
25. West Quad
26. Champlain Lecture Hall
27. The Great Hall

Otonabee College
28. Residence Wing
29. Residence Wing
30. Academic Wing
31. Wenjack Theatre

33. Science Complex
34. Science Complex Lecture Theatre
35. Archaeology Centre
36. Powerhouse
37. Weather Station
38. Peterborough Rowing Club

39. Commoner Pub
40. Biology-Geography Building
41. Riverside Lab
42. Environmental Centre
43. Tennis Court
44. Playing Field
45. Recreational Facility
46. Information Kiosk
47. Visitor parking
48. Bata Library
- Accounts
- Development
- Alumni
- Senior Administration
- Audio Visual
- Language Labs
- Trent Student Union
- Campus Store
- Student Services

49. Registrar's Office
- Julian Blackburn Centre
- Campus Tours

FIGURE 8.

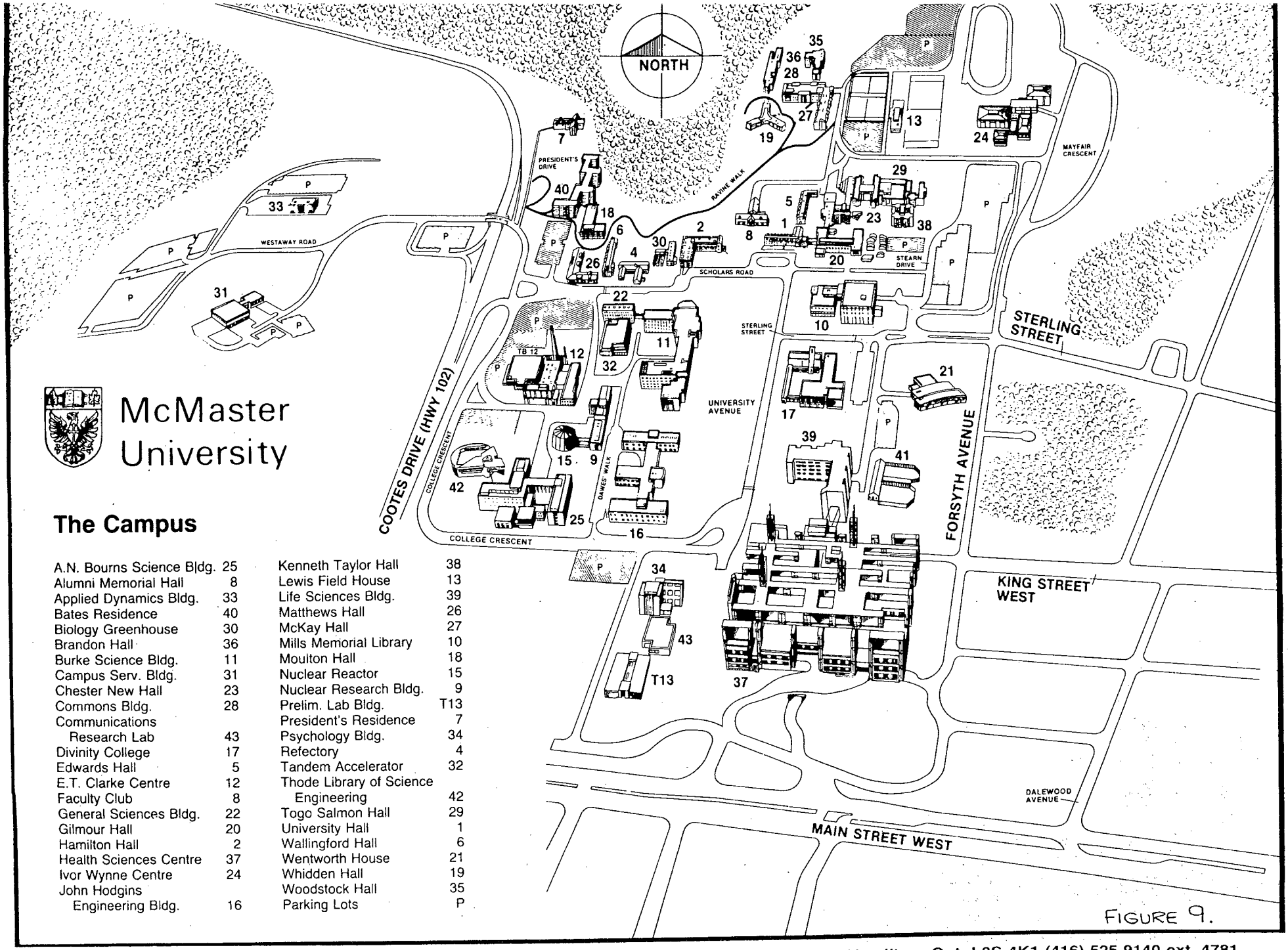
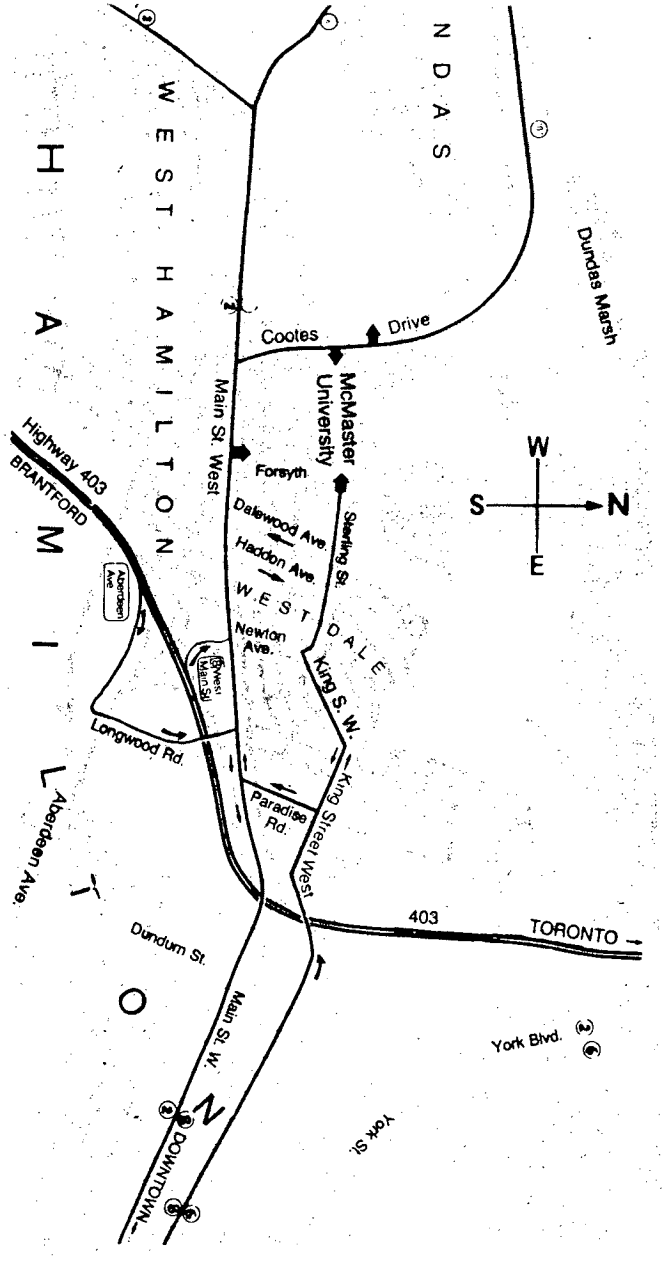

