

THE CHILD'S LANDSCAPE  
IN A CANADIAN SUBURBAN ENVIRONMENT

A Practicum

Submitted to the Faculty of Graduate Studies  
In Partial Fulfillment of the Requirements for  
the degree of Master of Landscape Architecture

by

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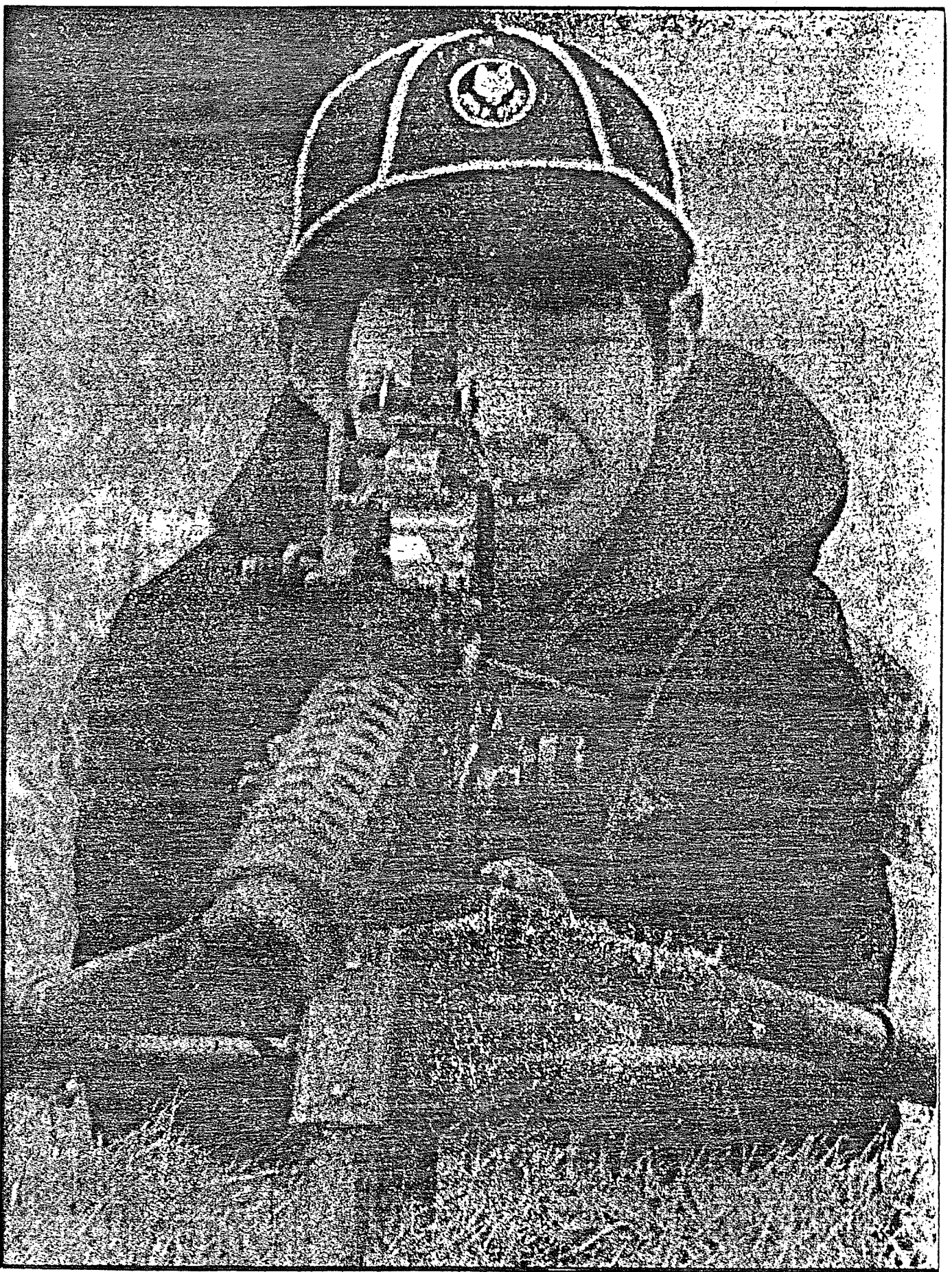
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Cover photograph taken from  
The Winnipeg Free Press 1980.

## ABSTRACT

A questionnaire provides the basis for documenting the environmental perceptions of a group of twenty children (10-11 years of age) living in a middle-class to upper-middle-class North American suburban residential area. This area has been locally identified as an area of "high quality living". This core work is augmented by additional field observations, activity time charts, cognitive mapping, group discussions and supplementary interviews.

The objectives of this study are:

- (i) to investigate a central Canadian residential suburban environment (locally identified as an area of high quality living), documenting the environmental perceptions of a group of children living there,  
and
- (ii) to study the spatial environments of these children in the central Canadian context, utilising the United Nations Educational Scientific and Cultural Organisation's research guide in order that general isomorphic qualities can be established.

The study area is described in detail as is the methodology. Major findings related to the study group are presented objectively. The conclusive section is presented in four parts, firstly as "conclusions based directly upon the findings of this study", and secondly as "patterns and anomalies of the findings as compared to the UNESCO-sponsored series of studies". The third part discusses in detail three broad problem areas which were found to be "negatively influencing the children's development of an awareness towards the environment" and proposes direction and action as to their resolution. The section is closed by the "Postscript", which discusses with whom the responsibility for that direction lies, and the content of the information transfer.

A considerable degree of attention is paid to the questioning of the group. The intent is to uncover motivations behind the children's behaviour and not simply to record activity patterns.

As a successful exploratory study should, this study has uncovered more questions than it is able to answer.

"Our environment and its resources are a major concern for mankind today. That concern may be voiced, legislated for and exercised, but the one most positive means of creating concern for an intelligent management of our world is through the environmental education of those who inherit it."<sup>1</sup>

1.Schoenfeld: OUTLINES OF ENVIRONMENTAL EDUCATION: reprinted from Environmental Education by Dember Educational Research Services Inc. Library of Congress no.78-149599. .



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In closing, the academic committee administering this practicum, Professor A.E. Rattray (Head of the Department of Landscape Architecture, University of Manitoba and Chairman of the Committee), Professor C.H. Thomsen (Department of Architecture, University of Manitoba), and Dr. T.C. Meadows (Faculty of Education, University of Manitoba) are to be acknowledged for their enthusiastic participation, invaluable contribution, invigorating philosophical inspiration and direction, and continual encouragement.

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## 1.000. INTRODUCTION

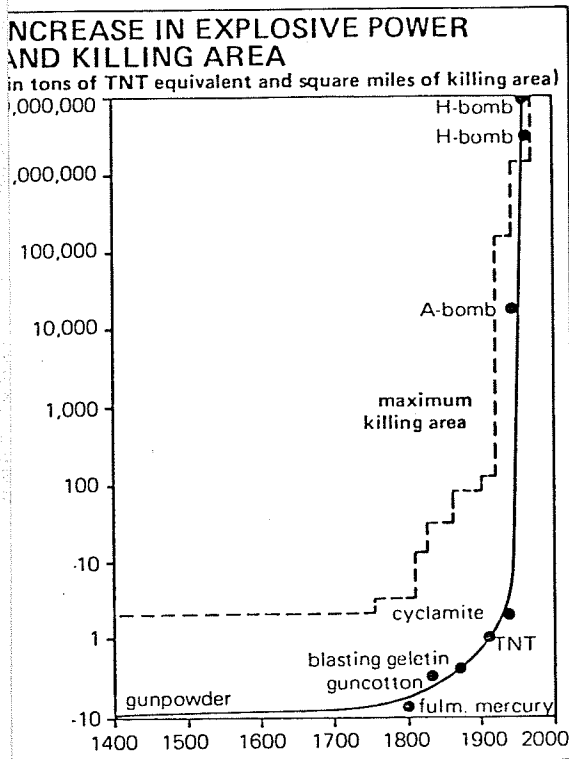


fig. 1) McHale. John:  
WORLD FACTS AND TRENDS:  
New York MacMillan 1972.

Radioactive contaminants, synthetic food, insecticides, thalidomide chemical poison, detergents, chemical defoliation, nuclear warheads, floral and faunal extinction, energy consumption, exponential population increase, land erosion....If we are to survive, the cultivation of a basic awareness of our environment and of the unforeseen forces that mould it is of the utmost importance.

The security of every nation in the world remains tied to nuclear armament and yet we continue to evade an open public discussion on the most basic of questions; do we wish to continue to commit the security of nations to a military system which is likely to destroy them? (See fig. 1.)

American motor vehicles alone dumped 66,000,000 tons of deadly carbon monoxide into the air in one year, posing unacceptable health hazards, yet the powerful and deeply entrenched automobile industry maintains production. (See fig. 2.)

Food manufacturers continue to add chemicals to our food, motivated by short term financial profit rather than nutritional upgrading, yet little information is readily available concerning the resultant chemical build-up in the body.

The pollution of our surface waters from sewage and detergents is well known; sound alternatives have been proposed; yet the necessary revision of waste disposal systems is by no means obvious.<sup>1</sup>

Proposed restraints on the use of synthetic

1. Taylor. Frank. ed:  
POLLUTION, THE EFFLUENCE OF  
AFFLUENCE: Toronto, Methuen  
1971.

**CARBON MONOXIDE EMISSIONS—U.S.**  
(IN MILLIONS OF TONS PER YEAR)

SOURCE	CARBON MONOXIDE EMISSIONS	PERCENT OF TOTAL
<b>TECHNOLOGICAL SOURCES</b>		
FUEL COMBUSTION IN MOBILE SOURCES		
Motor vehicles	59.2	62.7
Aircraft	2.4	2.5
Ships	0.3	0.3
Railroads	0.1	0.1
Non-highway use of fuels	1.8	1.9
FUEL COMBUSTION IN STATIONARY SOURCES		
Coal	0.8	0.8
Fuel oil	0.1	0.1
Natural gas	trace	trace
Wood	1.0	1.0
INDUSTRIAL PROCESSES	11.2	11.9
SOLID WASTE COMBUSTION	7.8	8.3
MISCELLANEOUS	9.7	10.3
	<u>94.4</u>	<u>100.0</u>
<b>NATURAL SOURCES</b>		
FOREST FIRES	7.2	

(fig. 2) McHale.John:  
WORLD FACTS AND TRENDS:  
New York MacMillan 1972.

pesticides have already aroused a great deal of opposition from the chemical and agricultural industries.<sup>1</sup>

The crisis for all the living is here and now. The world of the future promises to be flower-less, animal-less, and life-less except for masses of people. In the next century, in nightmare worlds of steel and concrete, of algae steaks and yeast pies, the day might well come when our grandchildren will hold hands in a circle and sing: 'Spring has sprung, the grass has ris,  
I wonder where the flowers is'  
--and wish they could see one.<sup>2</sup>

The evidence of environmental abuse is overwhelming.....yet we continue.

In recent history, many energies have been directed towards solving such problems as air pollution, body pollution, consumerism, etc. However, these energies only deal with symptoms of a much deeper problem; that is, a general lack of awareness of environmental conditions and ecological principles. In order to bring about the necessary change to the existing status quo, it is this root cause which must be addressed.

It has been concluded that the level of environmental awareness developed by children can be traced directly to the quality of their built environment.<sup>3</sup> Yet in today's society the needs and desires of children remain as low priority items in the design process of our mechanised world.

1.Geneva World Health Organisation:CONTROL OF PESTICIDES: GWHO.1970.

2.Iltis.H.Hugh:WHOSE IS THE FIGHT FOR NATURE?: Sierra Club Bulletin.vol.52 oct.1967 no.9.

3.Lynch.Kevin.ed:GROWING UP IN CITIES: Published jointly by The United Nations Educational, Scientific and cultural Organisation and The Massachusetts Institute of Technology. 7Place de Fontenoy, Paris 75700, France.1977.

It seems evident that we can no longer rely upon science or government to bear responsibility for our environment; we must assume responsibility ourselves. In order that we may come to understand this responsibility, we need to become intimately aware of our environment and, most importantly, of our position in it, for to remain a product of our environment is simply to perpetuate the present situation.

Today's children will form the societies of tomorrow. What are their perceptions of the environment? How does the built environment influence their behaviour and attitudes? Will they learn from our mistakes or continue to follow aimlessly?

Questions like these, and of course many others, must be answered as an initial attempt to understand the causes of the 'Motherhood Problem' (a general lack of awareness towards environmental conditions and ecological principles).

For all intents and purposes, the energies of this study focus on increasing the body of knowledge concerned with aspects of the relationships between the child and the built environment.



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## 2.000. LITERATURE REVIEW

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A large number of studies to date have concerned themselves with the interrelationships between man and the built environment (and, to a lesser degree, with the child and the built environment).

It has been concluded by many that the "Urban Environment" has been, and is yet, causing detrimental effects on our children's development.....

W. B. Stapp, professor in the School of Natural Resources, Michigan, forwards the viewpoint that, as man becomes progressively urbanised, his intimate association and interaction with natural resources diminishes, and with it his awareness of and dependency on them.<sup>1</sup> He proposes that the biophysical environment in which we live has major influences on our awareness of the natural environment and on the way in which we treat it. This viewpoint was shared by John B. Mays in a report for the Liverpool Council of Social Service, who goes further by saying:

The urban child is cut off from all natural life, from growth of plant and tree, from water, stream or river, from sand on the sea shore. Not surprisingly when he does get into the country he thinks of birds as targets for catapults and trees as things to be hacked down for firewood. If he finds a crab in a rock pool it will not be long before he is stoning it to death. The urban child is psychologically disoriented, cut off from man's natural roots, seldom called to do battle with the elements or to learn to cooperate with nature.<sup>2</sup>

1.Schoenfeld: OUTLINES OF ENVIRONMENTAL EDUCATION: Pember Educational Research Services Inc., USA Library of Congress No. 78-149599.

2.Mays.John Barron: ADVENTURE IN PLAY: Liverpool Council of Social Services. Liverpool 1957.

2.100. THE UNITED NATIONS EDUCATIONAL SCIENTIFIC  
AND CULTURAL ORGANISATION'S SPONSORED SERIES OF  
INTERNATIONAL CHILD STUDIES (UNESCO)

During the '70s, UNESCO sponsored a series of ten studies in five countries: Las Rosas, Salta (suburb) in Argentina;<sup>1</sup> Melbourne (suburb) in Australia;<sup>2</sup> Powilse and Kleparski (both peripheral housing projects) in Poland; Bystra Podhalanska (rural) in Poland;<sup>3</sup> and Toluca<sup>4</sup> (inner city) and Ecatepec<sup>5</sup> (peripheral housing) in Mexico.

The research teams in each of these four countries looked at the ways in which small groups of children used and valued their spatial environments. The general intention was to help document the human costs and benefits of economic development by showing how the child's use and perception of the resulting micro-environment affects his/her life. The intention of the research was to suggest public policies for improving the spatial environment.

1. Battro. A.M. and Ellis. E.J:  
INTERNATIONAL STUDY OF THE IMPACT  
OF ECONOMIC DEVELOPMENT ON THE  
SPATIAL ENVIRONMENT OF CHILDREN:  
Salta, Argentina, typescript 1972.

2. Downton. P.J: CHILDREN'S PERCEPTION  
OF SPACE PROJECT: Melbourne  
Study, typescript March 1973.

3. Tomaszewski. T: CHILDREN'S  
PERCEPTION OF THE ENVIRONMENT:  
UNESCO Project realised in  
Poland Typescript 1973-74.

4. Johnson. E.J. and Kirschner. D:  
CHILDREN'S PERCEPTION OF THE  
ENVIRONMENT: A Case Study In  
Toluca, Mexico Typescript 1975.

5. Calzada. M.F. and Krabacher. M:  
THE ENVIRONMENT AND CHILDREN'S  
PERCEPTION: The Environmental  
Perception of Boys and Girls,  
San Agustin, Ecatepec, Mexico  
Typescript 1975.

2.110. Methodology (UNESCO)

The research teams followed a "core" information gathering procedure which was recommended by UNESCO. This "core" methodology included child interviews, cognitive mapping, activity analysis breakdowns, time budgets and, in some cases, interviews with parents and officials. However, each study was allowed to "blossom" on its own accord, and researchers were encouraged to follow up on any avenues particular to that study group or area in question. (A detailed account of the "Techniques" used appears in Appendix I.)

#### 2.120. Findings (UNESCO)

Due to the variety of conditions under which these studies were carried out, it is clear that they could be neither statistically representative nor rigorously comparative. However, many common denominators did emerge.

2.121. Image of Locality. Striking anomalies were found to exist between the locales in the ways in which the children imaged their communities. The Salta children (suburb) all drew the same coherent place, an area of similar houses sharply bounded by a prison, hills, and a main road with a canal. The area was identified not only as a physical unit but as an active community as well.

The cognitive maps prepared by the Polish village children (Bystra) were equally consistent. The existence of a strong impression of a well known territory, personally participated in, was shown clearly by these graphics.

In Toluca, Mexico, a small compact city whose edges were easily discernible and streets reasonably well structured, the majority of the children studied could not graphically represent it.

2.122. Range of Action. It was found that the important barriers to the freedom of movement were not distance but personal fear, dangerous traffic, a general lack of spatial knowledge, the cost of public transport and certain parental restrictions.