NORTH
McMaster University
The Campus
A.N. Bourns Science Bldg. 25
Alumni Memorial Hall 8
Applied Dynamics Bldg. 33
Bates Residence 40
Biology Greenhouse 30
Brandon Hall 36
Burke Science Bldg. 11
Campus Serv. Bldg. 31
Chester New Hall 23
Commons Bldg. 28
Communications Research Lab 43
Divinity College 17
Edwards Hall 5
E.T. Clarke Centre 12
Faculty Club 8
General Sciences Bldg. 22
Gilmour Hall 20
Hamilton Hall 2
Health Sciences Centre 37
Ivor Wynne Centre 24
John Hodgins Engineering Bldg. 16
Kenneth Taylor Hall 38
Lewis Field House 13
Life Sciences Bldg. 39
Matthews Hall 26
McKay Hall 27
Mills Memorial Library 10
Moulton Hall 18
Nuclear Reactor 15
Nuclear Research Bldg. 9
Prelim. Lab Bldg. T13
President's Residence 7
Psychology Bldg. 34
Refectory 4
Tandem Accelerator 32
Thode Library of Science Engineering 42
Togo Salmon Hall 29
University Hall 1
Wallingford Hall 6
Wentworth House 21
Whidden Hall 19
Woodstock Hall 35
Parking Lots P
COOTES DRIVE (HWY 102)
COLLEGE CRESCENT
COLLEGE CRESCENT
PRESIDENT'S DRIVE
RAVINE WALK
WESTAWAY ROAD
SCHOLARS ROAD
STEARN DRIVE
STERLING STREET
STERLING STREET
UNIVERSITY AVENUE
DAWES WALK
FORSYTH AVENUE
MAYFAIR CRESCENT
KING STREET WEST
DALEWOOD AVENUE
MAIN STREET WEST
TB 12

FIGURE 9.