The Salta children were found to play within a part of a circle which was only  $\frac{1}{2}$  kilometer in diameter. Although they expressed confidence in moving anywhere in the city, it was found that they showed little knowledge of it. Similarly, the children in the Polish housing projects were found to keep consistently within their project boundaries. Their knowledge of the rest of the city was scattered and random.

The Australian children were found to be the most mobile, ranging overground five square kilometers. They were consistently on the move; however, their experiences of activity, place and variety of people seemed restricted. They were also less familiar with the centre of their city and less at ease in crossing areas of the metropolis that were unlike their own.

2.123. Boredom and Engagement. Both the Australian and Argentinian findings identified the problem of boredom. In both cases the children seemed to suffer from experiential starvation. There was little to do or see that was new or exciting for them. The Polish study identified an existing hunger for activity and stimulus felt by the children in the outlying areas. This they concluded was a principal defect in those planned areas. In contrast, the city centre children were found to be "hungry for" outdoor open space in which to play.

Throughout the UNESCO studies, findings indicated that there existed little opportunity for the children to develop responsibility. In general their landscape was divided into ownerships,

either public or private, and the children were not the owners.

The rural Polish study was the one exception to these results. The children, it was found, often shared in the management of their home, garden, farm or family business and seemed to be more explicitly connected to the community and the place.

2.124. The Use of Unprogrammed Space. It was found in general that there existed basic similarities in the way the children used unprogrammed space. When asked about what they chose to do, the places they were interested in, how they spend their time or how they would like to, they did not talk about school or the playgrounds or private yards, they talked about the street, the courtyard, their own room and, to a lesser degree, sports facilities, wastelands, natural open spaces and their city centres. The Australian findings clearly contrast the children's free use of unprogrammed space with the emptiness of their designated playgrounds and recreational reserves.

In Las Rosas (Argentina), Zatrassie and Kozlowka (Poland) findings indicated that the shape of the streets, stairs and courtyards was important to these children. The trees, paving, corners, all nooks and crannies, doorways, the suitability for play, the opportunities that these places provided to the children to slip away from the parental eye while still being thought safe and under general supervision were extremely important.

2.125. Time Budgets. Throughout the series of

studies the rigidity of the children's weekday was unquestionable. Unlike earlier generations, few of these children were found to be involved in paid labour, nor for that matter were many involved in family chores, yet there was little time when they freely organised their own activities. In fact little time was spent outdoors at all.

In general, 40%-45% of the children's waking hours were absorbed by school and related school-work, 25%-35% consumed in eating meals, some food preparation and chores, almost all the remaining time was spent sitting in front of a television set (25%-30%). On average, only 5%-10% of their day was unprogrammed and this time was usually spent outdoors in the streets, or in their rooms, or visiting with friends.

#### 2.130. UNESCO Conclusions

In conclusion, the first critical issue identified by the UNESCO studies was that the form and regulation of local streets and small open spaces played an important role in light of their importance for social interaction. To raise the quality of the children's environment it was proposed that traffic hazards be reduced. Neighbourhood layouts deterring through-traffic could be avoided, sidewalks could be widened in places or even integrated with small play spaces. Leftover spaces could be used to supplement traditional parks and playgrounds which did not allow for creative play.

The hunger for trees was found to be outspoken. It was concluded that landscape should be an



element as integral a part of the community infrastructure as electricity, water and sewage disposal.

It was concluded that the children should be living in places that have a clear social and spatial identity, a Community Identity, places which they can easily understand and in which they can take pride. It was recommended that the children should take part in "community maintenance" so as to develop a sense of ownership. It was also proposed that their sense of past and future should be connected to their localities and be related to the conservation of natural resources and to their historical heritage.

Many of the studies identified local waste grounds as elements offering a potential for community controlled development.

Most studies found that the children's city access availability was limited. It was concluded that the degree of city access may have a direct relationship to the educational development of the children. It was strongly recommended that the city should be opened to the children by ease of transport and adult direction and encouragement. In this way the children's education may be developed, their independence strengthened and their hunger for stimulus eased. Since traffic hazards presented restrictions to the freedom of movement of the children in the UNESCO series, it was recommended that the children should be educated as to how they may safely traverse their cities. It was felt that each city could then be used as a diverse learning ground where the children could experience a broad spectrum of places, people and activity, reduce their boredom and broaden their development.

Recommendations were made to educational institutions to increase their interest to the children by using local environments in their teaching methods. It was hoped that the schools might emphasise experiential learning more frequently by using the city and surrounding regions as an educational resource.

Finally, it was concluded that television was rapidly becoming the major way in which children throughout the study series experienced reality. For some children this activity consumed most of their free time and attention (25%-30%). The power of information transfer by this medium being as awesome as it is, if broadcasting companies are not aware of the terrifying responsibility their programmes bear, then the responsibility must lie with the children's parents or guardians!

#### 2.200. SUMMARY OF LITERATURE REVIEW

As has been brought to our attention by the UNESCO series of studies, John Barron Mays, Professor W.B. Stapp and others, in many inner-city residential areas studies have concluded that the "Urban Child" is, as a direct result of physical isolation from natural surroundings, unaware of natural environmental conditions. (In most cases the "Urban Child" under investigation was a member of a low income group living in an "economically stressed and physically deprived environment.")<sup>1</sup>

P.J. Downton (suburban study in Melbourne, Australia) goes further in concluding that since the range of experiences available to his study group was found to be distinctly lacking, the

chances for self-development, broadening of outlook and contact with a variety of different people and ideas were very poor.<sup>2</sup> In other words, he determines the children's development to be severely limited.

The conclusions reached by these studies raise many unanswered questions. For instance, are we to assume that a child's awareness of and intimacy with natural environmental conditions is directly related to the "naturalness" of that child's surroundings? Is it correct for us to assume that if we raise our children in a "natural environment", it will follow that they will become more aware of natural environmental conditions than if we did not?

In reference to the P.J. Downton study, are we to infer that quality of living is directly related to the richness of our physical environment? Deeper still, do these conclusions imply that the very quality of life is directly related to the quantity of available material wealth?

In North America, attitudes towards which type of residential setting provides a high quality of living remain mixed. Although considerable literature is available on the physical, psychological and social problems now associated with suburban residential environments, the public is in general led to believe (by sales techniques) that suburban environments are the ideal places in which to raise a family. (Distilling the "essence" from local suburban home buyer brochures, one can easily identify the images of "natural", "green", "leisure", "safe", "private" and "prestigious" not only as major selling

points of view, but more importantly as a reflection of current social attitudes towards quantifying the quality of living environments in the North American culture.)

Raising similar questions as those raised by the literature review, is it correct for us to assume that, since the North American suburban environment has been acclaimed to provide a higher quality of living in which to raise a family, the potential development of the child growing up there will be increased? More specifically, since the same suburban environment boasts of a setting that is closer to nature than its urban counterpart, will the child growing up there be more aware of natural environmental conditions?

For all intents and purposes the general intent of this study will be to explore these conditions and attempt to throw more light on these areas. In retrospect, if it is true that the children today experience reality through the medium of television, then perhaps all of us who are interested in the future development of our society should re-focus our energies on television programming!

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### 3.000. THE OBJECTIVES AND PROBLEM DOMAIN

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In light of the general problem areas identified both in the introduction and literature review chapters, this study chose to maintain an exploratory nature. In order to more clearly express in which direction it was headed and to set certain parameters in which the study would work, the following objectives were identified.

#### 3.100. THE OBJECTIVES OF THIS STUDY

The objectives of this study are:

- (i) to investigate a central Canadian residential suburban environment (locally identified as an area of high quality living), documenting the environmental perceptions of a group of children living there,  
and
- (ii) to study the spatial environments of these children in the central Canadian context, utilising the United Nations Educational Scientific and Cultural Organisation's research guide in order that general isomorphic qualities can be established.

It should be noted at this point that due to the wide variety of conditions under which the UNESCO series of studies was carried out, statistically valid comparisons are inappropriate. Nevertheless, by adhering closely to the UNESCO guidelines this study hopes to provide some analogous material in order to discuss relevant "common denominators".

### 3.200. THE PROBLEM DOMAIN

The study has concerned itself with a group of twenty children (10-11 years of age) as they move in and around the study area during part of their late summer leisure time. (The reader should refer to Appendix I for a detailed account of the study group.) The study investigated and identified environmental problems encountered by these children and isolated elements which appeared to influence their behaviour and/or environmental knowledge in a significant way.

Since the study was exploratory in nature, researching a small, well-defined group was seen to be more relevant than conducting a study of a total population. (Small, defined study groups were used consistently throughout the UNESCO study series.)

Although the study group were chosen at random, based upon discussion with the Principal of the children's school the sample group were considered to be amongst the academically strong students. (This fact should be kept in mind when the reader reviews the results of the study.) As previously indicated, the results of this study cannot be statistically compared with those of the UNESCO series; however, it was felt that the study group's academic level (above norm) would not hamper the study in any way.

The physical, cultural and socio-economic settings of the study area were chosen specifically in order to research a suburban environment already considered locally as presenting a high



quality of living. The study area was a fine example of a typical North American middle-class and upper-middle-class suburb. (For a detailed account of the study area, the reader should refer to chapter 5.000, "The Setting".)

Since it was felt beyond the scope of this study to investigate the influences of the children's formal educative backgrounds on their environmental knowledge and behaviour, concern has been focused on the study group's leisure time. In addition, due to the severity of the extreme climatical conditions experienced by this region of Canada, it was felt that separate seasonal studies were necessary. This study, therefore, addresses only the late summer activities, from August through September and into October.

#### 4.000. THE METHODOLOGY APPLIED TO THIS STUDY

It has been recognised that due to the variety of conditions existing throughout the UNESCO sponsored series of studies, rigorous statistical comparisons could not be justified. Nevertheless, many common denominators did exist and were presented to stimulate thought and discussion. In order that the results of this study may be compared to those in the UNESCO series in a similar fashion, the recommended "core" UNESCO methodology and procedures have been followed. The following chapter will outline this methodology; however, the reader should refer to Appendix I for a detailed account of the techniques employed.

#### 4.100. THE REVISED RESEARCH GUIDE FOR AN INTERNATIONAL STUDY ON THE SPATIAL ENVIRONMENTS OF CHILDREN (RECOMMENDED BY UNESCO)

##### 4.110. Choice of Study Area and Group

This opening section of the UNESCO Guide recommends methodology for choosing a study area and subjects "eligible" for research. Specific attention is given to the "initiation" stage of the research such as

- a) choosing the general type of setting,
- b) selecting the particular locality and social group to be studied, and
- c) selecting the subjects themselves.

Since these decisions have been motivated by the general purpose:

"To help document some of the human costs and benefits of economic development,"

UNESCO recommends that the general type of

setting should deal with areas that have undergone or are currently undergoing rapid change, places where environmental quality is critical. In this way UNESCO assumes that the most critical issues are to be found among the lower income groups living in areas of rapid change such as inner-city slums, peripheral squatter settlements, the haunts of homeless sidewalk dwellers, new working class housing, rural village, or whatever.<sup>1</sup>

Since this study has chosen to research children living "on the other end of the scale", this "initiation methodology" was not employed. However, recommendations as to the selection of subjects has been acknowledged and guidelines followed; for instance, the size of the group to be studied, the number of each sex, etc. (the reader should refer to Appendix I).

#### 4.120. Background Information

As we are now quite well aware, the conditions under which the UNESCO series of studies was carried out were extremely diverse. It was felt that comparisons under these circumstances could have been made a little easier if the physical, cultural and socio-economic setting of each child study had been presented in greater detail to allow the reader to become more intimately aware of existing conditions. In response to this "felt weakness" in the UNESCO series, this study went into greater detail than the UNESCO recommendations in analysing and presenting the existing setting.

To understand the existing physical conditions, information was collected on two scales. Firstly,

1. Lynch, Kevin, ed.: GROWING UP IN CITIES. Published jointly by the UNESCO and the Massachusetts Institute of Technology. 1977.

and briefly, as an introduction to The City of Winnipeg in Canada, general climatic conditions, recent physical growth, and population statistics were collected. Secondly, and in far greater detail, as a description of the existing site-specific conditions, information was collected on the existing landform, geology, vegetation, wildlife, land use, transportation, recreation and river quality.

Similarly, as an introduction to the existing cultural conditions, information was collected on the history of the City of Winnipeg and the study area in general and secondly, a detailed account of the existing site-specific socio-economic conditions was collected from the most recent Canadian Census Tract.

#### 4.130. Analysis of the Children's Image of Their Environment

This study followed the recommendation in the UNESCO guidelines that during the early stages of the study the investigator should "come to terms" with the study group, make their acquaintance and explain what the research was trying to accomplish and why. Accordingly, preparation of the working base map, land use surveys, photographic surveys and general observations of the children's mode of life were carried out during this "acquaintance" period.

To collect information directly from the children, the recommended individual interview procedures were followed closely. The interviews were conducted informally in the children's classroom, a place both familiar and comfortable to them, for half an hour each day before formal

lessons began. Since the UNESCO "core" questions were found to provide the most consistent sources of useful information, each "core" question was included in the line of questioning carried out by this study. In addition, relevant questions from the recommended "optional" question list were also included (the reader should refer to Appendix XII to view these questions).

After an analysis of the results of the "core" questions, another questionnaire was developed, directing itself in more detail at specific areas for concern (Appendix XIII contains samples of these additional questions).

Although this study did not utilise the "optional tour" methodology, group discussions were encouraged throughout the period of study.

#### 4.140. Observations of the Children's Spatial Behaviour

Although this study spent much of its time talking to the children, routine observations of their their spatial behaviour were carried out and recorded, using the revised guide methodology and techniques. A systematic record of visible child behaviour was recorded for both a typical weekday and weekend day in accordance with the UNESCO recommended research (see Appendix I for a detailed account of the timing of these observations).

#### 4.150. Analysis of the Knowledge, Attitudes and Memories of both Parents and Public Officials

At option, some UNESCO studies were resourceful enough to carry out evaluation procedures of

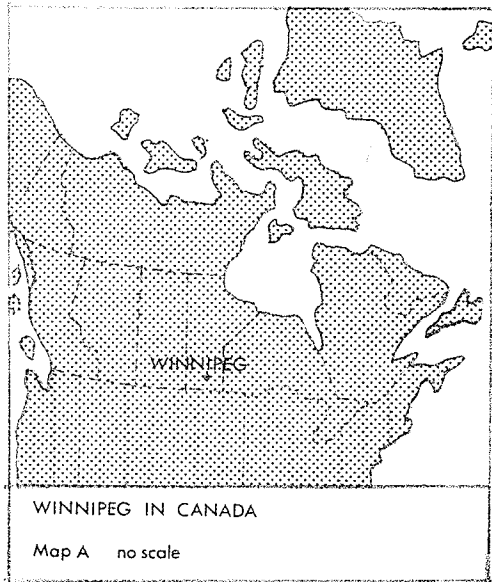
parents and public officials; however, this line of investigation was deemed to be beyond the scope of this study.

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## 5.000. THE SETTING

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### 5.100. THE CITY OF WINNIPEG: LOCATION AND HISTORY



The study takes place within the community of Fort Garry, a suburb of the City of Winnipeg (1978 pop. 599,458), Manitoba, which is approximately at the geographical centre of Canada (see map A). The city's roots lie deeply entrenched in the fur trade. The first settlement was located at the junction of the Red and Assiniboine rivers which at that time provided major transportation routes. The city evolved in conjunction with the growth of prairie agriculture and the introduction of two major railway companies. After World War II the city experienced a phenomenal population growth in a suburban direction; however, that growth has now subsided and the city is in flux. Many people are now seeking job opportunities in the growing oil towns further west (see Appendix II).

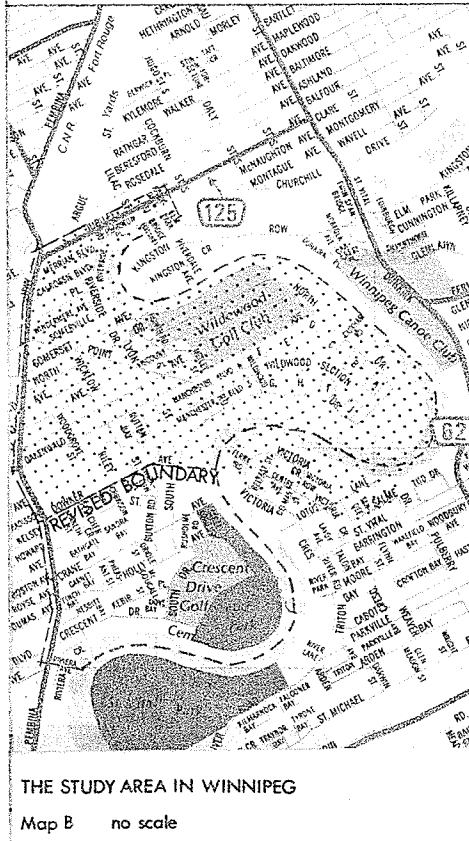
### 5.110. Climatical Conditions

The climate has been designated as dominantly sub-humid, cool continental, characterised by higher summer and lower winter temperatures than the world average for similar latitudes. Summer temperatures can reach 40°C compared with winter lows of -40°C. The annual precipitation and average temperature for Fort Garry were considered to be representative of those found in the study area since no site-specific climatical conditions were available. The average annual temperature for July is 20 C, and for January,

-18°C. The average precipitation is 19-20 inches. This figure includes the average snowfall of 50-55 inches.

#### 5.200. LOCATING THE STUDY AREA WITHIN THE CITY OF WINNIPEG

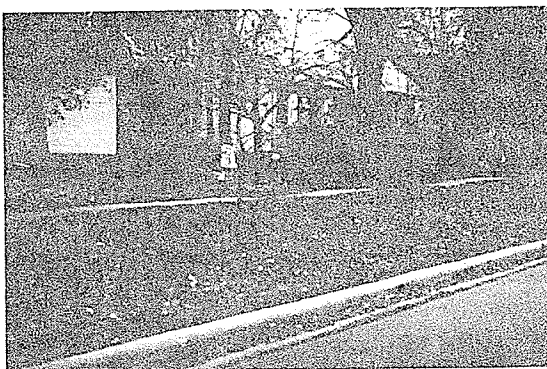
The study area is located approximately 3 miles south of downtown Winnipeg in the community of Fort Garry (see map B). The site lies on the western bank of the Red River and has a surface area of 1.35 sq. miles with a population of 6390 at the time of study. During preliminary data gathering stages the study area was bounded by Pembina Highway to the west, Jubilee Avenue to the north, the Red River to the east and Crescent Drive to the south. At a later date the decision was made to reduce the southern boundary from Crescent Drive to Dowker Avenue, after it was discovered that the study group were not active in the area deleted.



#### 5.300. EXISTING PHYSICAL CONDITIONS

##### 5.310. Character Description

The study area is characteristic of most post-World War II residential suburban areas in North America (middle to upper-middle-class status). Architecturally the area consists of three major types of single family detached dwelling units: the older post-World War II bungalow (one storied house with low pitched roof), the Californian "Ranch" styled bungalow, and the more expensive custom designed home. In all cases with the



1 Oakenwald Road



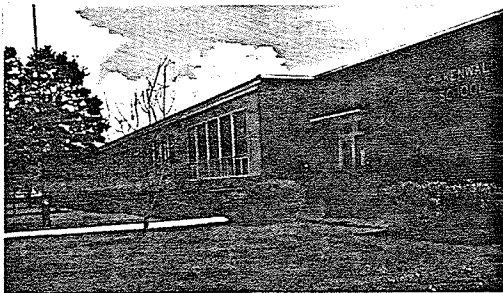


2 Wildwood Park

exception of the Wildwood Park Development, these houses are set back on the lot in response to standard regulations for the city. In the Wildwood Park Development the private homes face onto a shared semi-public green pedestrian open space. The areas other than Wildwood Park generally derive their linear form from the historical "river lot" typical to Winnipeg. The resultant grid pattern circulation system runs either north/west to south/east or north/east to south/west. The Pembina Highway "Strip" is characterised by two, three and four storey commercial enterprises varying in function as well as building form. The vegetation in this area maintains a stunted appearance even though some of the plantings are ten to fifteen years old (see Appendix III).

#### 5.320. Land Use

The study area is generally zoned as residential, and, in addition, it accommodates recreational, institutional and commercial facilities<sup>1</sup> (see map C). There are 2105 occupied private households, 1790 of which are owned and 320 rented. The area's gross density is 2.4 dwelling units per acre. Of these homes, 1845 are single family detached, 10 are single family attached, 245 are apartments and 10 are duplexes. There are four schools in the area: Oakenwald School, Viscount Alexander School, St. John's Ravenscourt School, and Vincent Massey Collegiate. In addition to these institutions the area supports two churches, St. Paul's Anglican Church and Fort Garry United Church, as well as a Kiwanis Plaza home for the elderly. One shopping centre is located at the



3 Oakenwald School



4 ST Johns' Ravenscourt School

Oakenwald Avenue/Point Road intersection. The community generally buys food products here or on the Pembina "Strip", or they travel to larger shopping malls typical of North America. There are no industries within the area, although there are a number within close proximity in the Fort Garry Industrial Parkland on McGillivray Boulevard (see Appendix IV).



5 Pembina Highway

#### 5.330. Access and Transportation

The study area is accessible via Route 75, more commonly known as Pembina Highway, from either the north or south side of the city. Pembina Highway is a major vehicular transportation route to the United States; Jubilee Avenue serves as access from the eastern side of the city, and McGillivray Boulevard from the west.

Each of these three routes has heavy traffic volumes. The study area in general is serviced by standard City of Winnipeg road alignment regulations. All roads in the area are examples of "two way secondary road systems"; in addition, most homes are serviced from the rear by "back lanes".

The City of Winnipeg's Public Transport Department provides the study area with two bus services. These services are limited and the general attitude of the community was that the service was bad for children not old enough to drive a car and for the elderly (see Appendix V).

#### 5.340. Landform and Geology

Although the area lies within the meandering Red



6 The Red River (A Parks Department owned river bend unmanaged)



7 Manchester Boulevard South

River Flood Plain, due to the flat topography the river is only recognizable from South Drive, North Drive, Riverside Drive and Crescent Drive. The area is a typical example of glacio lacustrine surface deposits and the topography is classified as level to very gently sloping (3-5 feet/mile).<sup>1</sup> In general the soils in the area are clay and vary from poorly drained to moderately well drained. They have experienced major disturbances resulting from the activities of settlement (see Appendix VI).

#### 5.350. Vegetation Mosaic

The vegetation supported by the original ground conditions has also experienced alterations due to the influx of residential ornamental planting. However, most streets in the study area boast mature stands of American Elm (*Ulmus americana*) or Bur Oak (*Quercus macrocarpa*) (see Appendix VII).

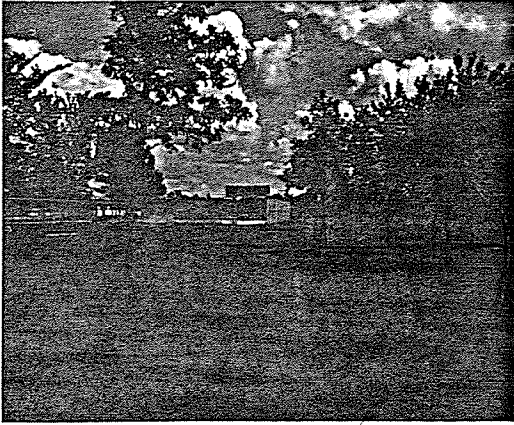
#### 5.360. Wildlife

As settlement changed both the subsoil and vegetative structural conditions, so too did it affect the wildlife community. Although the study area still accommodates a variety of birds, animals and fish, long gone are the bison, antelope, moose, bear and others that at one time dominated the area (see Appendix VIII).

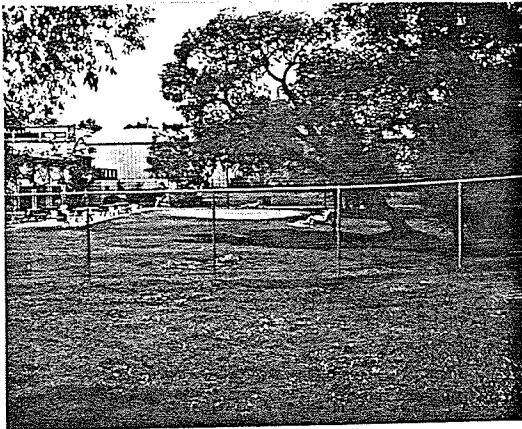
#### 5.370. Recreation

The study area accommodates a total of eight parks. The Wildwood Community Club playing

1. Davies, J.F: GEOLOGY AND MINERAL RESOURCES IN MANITOBA: Mines Branch, Department of Mines and Natural Resources, Province of Manitoba 1962.



8 Fort Garry Memorial Recreation Park



9 The Wildewood Club



10. Wildwood Park

fields are designated as a regional park, the others are designated as community parks: Toilers' Memorial Park, Byng Park, Point Road Triangle, Manchester Boulevard Park, Wildwood Park, Ruttan Bay Park, and Fort Garry Memorial Recreation Park (see map D).

The facilities each park provides vary somewhat. Byng Park provides a baseball diamond and standard play equipment. Toilers' Memorial Park is simply a small lawn area with some ornamental planting and a monument commemorating the Toilers' baseball team. This park runs from Riverside Drive down to the river's edge. Point Road Triangle is a planted area in the middle of the road junction between Point Road, Lyon Street and Waterford Avenue. Manchester Boulevard Park runs the length of two residential blocks. This area was allowed to return to its natural state.

Wildwood Park is a wooded area of residential open space onto which the homes of the Wildwood Park Development front. This open space is used as a pedestrian access to house frontages. In this park there are two designated play spaces, each with fixed play structures aimed at accommodating pre-schoolers. The Wildwood Community Club playing fields accommodate soccer, baseball and football. Ruttan Bay Park provides facilities for young children according to type of play structures present. Finally, Fort Garry Memorial Recreation Park provides playing fields, a running track, tennis courts and an outdoor swimming pool.

There are three major sports clubs active in the



11 Toilers' Memorial Park

study area: the Wildwood Club, the Wildwood Community Club and the Fort Garry Community Club. All three offer a large variety of sports facilities. The Wildwood Club owns a full size golf course in the area. In addition to these clubs there is a host of other social clubs, sports clubs and various societies going on behind the scenes: the Fort Garry Kiwanis Club, the Fort Garry Elks Lodge No. 504, the Wildwood Branch of the Independent Daughters of the Empire, the Lions Club, the Knights of Columbus, the Game and Fish Association at Fort Garry Legion no. 90, the Fort Garry Chamber of Commerce, and the Fort Garry Junior Chamber of Commerce. In addition, community life offers Scottish dancing, figure skating, curling, yoga, arts and handicrafts and an array of other recreational activities held at the four schools in the area (see Appendix IX).



12 The Red River

#### 5.380. The Red River

The Red River itself provides the community with the opportunity for a wide variety of water oriented sports. However, at the time of study, the microbiological levels in the river presented a health hazard and body/water contact sports were not recommended. It was assumed that the fish in the river were fit for human consumption, though some tainting of the flesh was to be expected (see Appendix X).

#### 5.400. THE SOCIO-ECONOMIC CONDITIONS EXISTING AT THE TIME OF STUDY

In general, the socio-economic setting of the study area in comparison to the rest of the City of Winnipeg was characterised by its relatively affluent English-speaking population and high degree of private home ownership. Two thirds of the homes are privately owned,<sup>1</sup> the majority being single family detached units (see Appendix XI for a detailed account of the socio-economic setting).

Of the 6445 total population in the study area, half are married; there are 130 single parent families.

As compared with other areas in the city, the study area has a relatively low unemployment rate. Only 100 people out of the 4010-strong labour force (2.5%) within the area were unemployed. (The national rate of unemployment at the time of the study was 7.2%.)

Approximately one fifth of the total population are children under the age of eighteen (1635). Only 90 are 25 years and over. There is little overcrowding since the average number of people per family is 3.3 and the majority of houses in the area have two or more bedrooms. The average number of children per family is 1.3.

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1. Government of Canada:  
CANADIAN CENSUS TRACT, 1976.

The population of the study area are in general non-movers (4120 people). The area does not experience the high turnover rates experienced by other areas in the city; in fact it has been

reported that this area is one to move to and not from.<sup>1</sup>

Of the total population of males (3270) in the study area, 2220 have received some form of formal education. Of the total population of females (3175), 2300 have experienced some form of formal education. Of the remaining 1925 people, 725 are pre-schoolers; the other 1200 people either have had no formal educative training or did not complete the questionnaire.

In summary, it was felt that the general socio-economic setting of the study area was favourable in that it met the criteria set out in part by the objective

"to investigate a central Canadian residential suburban environment (locally identified as an area of high quality living), documenting the environmental perceptions of a group of children living there."

1. Mubanga. Pascal: WILDWOOD PARK STUDY: an unpublished report for the Department of Architecture, University of Manitoba, University Library.

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## 6.000. THE FINDINGS OF THIS STUDY

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The following findings were based directly upon the information collected from the questionnaires discussed in the previous section. Observations and discussions were maintained throughout the period of study (see Appendix I). The resulting information presented in this section is factual and no "art work" has been altered.

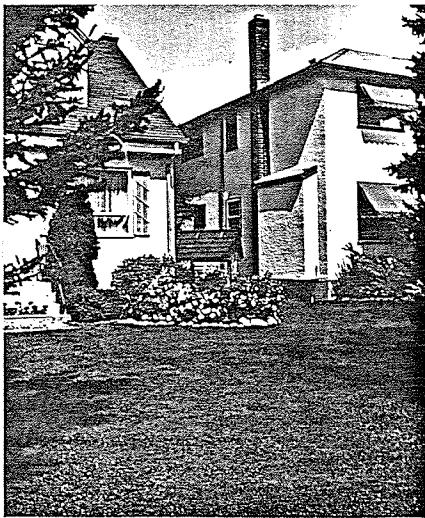
### 6.100. IMAGE OF LOCALITY

The following three questions were asked in order to gain a general understanding of what the children perceived as their "Home", their "Area" and their "City".

#### 6.110. The Home

This first question was related to the "Home Concept":

"Please draw me a map of your home and show me all the places in it that you use and the places which are important to you."

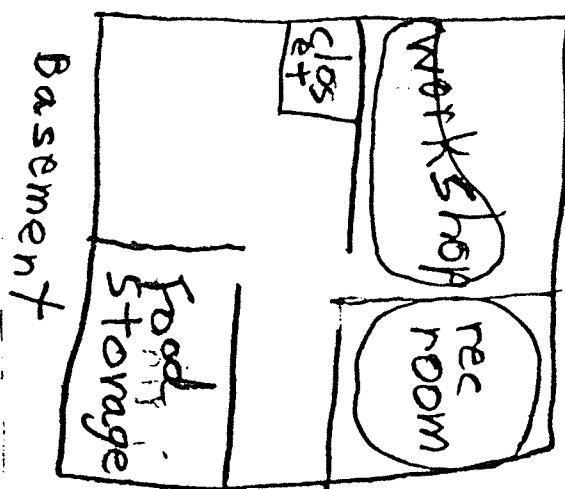
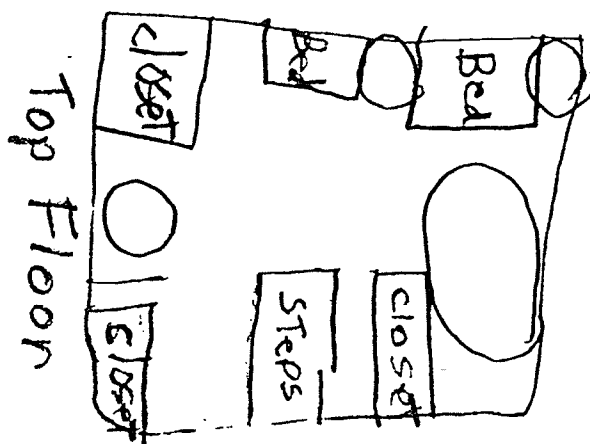
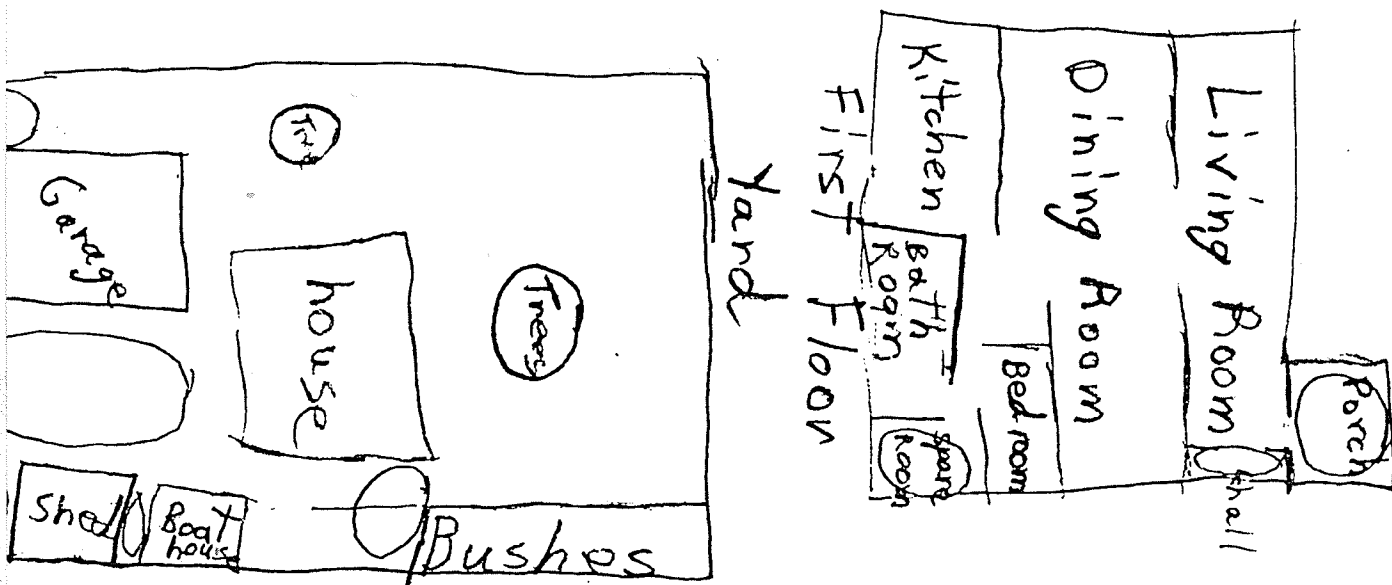