## Kilometres to Hamilton from

| | | | |
|---|---|---|---|
| Niagara Falls | 78 | Fort Erie | 111 |
| Sarnia | 278 | Windsor | 361 |
| Toronto | 80 | Ottawa | 556 |
| Montreal | 733 | London | 152 |
| Stratford | 117 | Kitchener | 67 |
| New York | 948 | Chicago | 846 |

| | | |
|---|---|---|
| Alumni Affairs | 8 | Alumni Memorial Bldg. |
| Art Gallery | 29 | Togo Salmon Hall |
| Audio-Visual Department | 37 (11) | Health Sciences (Burke Science) |
| Bank | 37 | Health Sciences |
| Bookstore | 20 | Gilmour Hall |
| Centre for Continuing Education | 28 | Commons Bldg. |
| Childrens Centre | 41 | Sheila Scott House |
| Conference Services | 28 | Commons Bldg |
| Construction Department | 31 | Campus Services Bldg |
| Convocation Hall | 1 | University Hall |
| Credit Union | 21 | Wentworth House |
| Faculty Club | 8 | Alumni Memorial Bldg. |
| Financial Services | 20 | Gilmour Hall |
| Food Services | | |
| Togo Salmon Hall | 29 | |
| Kenneth Taylor Hall | 38 | |
| Commons | 28 | (Tickets only) |
| Refectory | 4 | |
| Dining Room | 4 | (Tickets only |
| Rathskeller | 4 | |
| A.N Bourns | 25 | |
| Graduate Studies | 20 | Gilmour Hall |
| Libraries | | |
| General | 10 | Mills Memorial Library |
| Baptist Archives | 17 | Divinity College |
| Health Sciences | 37 | |
| Science & Engineering | 42 | |
| Lost & Found-Security | 12 | E.T. Clarke Centre |
| Off Campus Housing | 21 | Wentworth House |
| Parking Office | 12 | E.T. Clarke Centre |
| Personnel Department | 20 | Gilmour Hall |
| Physical Education | 24 | Ivor Wynne Centre |
| Physical Plant | 31 | Campus Services Bldg. |
| Planetarium | 11 | Burke Science Bldg. |
| Planning Department | 31 | Campus Services Bldg. |
| Post Office | 20 | Gilmour Hall |
| Printing Services | 23 | Chester New Hall |
| Public Affairs | 20 | Gilmour Hall |
| Purchasing Department | 20 | Gilmour Hall |
| Receiving — General | 31 | Campus Services Bldg. |
| Registrar | 20 | Gilmour Hall |
| Robinson Theatre | 23 | Chester New Hall |
| Security | 12 | E.T. Clarke Centre |
| Student Services | | |
| Chaplains | 21 | Wentworth House |
| Residence Services | 28 | Commons Bldg. |
| Dean of Students Affairs | 2 | Hamilton Hall |
| Student Health Services | 27 | McKay Hall |
| Student Financial Aid | 17 | Divinity College |
| Student Counselling | 2 | Hamilton Hall |
| International Students' Advisor | 2 | Hamilton Hall |
| Student Placement | 2 | Hamilton Hall |
| Student Union | 2 | Hamilton Hall |

| | |
|---|---|
| **ARTS** | |
| Chester New Hall | 23 |
| Togo Salmon Hall | 29 |
| Kenneth Taylor Hall | 38 |
| University Hall | 1 |
| **ENGINEERING** | |
| Applied Dynamics Lab. | 33 |
| Engineering | 16 |
| **HEALTH SCIENCES** | |
| Health Sciences Centre | 37 |
| Preliminary Medical Lab. | T13 |
| **PHYSICAL EDUCATION** | |
| Norman (Pinky) Lewis Field House | 13 |
| Ivor Wynne Centre for Physical Education and Athletics | 24 |
| **SCIENCES** | |
| Biology Greenhouses | 30 |
| General Sciences | 22 |
| Life Sciences Bldg. | 39 |
| Nuclear Reactor | 15 |
| Nuclear Research | |
| Nuclear Sciences | 32 |
| Charles Burke Science Bldg. | 11 |
| Psychology | 34 |
| A.N. Bourns Science Bldg. | 25 |
| **ADMINISTRATION** | |
| Gilmour Hall | 20 |
| **RESIDENCES** | |
| *Co-ed* | |
| McKay Hall | 27 |
| Bates Residence | 40 |
| Whidden Hall | 19 |
| Woodstock Hall | 35 |
| *Men's* | |
| Edwards Hall | 5 |
| Matthews Hall | 26 |
| *Women's* | |
| Brandon Hall | 36 |
| Moulton Hall | 18 |
| Wallingford Hall | 6 |
| **OTHER** | |
| Commons | 28 |
| Refectory | 4 |
| Wentworth House | 21 |
| Alumni Memorial | 8 |
| Campus Services | 31 |
| E.T. Clarke Centre | 12 |
| Divinity College | 17 |
| Faculty Club | 8 |
| Hamilton Hall | 2 |
| President's Residence | 7 |