13 A Typical Single Family  
Detached Dwelling Unit

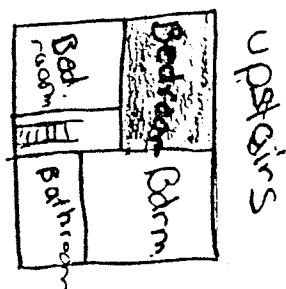
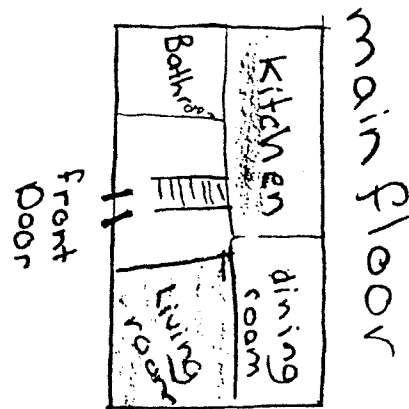
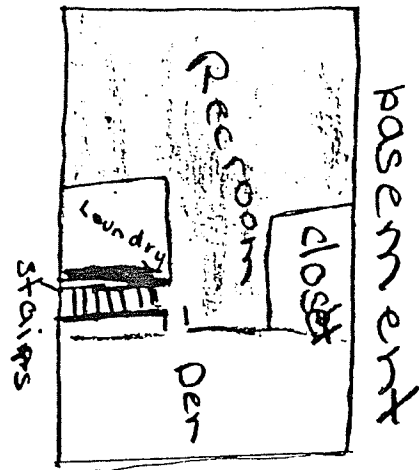
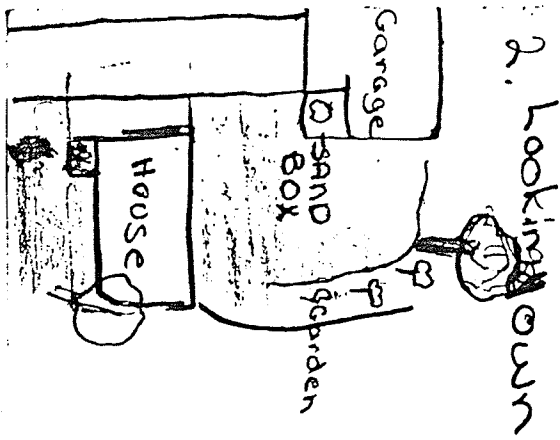
Each child in the group had their own semi-private place within the house, either their own room or at least a bedroom shared with a brother or sister. Each child had access to semi-private outdoor space in the areas immediately surrounding their house and, in addition, a few individuals had access to their own private outdoor space, generally in the form of a treehouse or clubhouse.



Home  
Places circled in blue is where I play

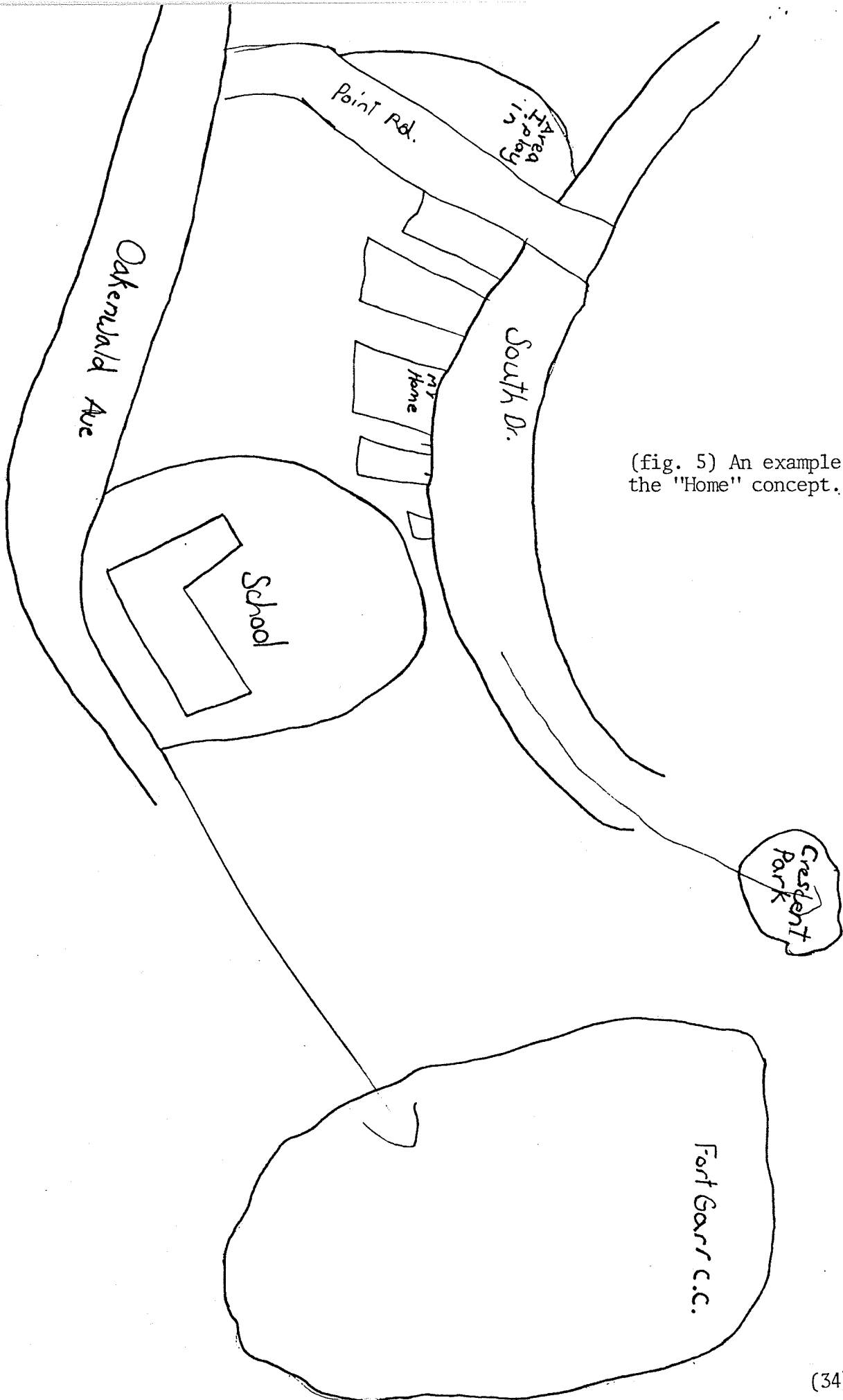


(fig. 3) An example of the "Home" concept.



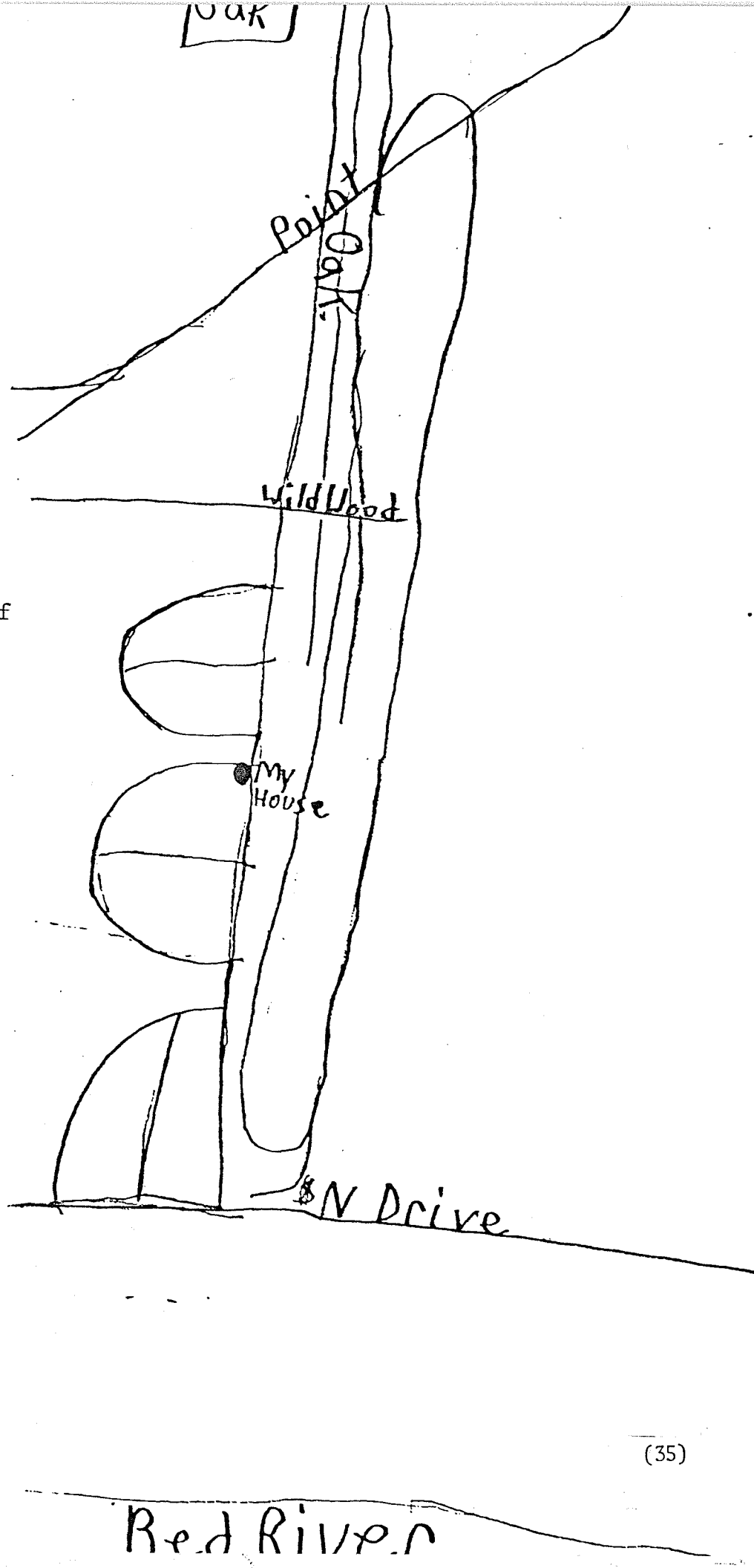
(fig. 4) An example of the "Home" concept.

key  
 H stairs  
 Most used areas



(fig. 5) An example of the "Home" concept.

(fig. 6) An example of the "Home" concept.



The first example showed a good understanding of multilayered space. The subject (girl) circled the areas which she used for play and the spaces she felt belonged to her (see fig. 3). The areas indicated were located both inside and outside her house. Her home was not only perceived as an indoor place (bedroom, spare room, hallway, workshop), but included outdoor spaces also (porch, backyard, sideyards).

The second example also showed a good understanding of three-dimensional space (see fig. 4). This girl shaded the areas which she used most. Again these areas were located both inside and outside the house.



14 Crescent Park

The third and fourth examples (boys) had rather different views of what their home was in comparison to the first and second examples (girls). These differences were consistent throughout the study (see figs. 5 and 6). Where the girls indicated detailed accounts of their homes as places of shelter with one or two outdoor spaces immediately adjacent to the structure, the boys showed a much larger area around the structure and the structure itself in less detail than the girls did.

The third subject has shown his home as an area which included his school, the tip of Crescent Park and the Fort Garry Community Club (see fig. 5). The fourth subject has shown his home stretching from Wildwood Park across Oakenwald Street, up over the Dyke and through the Wildwood Club Golf Course to the banks of the Red River (see fig. 6).

### 6.120. The Neighbourhood

"Please draw me a map from memory of the area you live in and show me whatever you think is important to you in it."

This question was asked in order to gain a general understanding of what spaces and elements were important to the study group in their own area. The question is related to the concept of "Neighbourhood". The resulting cognitive maps were located on a scaled map of the study area; the estimated boundaries of each subject's "Area" were indicated by dotted lines. In addition, areas of importance to the children were added later and bounded on the map with solid black lines. The subjects' residences were also plotted and represented by black dots (see map E).

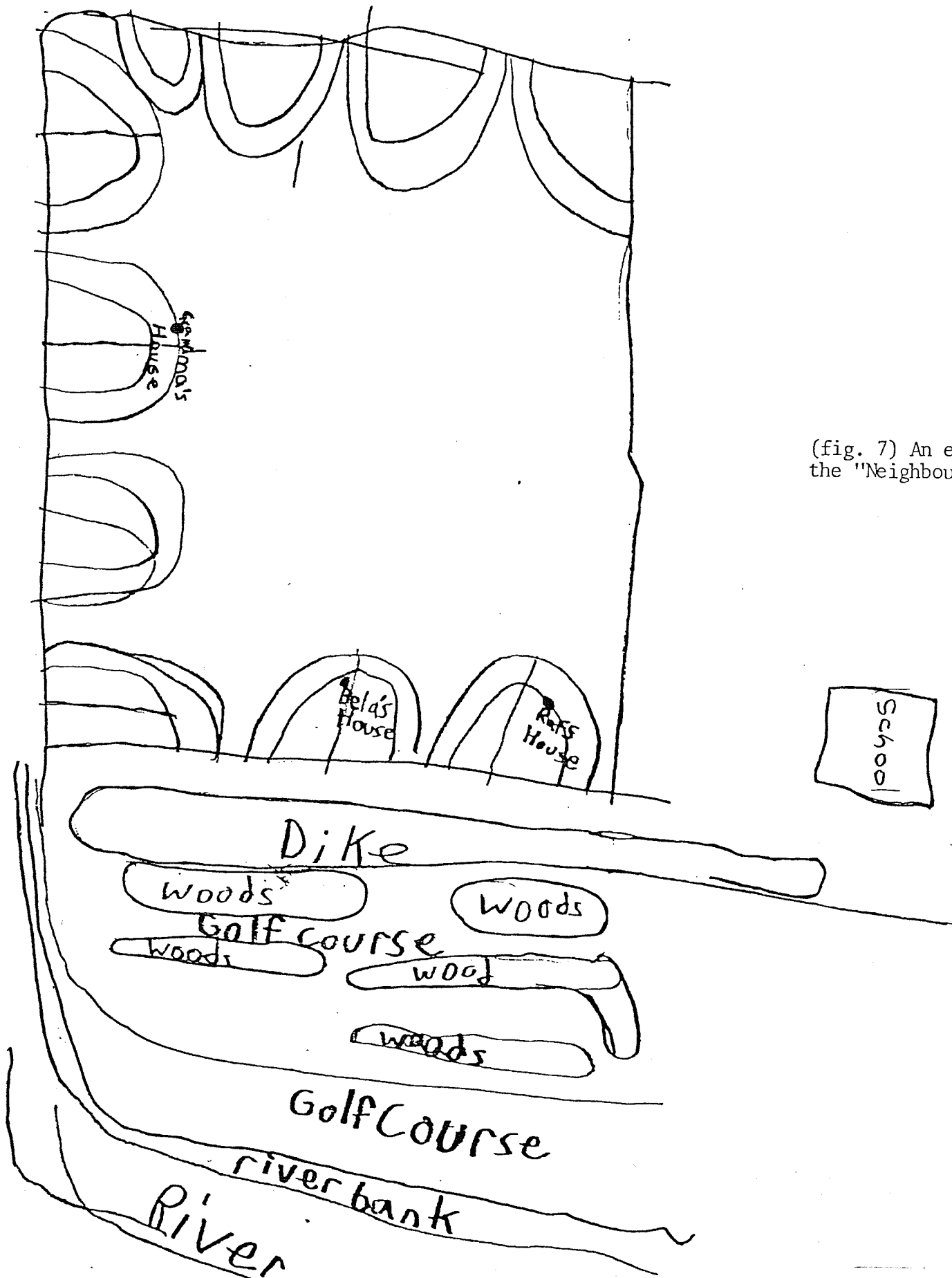
The physical size of each subject's area varied, although in general they were illustrated as a collection of places surrounding the subjects' residences. Most of the children included places where they spent time playing. It was noted that each of the seven children who lived in the Wildwood Park Development saw a major portion of the development as "their own area".

In the first example the subject has shown Wildwood Park Development, his residence, his friends' and relatives' residences, his school and the area from the Dyke through the Wildwood Golf Course to the Red River (an area where he spent most of his free time) as his "Area" (see fig. 7).

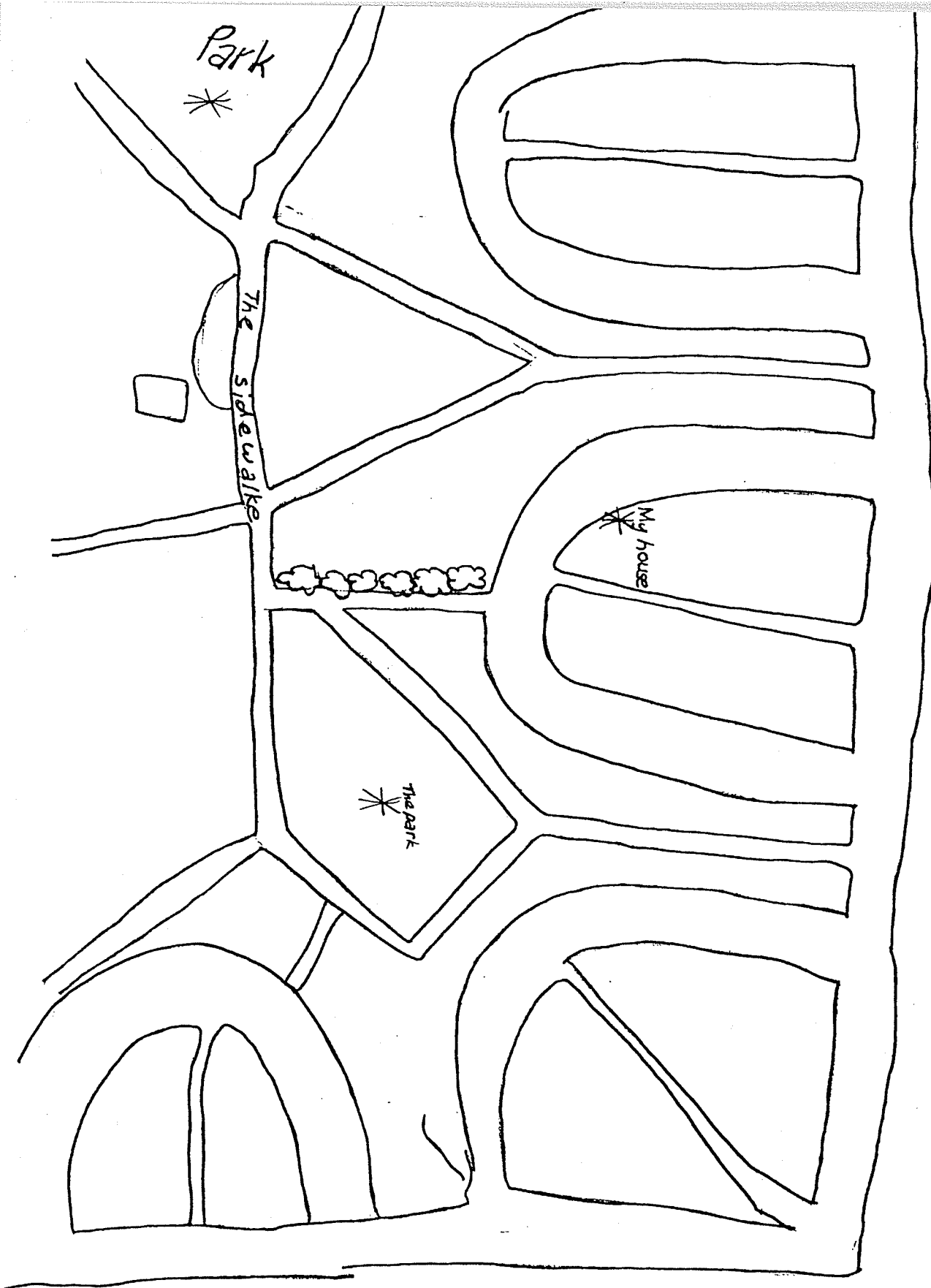
In the second example the subject has shown a

6.

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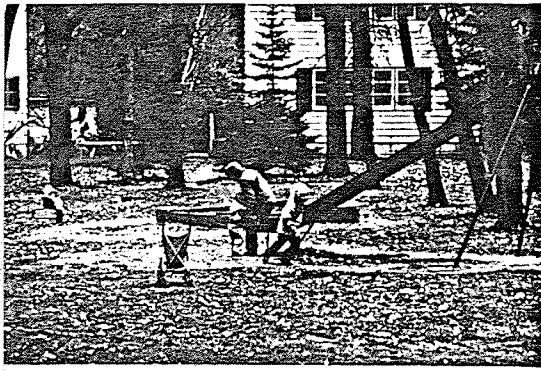


(fig. 7) An example  
the "Neighbourhood"



(fig. 8) An example of the "Neighbourhood" concept.





15. Wildwood Park Play Area



16 Jogging along South Drive



17 Playing Football on the Dyke

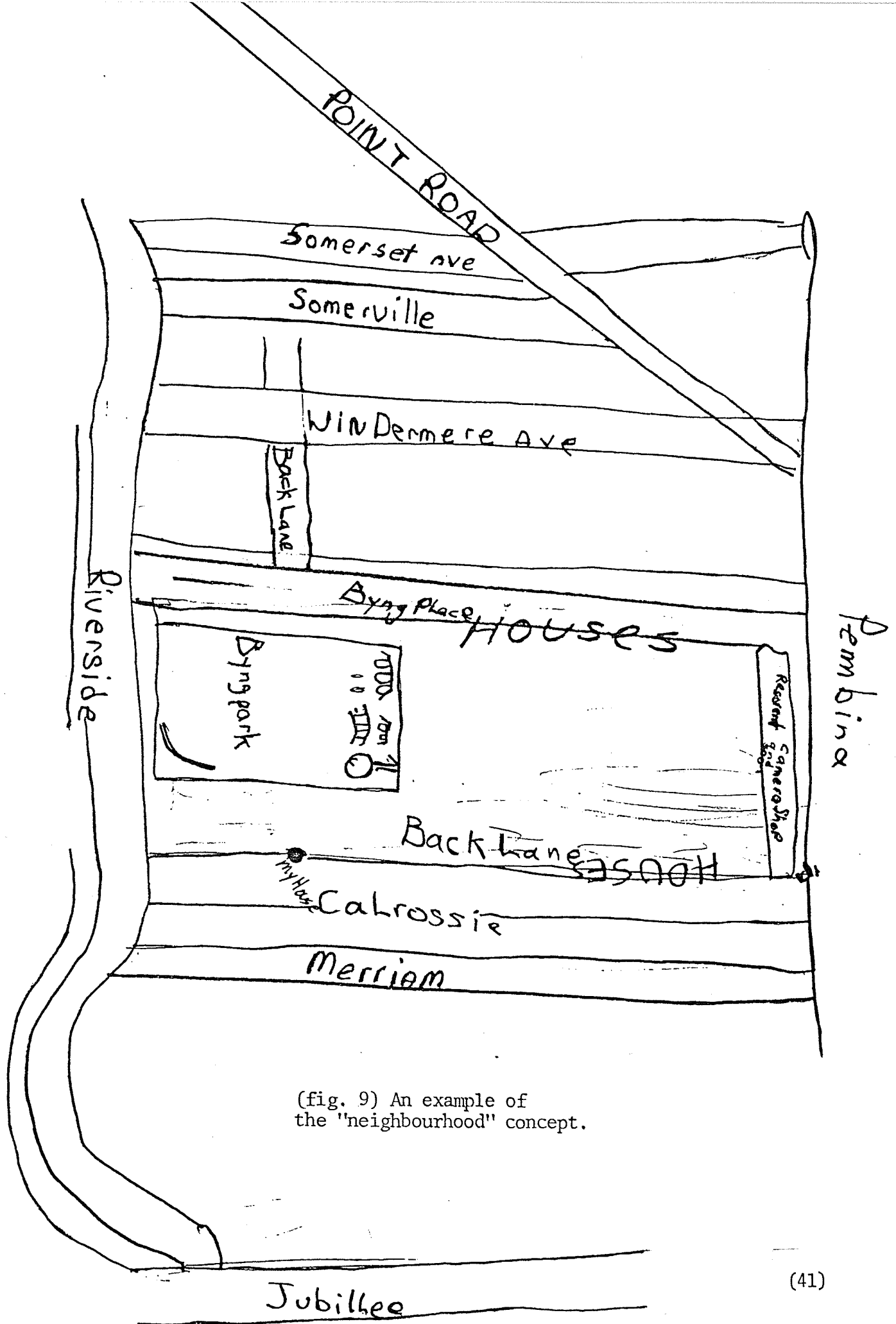
detailed layout of part of the Wildwood Park Development including two small play spaces close to her residence (see fig. 8).

From both these examples (figs. 7 and 8) it can be seen that the ring road to the Wildwood Park Development was strongly symbolic to these children. From observations it was noted that the very low traffic frequency did not unduly interfere with the children's walking, jogging or biking.

In the third example the subject has indicated four definite boundaries to his area: Point Road, Pembina Highway, Jubilee Avenue and Riverside Drive. Two of these boundaries were recognised to be physical barriers since their heavy traffic flow restricted the subject's freedom of movement. These barriers were Pembina Highway and Jubilee Avenue (see fig. 9).

From example four it can be seen clearly that the subject defined her area by identifying her own landmarks: the Dyke, her house and Wildwood Park. Her sketch shows how important her home is to her as it commands the centre of the drawn image and was portrayed far larger than its physical reality (see fig. 10).

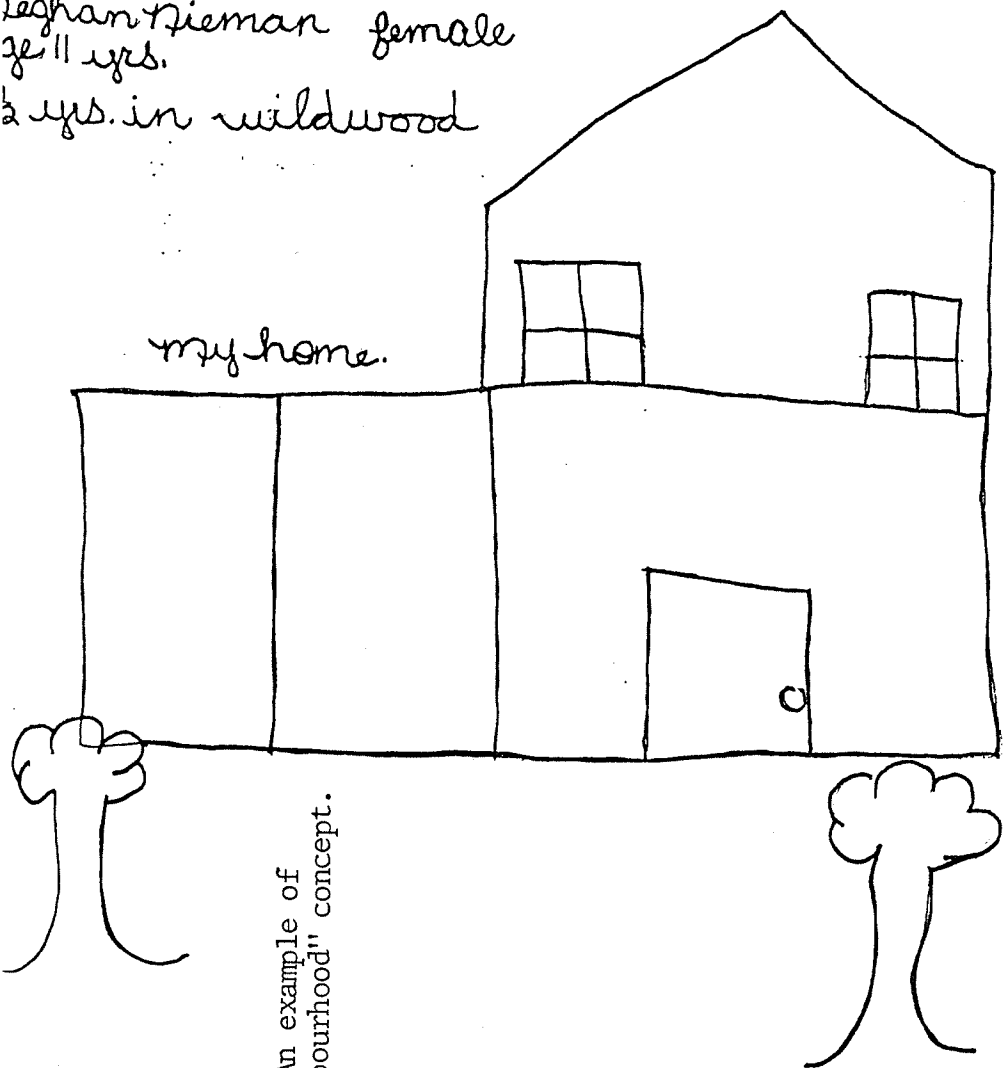
From these results it was noted that no references were made to local elements with distinctive architectural characteristics such as the public library, the police and fire departments, the Kiwanis Plaza home for the elderly, the new Holiday Inn development, Wildwood shopping centre, or Crescent Park (a large recreational area in the neighbourhood).



(fig. 9) An example of the 'neighbourhood' concept.

Leghan Pieman female  
 28 11 yrs.  
 2 yrs. in wildwood

my home.

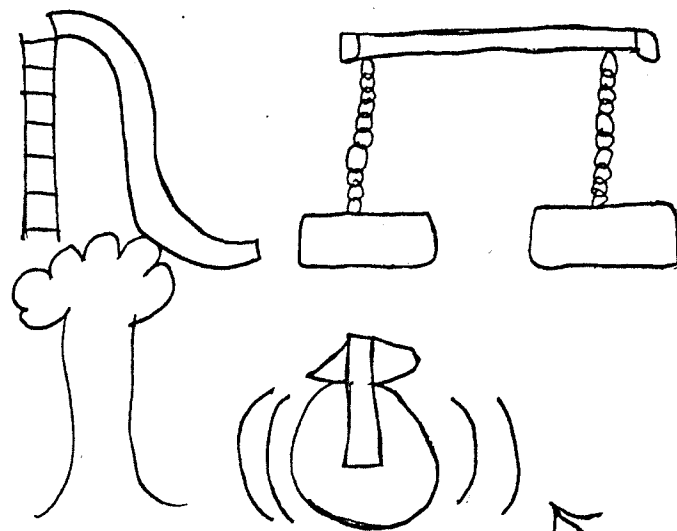


(fig. 10) An example of  
 the "neighbourhood" concept.

pg. 2.

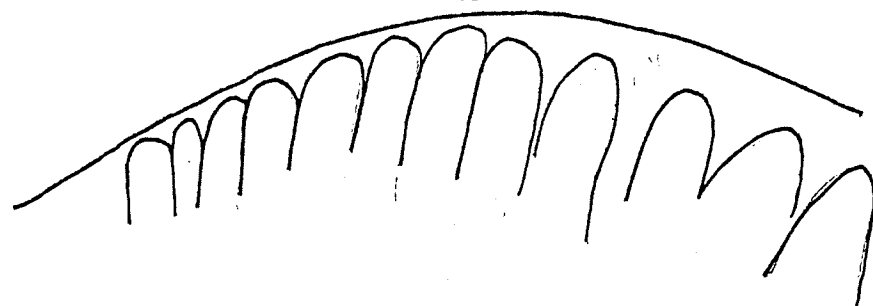
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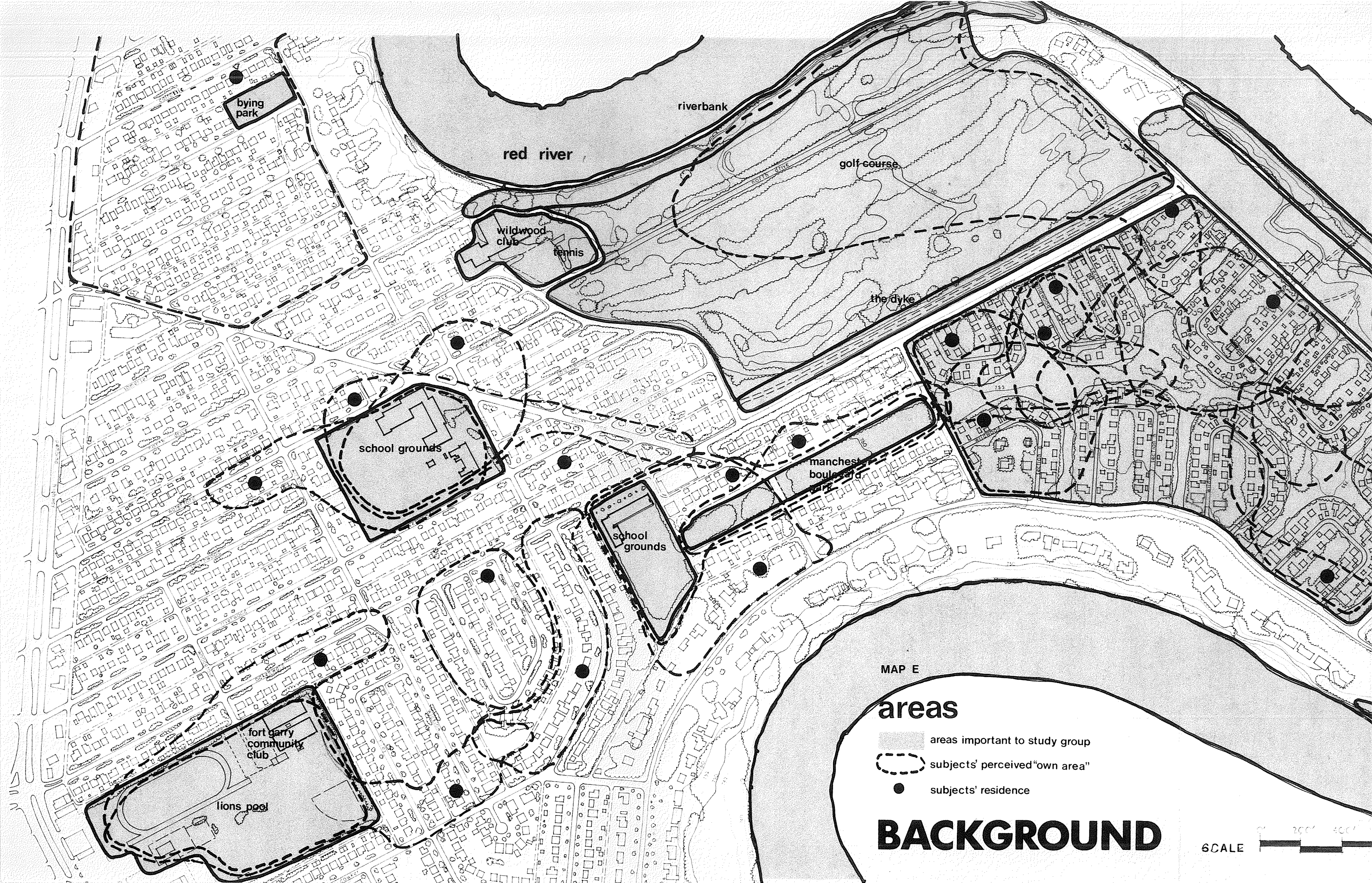
(42)