# Brock University Campus Guide

## Directory

| | |
|---|---|
| **Faculties** | |
| Business | MC A207 |
| Education | FE 103 |
| Humanities | ST 401 |
| Mathematics and Sciences | MC D409 |
| Physical Education and Recreation | PE 213A |
| Social Sciences | ST 401 |
| **Academic Departments** | |
| Business Administration | MC A207 |
| Accounting and Finance | MC A207 |
| Applied Language Studies | MC C409 |
| Applied Linguistics | MC C409 |
| Asian Studies | ST 1233 |
| Biological Sciences | MC F234 |
| Canadian Studies | MC A310 |
| Chemistry | MC E206 |
| Child Studies | MC D332 |
| Classics | ST 1227 |
| Communications Studies | MC A310 |
| Computer Science and Information Processing | MC B305 |
| Concordia Seminary | Concordia Bldg. |
| Economics | ST 1217 |
| Education | FE 126 |
| English Language and Literature | MC A310 |
| Environmental Science | MC F234 |
| Extradepartmental Studies | ST 401 |
| Film Studies, Dramatic & Visual Arts | THw 135 |
| French, Italian & Spanish | ST 1132 |
| Geography | MC C322 |
| Geological Sciences | MC D410 |
| Germanic/Slavic Studies | ST 1119 |
| History | MC C421 |
| Health Studies | MC D332 |
| Labour Studies | ST 1006 |
| Liberal Studies | ST 1227 |
| Management & Marketing | MC A240 |
| Mathematics | ST 1112 |
| Music | THw 139 |
| Philosophy | ST 1233 |
| Physical Education | PE 213 |
| Recreation and Leisure Studies | PE 213 |
| Physics | MC B310 |
| Politics | MC A337 |
| Psychology | MC B325 |
| Sociology | ST 1006 |
| Urban/Environmental Studies | MC F202 |
| **Administrative Departments** | |
| Administrative Services | ST 1016 |
| Alumni Affairs | THe 263B |
| Bank of Nova Scotia | THs 218 |
| Bar Services | Alphie's Trough |
| Book Store | THs 219 |
| Business Consulting | MC A223 |
| Brock Centre for the Arts | THw 131 |
| Campus Ministries | RES 202/201 |
| Campus News | THe 265 |
| Campus Police | THs 272 |
| Canada Employment/Placement | ST 411 |
| Carpentry | CUB |
| Central Purchasing | ST 1016 |
| Central Stores, Ship/Receive | MC G207 |
| Clerical Services | MC C300 |
| Computing Services | MC F300 |
| Communications Services | THw 235 |
| Conference Services | RES 211 |
| Counselling | ST 411 |
| Custodial Services | MC G204 |
| Day Care Centre | FE 9 |
| Development Office | THe 263B |
| External Relations | THe 265 |
| Electronics | MC G301 |
| Faculty Association | ST 1209 |
| Finance | ST 1012 |
| Financial Aid | THn 260 |
| Food Services | RES 209 |
| Glass Blowing Shop | MC G201 |
| Health Services | THe 261 |
| Housing Office | RES 205 |
| Imaging Research | MC D435 |
| Instructional Resource Centre | PE 2nd Flr |
| International Student Advisor | RES 212 |
| Language Learning Centre | THe 269 |
| Library | ST 214 |
| Machine Shop | MC D202 |
| Mail Services | THn 151A |
| Maintenance | CUB |
| Map Library | MC C306 |
| Payroll | ST 1013 |
| Personnel Services | ST 1001A |
| Physical Plant | ST 1016 |
| President's Office | ST 1301 |
| Printing Services | THn150 |
| Registrar's Office | ST 301 |
| Research Grants Office | MC D407 |

| | |
|---|---|
| Secretary to the University | ST 1303 |
| Sexual Harrassment Officer | RES 213 |
| Student Services | RES 214 |
| Student Union | THw 828 |
| Swimming Pool | Aquatic Centre |
| **Meeting Rooms** | |
| Alumni Lounge | ST 13th Flr |
| Board Room | ST 13th Flr |
| Senate Chambers | MC A300 |
| Deans Meeting Room | MC A302 |
| Pond Inlet | MC G213 |
| Faculty Club | ST 13th Flr |
| **Cafeterias** | |
| Tower Cafeteria | ST102 |
| Residence Cafeteria | RES |
| Pond Inlet | MC G213 |

### Take A Tour

Guided tours of the University are available daily, and will add a personal touch to your visit. Our student tour guides will show you around the campus and answer any questions you have.