Wildwood Park.

the dike





bying park

red river

riverbank

golf course

wildwood club

tennis

the dyke

school grounds

manchester boulevard

school grounds

fort garry community club

lions pool

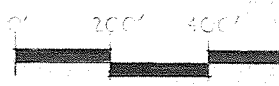
MAP E

areas

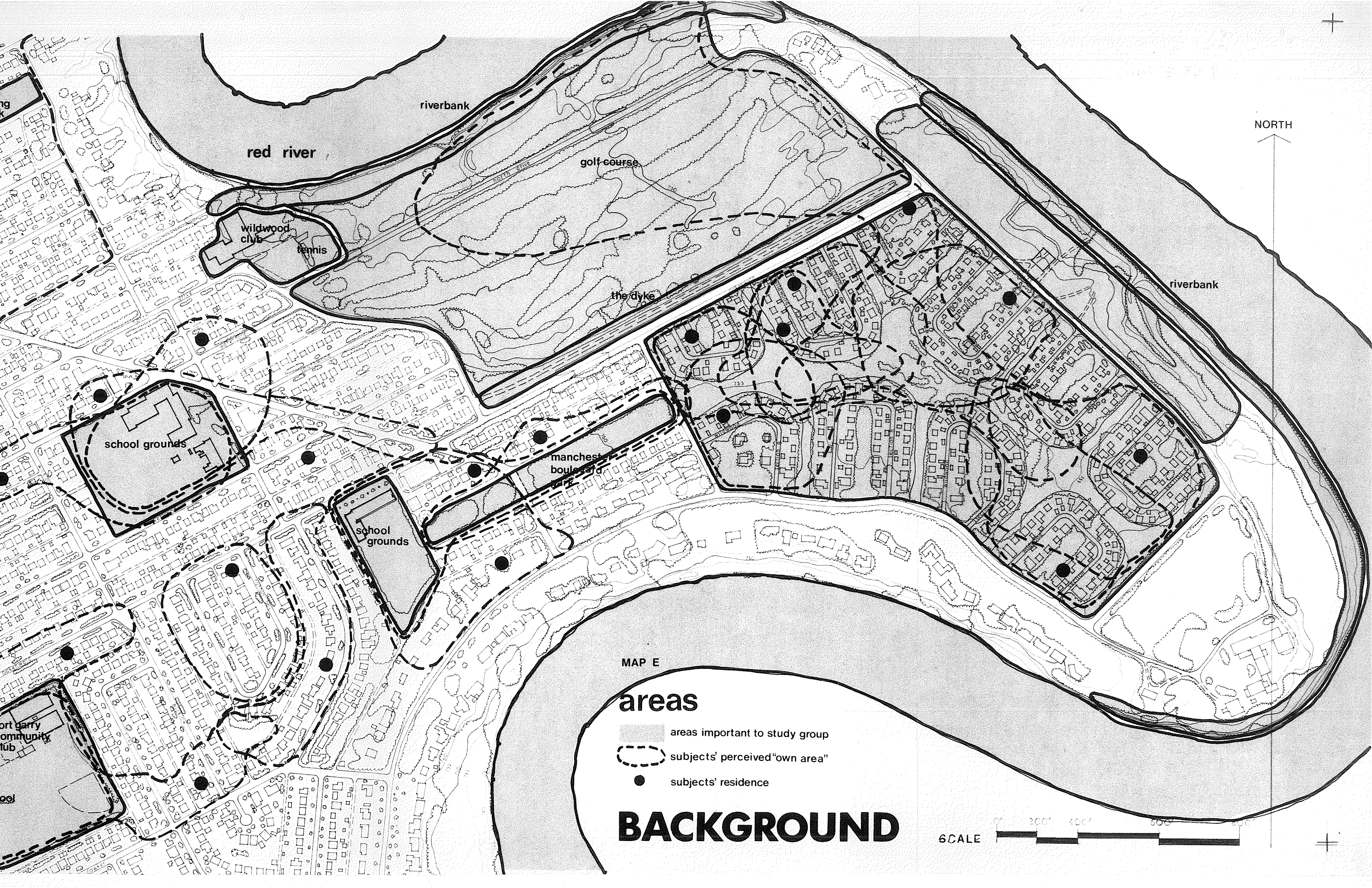
- areas important to study group
- subjects' perceived "own area"
- subjects' residence

**BACKGROUND**

SCALE







NORTH

MAP E

## areas

- areas important to study group
- subjects' perceived "own area"
- subjects' residence

# BACKGROUND

SCALE



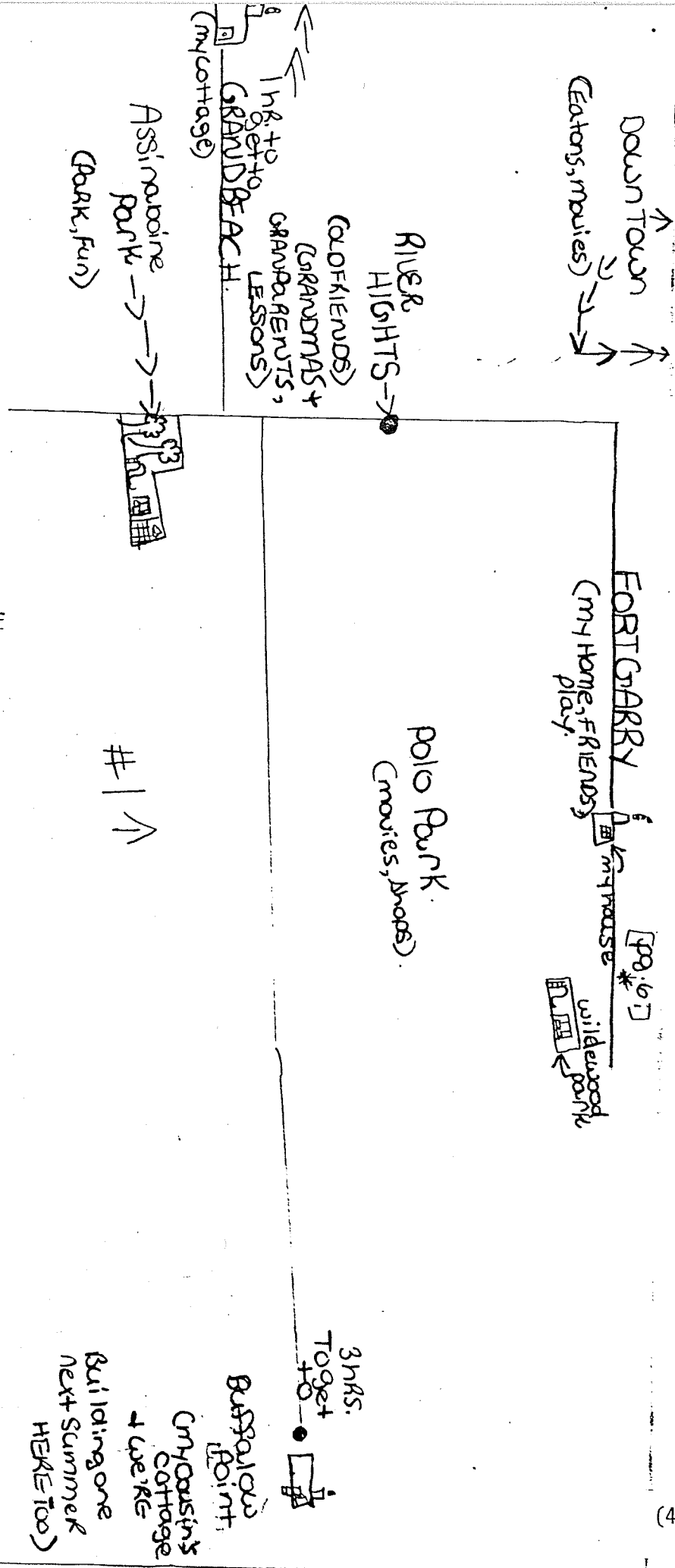
### 6.130. The City

"From memory, please draw me a map of the entire city and the surrounding region as far as you know it. Show me all the places which are important to you, how you get around the city, and where your own area is in it."

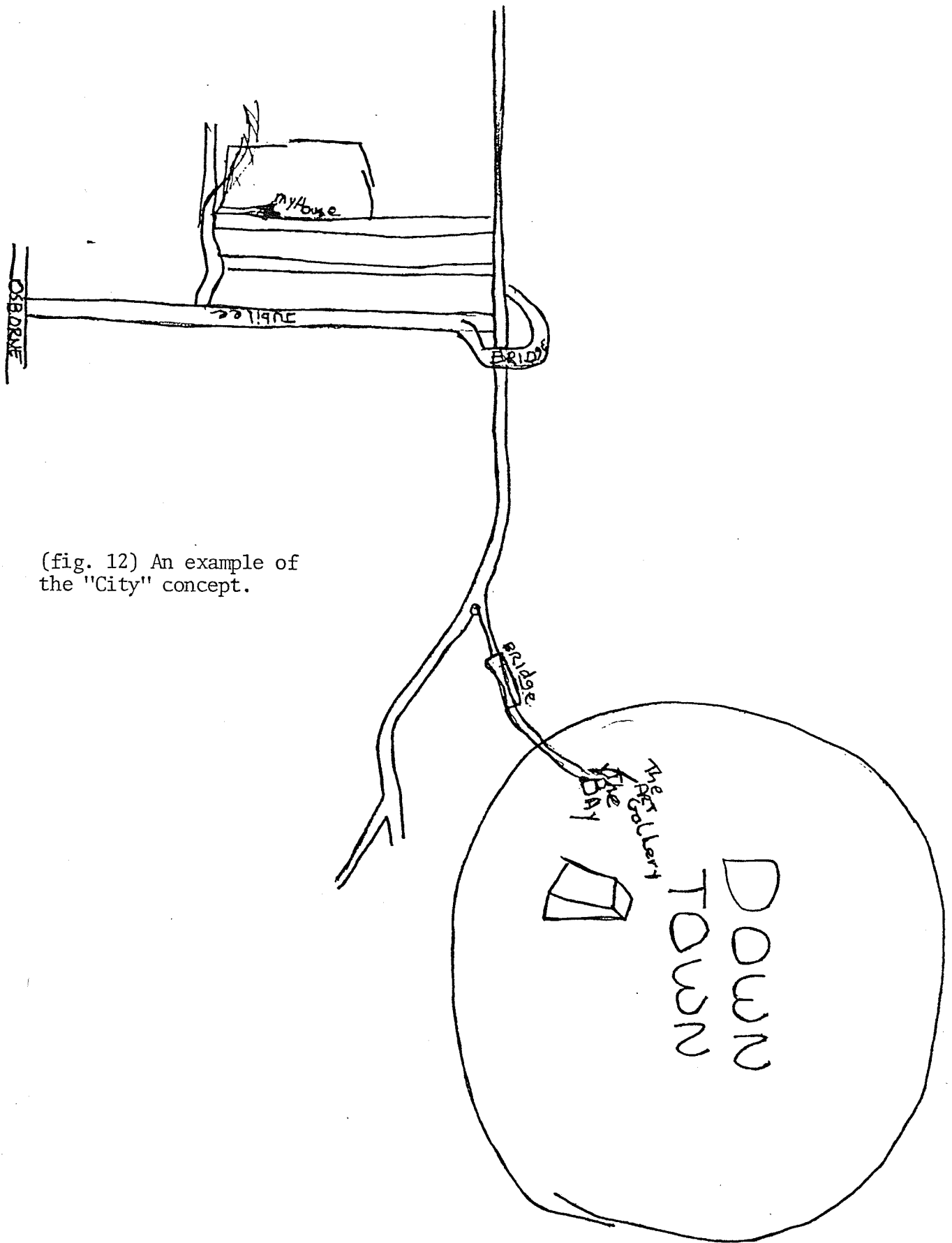
The third question in this sequence of cognitive mapping was aimed at investigating what the children knew about their "city" and the wide variety of resources available to them.

In general the children had great problems illustrating their city; few could even apply pen to paper. The most descriptive example of the city was presented by a girl (see fig. 11).

In her map the girl located places of which she had direct experience: Assiniboine Park, River Heights, Eaton's shopping centre, movie theatres and other shops. Her map was created by linking these elements linearly to her own area, Wildwood Park Development. In addition she added Buffalo Point and Grand Beach (both countryside locations) to her perception of the city. In this way her illustrations represent the set of diverse environments which she had physically experienced. It was noted that she did not indicate any "visual landmarks" (street names, statues, etc.); her landmarks were all places she had directly experienced. It was also noted that the subject had spent part of her childhood living in River Heights, a residential area in another part of the city. She had lived in the study area for a period of three and a half

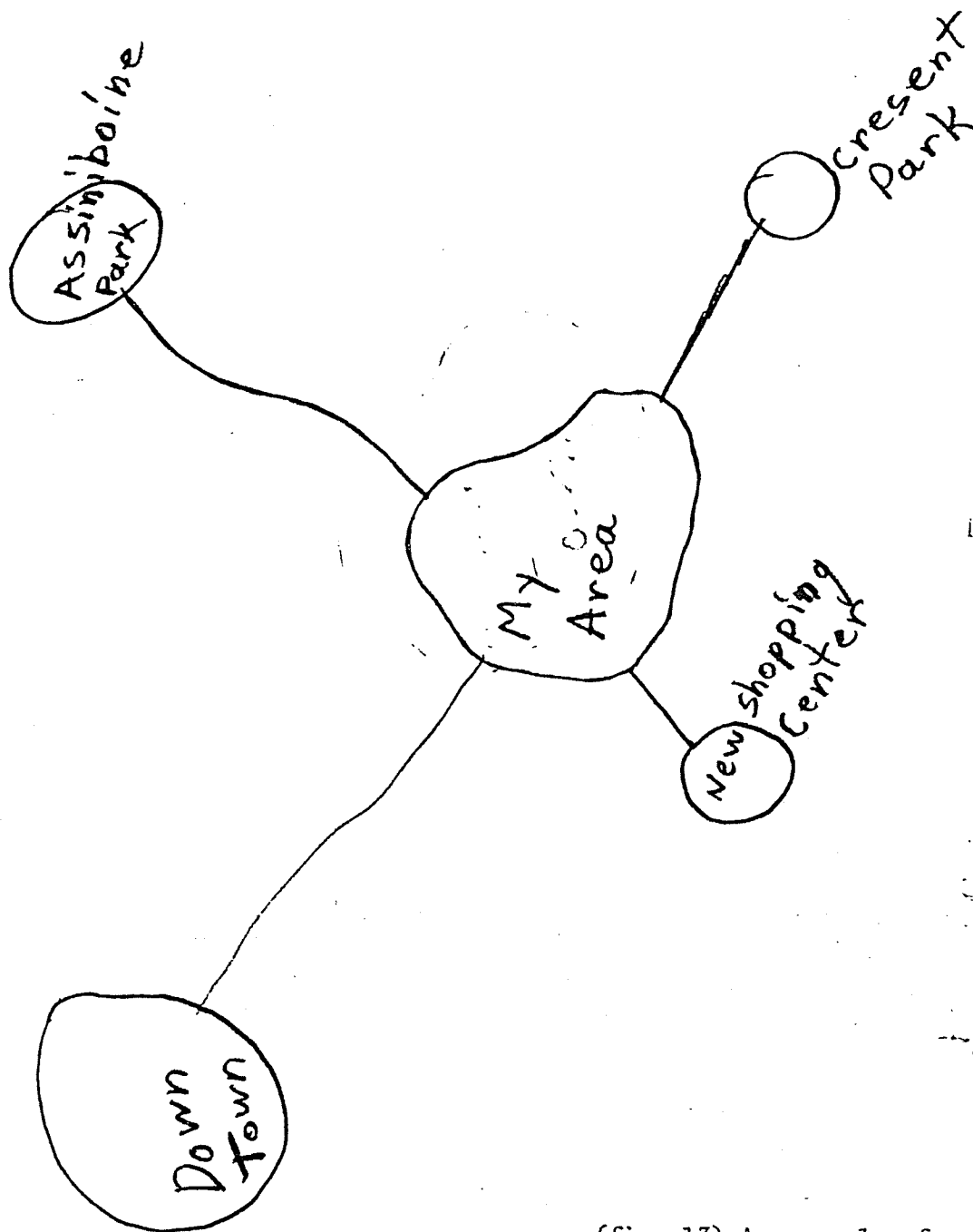


(fig. 11) An example of the "City" concept.



(fig. 12) An example of the "City" concept.





(fig. 13) An example of the "City" context.

years. This fact may be partially accountable for her awareness of other environments in her city.

In the second example the subject has indicated a route-oriented map of his city in which he has identified the major roads around his own area and the major route northbound towards the central business district. In addition he has illustrated the Pembina/Jubilee overpass, the Osborne Street Bridge, the Winnipeg Art Gallery and the Hudson's Bay Company shopping centre as his landmarks (see fig. 12).

In the third example the subject has drawn a series of different environments but was not able to link them geographically. It was noted that this girl saw Crescent Park as part of her city environment but not as part of her neighbourhood environment, even though she lived within close proximity to it--less than  $\frac{1}{2}$  mile (see fig. 13).

The fourth and last example in this series expresses the problems many of the subjects had in trying to illustrate their city (see fig. 14).



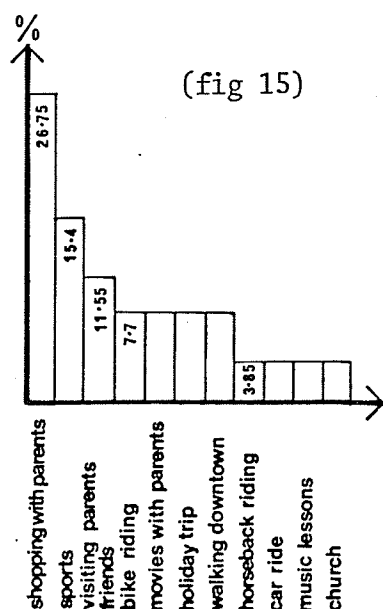
(fig. 14) This illustration clearly shows the problems most children had in graphically representing their "City".

#### 6.200. SPATIAL MOBILITY

"On what occasions do you get out of your area? Where do you go and what do you do there? How do you get there and do you go there by yourself? Can you go whenever you want to? How do you find your way there?" (See fig. 15.)

In general the children only travelled outside their own area when accompanied by their parents.

# PLACES VISITED OUTSIDE STUDYAREA



During these trips they usually did adult things like "shop downtown with mother" or "visit mom and dad's friends". On those few occasions when children did get to travel on their own (more often with a friend) they generally went to a predetermined location; this action usually involved an interest in sports. The children rarely left the study area on exploratory trips, and few discovered the many resources available to them.

## 6.300. TIME BUDGETS

The following questions were asked in order to throw more light on those elements which were important to the study group: where they went, what they did, when they did it and with whom they did it. The questions were directed towards a typical midweek day's activities as well as a typical weekend day's activities, and the children were asked to complete two charts, one for each of these time periods. On these charts the children indicated what activity they were involved in and where that activity took place, for each half hour of the day. The following series of histograms presents the information gathered. The X coordinate represents the activity and the Y coordinate represents the time spent on the activity, unless otherwise stated. Only the children's leisure time has been presented graphically.

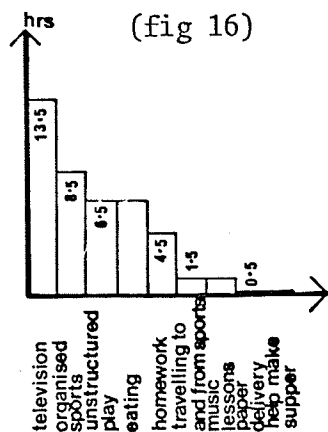
"Please indicate on the charts provided all that you did yesterday, what games

you played, where you played them, who you played them with, when you ate, did homework, chores, etc."

### 6.310. A Typical Midweek Day

During a typical weekday out of school hours, the majority of the study group awoke and prepared for school around 7:30 a.m. Schoolwork began at 9:00 a.m. and continued through the day until 4:00 p.m. It was noted that most of the children in the study group went to school early (8:00 a.m.) in order that they may participate in a voluntary physical education programme. All the children returned home at mid-day to eat lunch. Some children came back to school early to play games in the schoolgrounds before work began again inside at 1:00 p.m. After 4:00 p.m. the majority of the children went home. From field observation it was noted that the schoolgrounds were used after school hours infrequently. Between 4:00 p.m. and the children's bedtime (usually between 9:30 p.m. and 10:30 p.m.) the children were involved in a variety of different activities. The time spent before and during school hours was recorded but not presented graphically.

MIDWEEK AFTER  
SCHOOL HOURS 4:00-10:30pm



The first histogram in this series presents the children's time spent after school hours from 4:00 p.m. until bedtime (see fig. 16). From the diagram it is evident that out of a total of  $43\frac{1}{2}$  cumulative hours of participation, there were 13 $\frac{1}{2}$  hours spent watching television, 8 $\frac{1}{2}$  hours spent on organised sports, 6 $\frac{1}{2}$  hours spent on unsupervised play, 6 $\frac{1}{2}$  hours spent eating, 4 $\frac{1}{2}$  hours spent

on homework,  $1\frac{1}{2}$  hours spent on music lessons,  $1\frac{1}{2}$  hours spent travelling to and from sports facilities,  $\frac{1}{2}$  hour spent helping prepare the family dinner and  $\frac{1}{2}$  hour spent delivering newspapers. In general, the children were free to do as they pleased after school; only 7 hours out of the  $43\frac{1}{2}$  hours total time were spent at chores such as homework and housework.

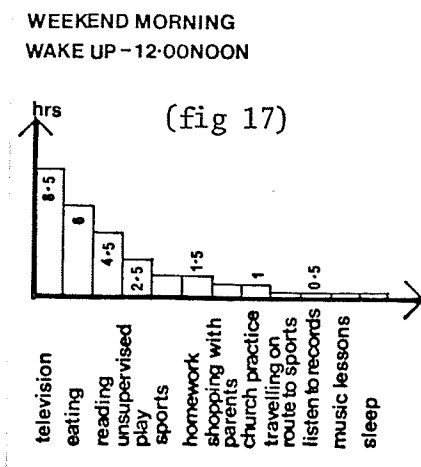
#### 6.320. A Typical Weekend Day

To complete the activity chart series the children were asked identical questions concerning a typical weekend day. The following information was gathered.

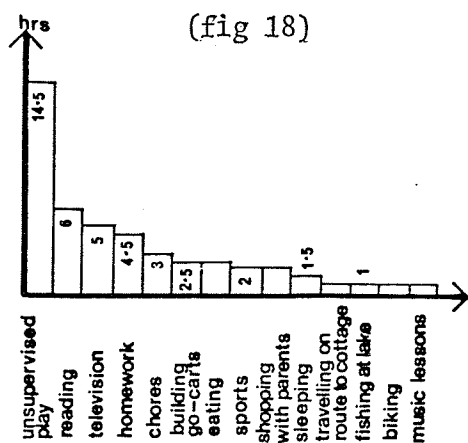
During a typical weekend day the study group in general awoke between 8:00 a.m. and 9:00 a.m. and ate breakfast. They were then involved in an array of different activities throughout the rest of the day. In order that the timing of those activities would be understood in detail, the information received was compiled into four histograms, one for the morning (wake-up until mid-day), one for the afternoon (12:00 until 5:30 p.m.) and one for the evening (5:30 p.m. until bedtime).

The fourth histogram in this series represents the cumulative total for the whole day and is simply an arithmetical addition of the morning, afternoon and evening data.

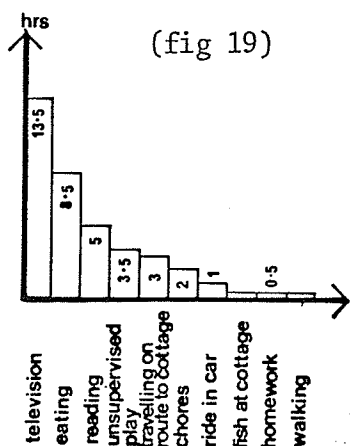
The first histogram in this series shows a typical weekend morning from wake-up (8:00 a.m. - 9:00 a.m.) until noon (see fig. 17). It is evident from the diagram that the maximum amount of time given to any one activity was  $8\frac{1}{2}$  hours.



WEEKEND AFTERNOON  
12:00 - 5:30pm

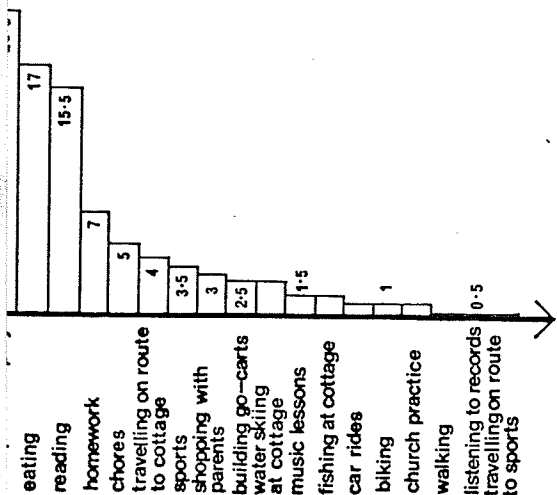


WEEKEND EVENING  
5:30pm - SLEEP



WEEKEND DAY FROM  
UP TILL SLEEP

(fig 20)

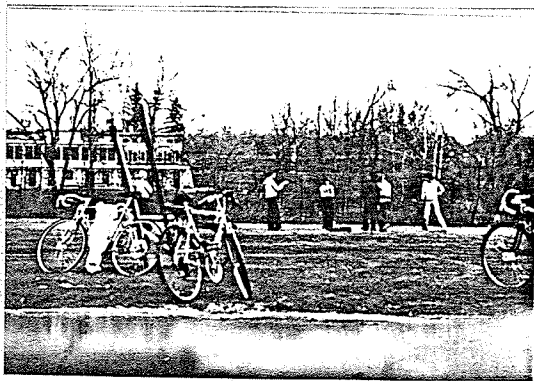
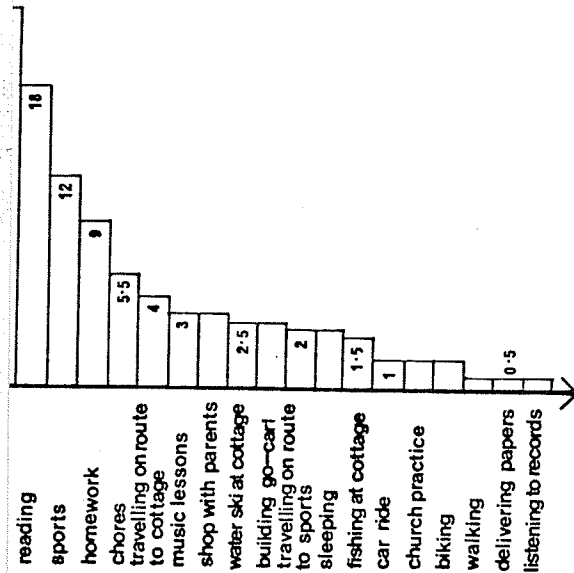


This time was spent watching television. The programmes presented during that particular time period were generally poor quality cartoons with intense periods of food and toy commercials in between. Eating breakfast consumed 6 hours. It was noted that although this time was designated as time spent eating, many of the children watched television while they ate. The remainder of the morning was spent on a diverse set of activities which can be read from the relevant histogram (see fig 17).

The second histogram in this series presents the number of hours spent during a typical weekend afternoon from mid-day until 5:30 p.m. (see fig. 18). The children accumulated  $14\frac{1}{2}$  hours on unstructured play (mostly outdoors during the summer months), 6 hours reading and 5 hours watching television. During the afternoon period a greater number of activities took place in comparison with the morning or evening periods of the same day (15 in the afternoon compared with 12 in the morning and 10 in the evening). The remainder of the afternoon was spent on a number of different activities which can be read from the histogram (see fig. 18). In general most of the children managed to turn off the television set and get themselves outdoors to play with friends.

The third histogram indicates the time spent on activities during a typical weekend evening from 5:30 p.m. until bedtime (usually around 9:30 p.m. - 10:30 p.m.) (see fig. 19). It is evident from this histogram that most of the evening was spent watching television,  $13\frac{1}{2}$  hours in grand total. The activity of eating consumed a cumulative total

(fig 21)



18 Playing Tag Football in the grounds of The Wildwood Community Club

time of 8½ hours; the remainder of the evening's activity timings can be read from the histogram (see fig. 19).

The fourth histogram in this series presents the cumulative time spent during a typical weekend day from wake-up until bedtime (see fig. 20). From this histogram it is quite clear that the activity of television-watching consumes the maximum amount of the children's free time, a total of 27 hours. From these results it is also evident that the outdoor environment has importance to the study group since they spent 20½ hours outdoors on unsupervised play. Again, these results reinforce the relevance of adequate outdoor recreational facilities. Each child in the group ate three meals per day, accounting for 17 hours. The remaining time spent on activities during this day can be read from the histogram (see fig. 20).

It was noted during discussion periods that the activity of biking seemed to be of major importance to the study group; however this is not evident from the activity data. Only one hour was consumed biking, though the children did use their bikes in getting from one activity site to another, and thus a percentage of the time allotted to unsupervised play was actually spent biking.

#### 6.330. The Cumulative Total

The fifth and final histogram in this series is composite in that it presents the cumulative total times spent on activities during both mid-week and weekend days (see fig. 21).



19 Maze playing in  
Wildwood Park

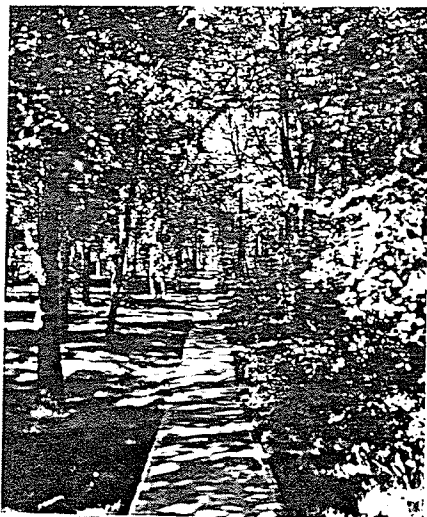
It is evident from these results that the activity upon which most of the children's free time was spent was television watching, 40½ hours in total. Statistically, on average, each child spent approximately one quarter of his/her free time watching television. This is approximately five times greater than the amount of time spent on homework or on sports!

The second most participatory activity was unstructured play, 27 hours in all. Eating was third, consuming 23½ hours; only 9 hours were spent on homework. The timings of all other activities can be read from the histogram (see fig. 21).

The following questions were asked in order to gather more information concerning the study group's use and knowledge of their built environment. The motivation behind each question is self-explanatory.

#### 6.400. IMPORTANT PLACES

"Please write out a list of all the places that you know of in your area inside and out. Tell me in which of these places you spend most of your time. What do you do there? Which of these places you have named are the most important ones? Finally, how would you describe these places to a stranger?"



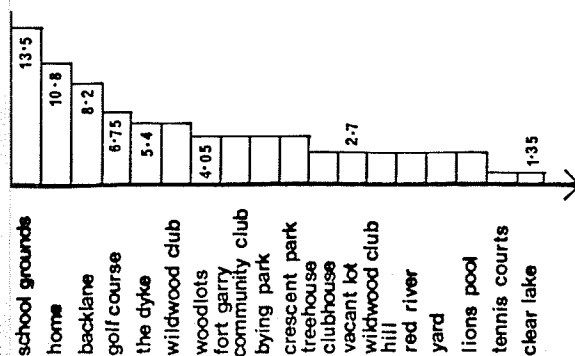
20 A pedestrian walkway  
through the Wildwood  
Park Development

It is evident from the results presented in the histogram that the most important elements in the children's environment were: Wildwood Park, the



## EAS OF IMPORTANCE

(fig. 22)

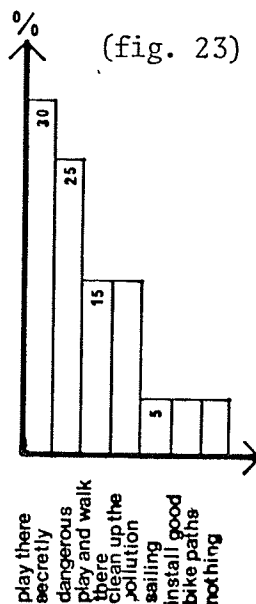


schoolgrounds, the home, the street or backlane directly adjacent to the home, and the Wildwood Club Golf Course (see fig. 22). These elements were followed by: the Dyke, Wildwood Community Club, Byng Park and Crescent Park. The remainder can be read from the histogram.

From discussion it became evident that the areas were important to the group for a variety of reasons; however, the children evaluated most of these places by relating them to play activities.

## RIVER-RIVERBANK

(fig. 23)



## 6.500. THE RED RIVER ENVIRONMENTS

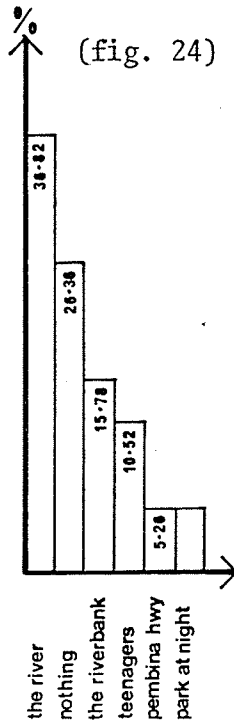
"What does the river and its banks mean to you? How do you use these areas? Would you make any changes in order to improve what already exists?" (See fig. 23.)