Arrangements can be made for meetings with professors in your particular area of interest. Please notify us in advance if you would like to arrange such a meeting.

For more information, or to arrange for a tour or meeting, please contact the Office of External Relations, (416) 688-5550/5544 ext. 3245.

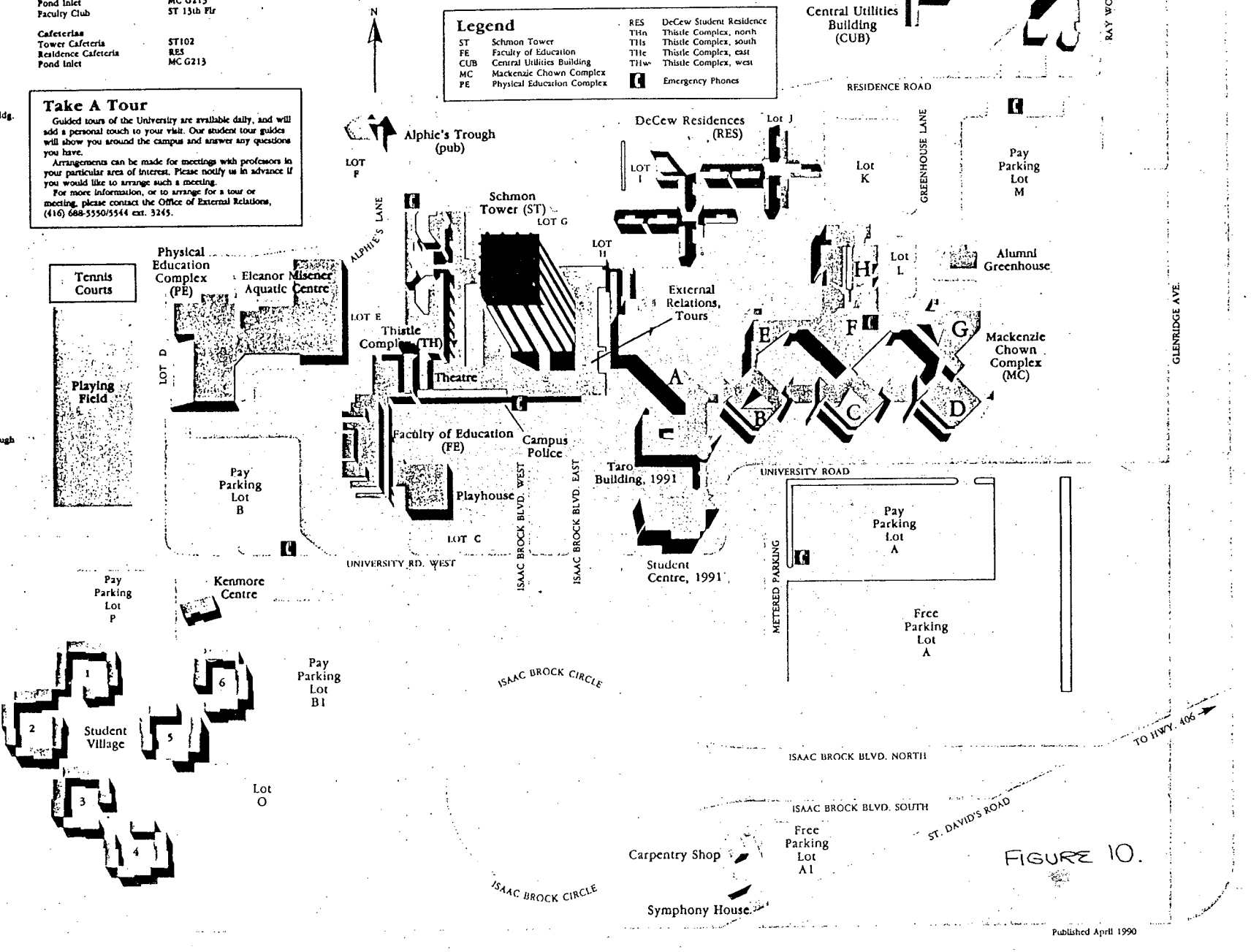



FIGURE 10.

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