It was noted from the results that 15% of the group not only recognised that the Red River was polluted but proposed that something should be done to reverse the situation. Another 5% of the group proposed that good bike paths should be installed. From discussion it was clear that the children would have preferred to have had some safety element installed, not only to increase the physical safety of the area but also to reduce adult intimidation.

## 6.600. DANGEROUS PLACES

"As you go about your usual day's activities, what particular things or places give you the most difficulty? Are there places where you get hurt or have trouble

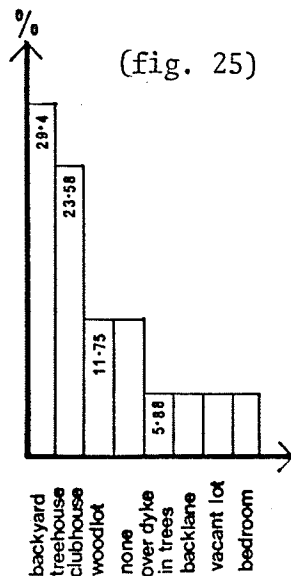
#### OBSTACLES AND DANGEROUS PLACES



or cannot do what you want to do? Are there places where you cannot get into and wish you could? Are there dangerous places in your area and, if so, what makes them dangerous?" (See fig. 24.)

From the histogram it is evident that the Red River was perceived by the group as the most dangerous element in their environment. The next most common answer was "Nothing". Older teenagers sometimes bothered the children, usually when the teenagers had been drinking beer (they infrequently drank on the riverbanks). In general, however, the study group had relatively few problems confronting them. The heavy traffic flows on Pembina Highway and Jubilee Avenue posed hazards on the physical safety of the group; other children were afraid of travelling through the Wildwood Park at night.

#### OWNERSHIP OF PLACES



#### 6.700. TERRITORY AND OWNERSHIP

"Do you help fix up any part of your area? Does any part seem to belong to you? Are there any places where you feel that you do not belong, where you feel like an outsider? Who owns the streets and what do you use them for if you use them at all? Are there any places that nobody owns?" (See fig. 25.)

Regarding territorial definition and pending hostility, from the results it is evident that there were no places in the study area where the group felt they did not belong. There were in fact a number of places the group felt they owned.

These included backyards, clubhouses, forts, woodlots, over the Dyke, bedrooms, streets and backlanes.

#### 6.800. PLACES LIKED BEST AND LEAST OF ALL

##### 6.810. Places Liked Best of All

"Please tell me where you like best of all to be."

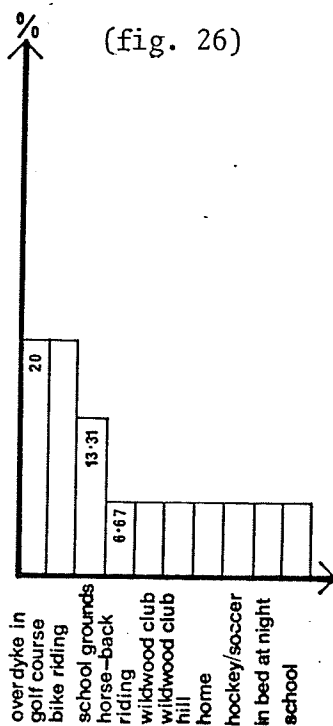
The majority of the children preferred to be "over the Dyke" in the Wildwood Club Golf Course and its woodlots, in other woodlots in the area, or just biking. The schoolgrounds were enjoyed by 13% of the children before and after school hours, the remainder were evenly distributed among different individual interests such as horseback riding, biking down Wildwood Club hill and playing hockey and soccer (see fig. 26).

The activity of biking was indeed important to the study group. Not only was it a fast means of transport for them, but it provided the opportunity for searching out new parts of their environment, meeting new people and, in general, adventuring. The activity of biking down Wildwood Club hill had evolved into a game to see who could glide the farthest.

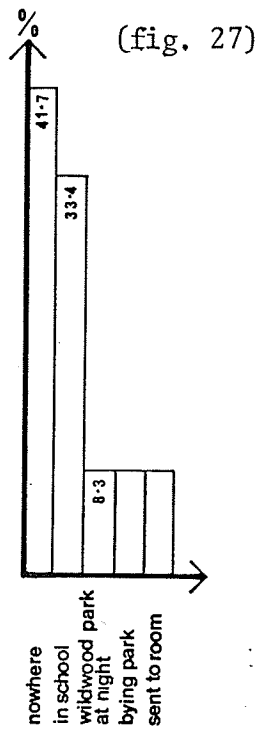
These results also reinforced the value of the "Dyke" as an important nodal point for the children. They would rarely mention the golf course without indicating that it was "over the Dyke". The golf course itself was important to the group through its provision of opportunities for



21 The Wildewood Club Golf Course from the Dyke



unsupervised play and adventuring.



#### 6.820. Places Liked Least of All

"Please tell me where you like least of all to be and why." (See fig. 27.)

The histogram indicates clearly that over 40% of the children in the study group could not conceive of a place where they liked least of all to be. One third of the children denounced being in school working and would have preferred to have been outside biking, playing or shopping. The remainder of the children liked least of all to be at Byng Park, Wildwood Park at night, and sent to their room for misbehaving.

Byng Park was liked as much as being sent to a room without supper! This park was a typical corner site park. It presented a baseball diamond, three swings and a plastic horse set on an iron spring. The only inviting element was that it provided open "green" space. Some of the children had better ideas for its improvement: add a drinking fountain, grow some trees for shade from the hot summer sun (sometimes temperatures can reach 30°C for prolonged periods during the summer), and to return the sand pit which was removed by the City without consent of its users.



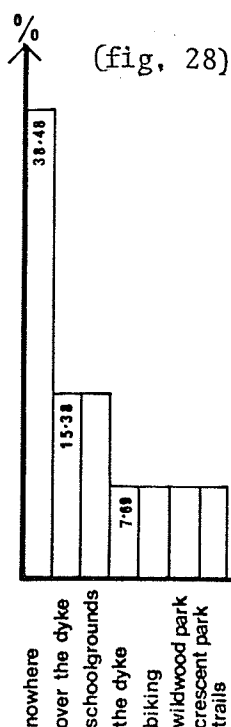
22 Byng Park

#### 6.830. Places Liked Best to be Alone In

"Please tell me where the best place would be to go if you wanted to be alone."

The results reveal that over one third of the

#### PLACES LIKED TO BE ALONE IN



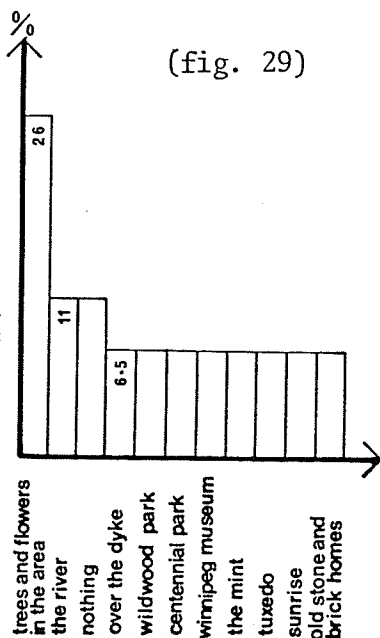
study group could not think of a place where they preferred to go in order to be alone. Another third preferred to be either "over the Dyke" on the golf course or to be in the school. The remainder of the results can be read from the histogram (see fig. 28).

#### 6.900. BEAUTIFUL PLACES

"Please tell me of any beautiful places in your area, or in the city. What makes them beautiful? Are there any places you respect and are proud of?" (See fig. 29.)

When asked this question over one quarter of the children in the group answered, "The trees and flowers in the area," more specifically the trees on the streets and riverbanks, especially on South Drive (an upper-middle-class area characterised by custom design homes and mature stands of elm, *Ulmus americana*, and some oak, *Quercus macrocarpa*). The Red River was identified as a beautiful element in the group's environment. One tenth of the group could think of no places that were beautiful, the remaining results can be read from the histogram (see fig. 29).

#### BEAUTIFUL PLACES

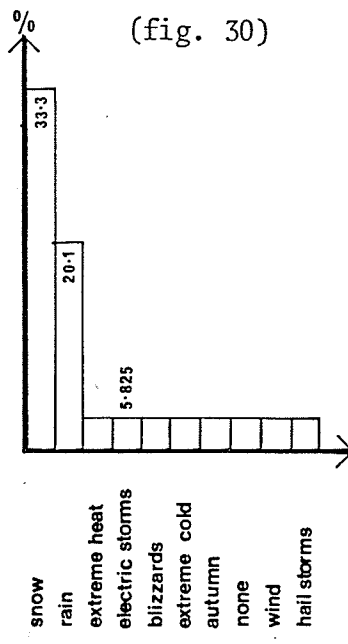


#### 6.1000. WEATHER

"Please tell me what kinds of weather are worst for you and why that is so."

The majority of the children did not like any weather that restricted their play activities outdoors. The children disliked not only the rain and slush during the spring months but also the

# WEATHER



scorching sun during the hottest summer months. It was noted that 6.7% of the group indicated that they knew of and supported the fact that plants need water in order to survive. Their attitude was that, if plants need rain to survive and the children enjoyed the trees for play and for their beauty, then the children would have to put up with the rain sometimes, even if it disrupted play (see fig. 30).

During the harsh Manitoba winter months most of the children's recreational activities took place indoors, although some children were seen playing in sub-zero conditions. The dry Manitoba snow provided the children with a highly manipulable material for play. Though it was beyond the scope of this study to investigate "Winter Play" in any detail, the scarcity of planned winter play facilities outdoors was evident.



23 A grey squirrel on the banks of the river

## 6.1100. AWARENESS OF LOCAL ENVIRONMENTAL CONDITIONS

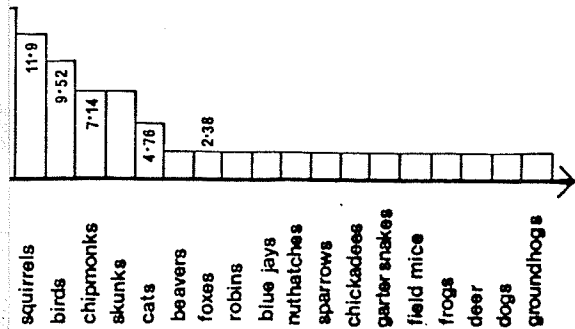
### 6.1110. Knowledge of Local Fauna

"Please tell me all the animals that you know of in your area."

In total the group knew of only twenty different species of fauna in their area: 12 mammals (two of these were domestic species, dogs and cats), 6 birds, 1 amphibian, 1 reptile and no fish. In comparison to the list of species assumed to be active in an area of this type, it was evident that the study group knew very little about the

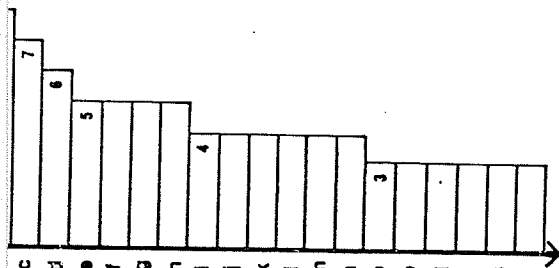
# FLORAL RECOGNITION

(fig. 31)



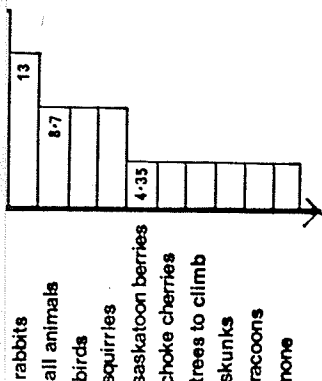
## Knowledge of species (n°)

(fig. 32)

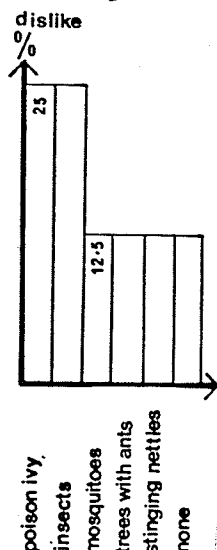


## FAUNAL AND PLANTS

(fig. 33)



(fig. 34)



faunal life that surrounded them (see Appendix VIII species list). One girl in the group remembered how she had awakened early one morning to find a small deer feeding on her lawn. She lived in the Wildwood Park Development (see fig. 31).

From the information gathered by this line of questioning, another histogram was formed presenting the number of different creatures known by each member of the group. The (X) axis represents the twenty group members, the (Y) axis represents the number of creatures each child is knowledgeable of (see fig. 32). On average, each child knew of approximately five species.

## 6.1120. Floral and Faunal Likes and Dislikes

"Please write out a list of all the plants and animals that you like in your area, then write out a similar list for all the plants and animals you dislike in your area."

The resulting information collected was presented in two histograms. From the first histogram, presenting the children's "likes", it is evident that most of the children preferred domestic pets (dogs and cats) to the existing wildlife in the area. Nevertheless a large percentage of them indicated that they liked all the animals that they knew of and that these animals should be protected or at least left alone (see fig. 33).

In general the group had very little knowledge of the local floral life in the area. The children basically enjoyed the trees since they provided



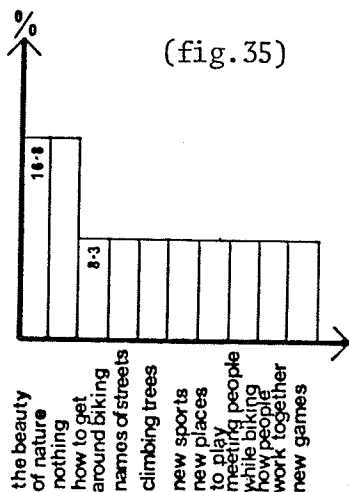
4 A Dogwood (*Cornus stolonifera*)

the opportunity for climbing. Some children specifically liked plants with berries, "We eat berries in the spring and it's fun to wear flowers." Only 4% of the study group answered "none".

Of the plants and creatures the children disliked, most either inhibited play or were bothersome in some way or another. One quarter of the group were aware of and disliked Poison Ivy, another quarter of the group disliked "creepy crawlies" (insects), 12.5% were especially annoyed by mosquitos, and the remainder identified stinging nettles (12.5%), trees with ants in them (12.5%), this restricted climbing, and "No dislikes" (12.5%) (see fig. 34).

#### 6.1130. Knowledge Gained from Moving in and around the Study Area Excluding Home, School and Television Influences

KNOWLEDGE GAINED FROM THE ENVIRONMENT



"Please list out all the new things which you have learned from moving in and about your area. What sorts of things have you learned from working, playing, watching or adventuring? Have you learned anything that you wouldn't learn from school, home or watching television?"

Unfortunately, just over 16% of the children replied that they had learned nothing new from the environment. However, approximately the same number of children identified learning about the "beauty of nature" and how people could live happily together by working and sharing together. From discussion it became apparent that the



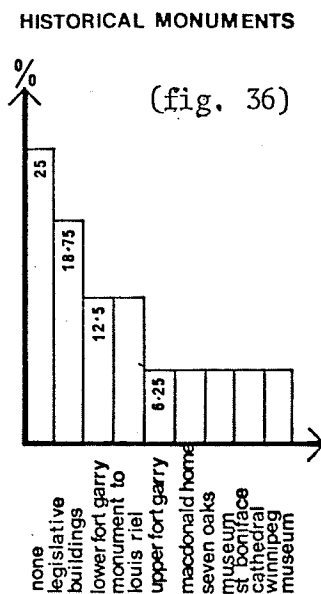


25 A riverbank upper tree canopy

children had learned about the beauty of nature from watching wild animals, from wearing and smelling the wild flowers in the area and from watching the sun shine through the trees on the riverbank onto the Red River. Most of these observations involved some form of parental direction (see fig. 35).

The remainder of the group indicated that they had learned how to climb trees, new places to go on their bikes, new places to play, new street names, new sports and games to play, and some had met new people while bike riding.

#### 6.1200. HISTORICAL MONUMENTS



"Please write out a list of all the historical monuments that you know of both in your area and in the city. Are there any places of historical interest in your area?"

One quarter of the children in the study group knew of no historical monuments whatsoever. One individual, a girl, knew six of the eight elements identified by the group; however, there were no references made by any members of the group to local history other than the mention of the 1950 flood (see fig. 36).

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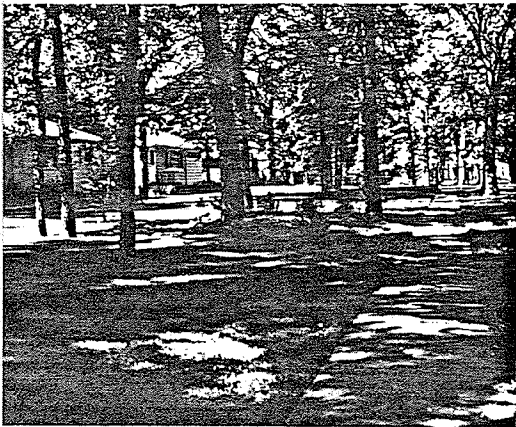
## 7.000. THE CONCLUSIONS

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The following conclusive section has been broken down into four major components to ease interpretation: firstly, a discussion of the conclusions which were derived directly from the findings of this study; secondly, a comparison to the patterns and anomalies existing within the UNESCO series findings; thirdly, an identification of the factors found to be negatively influencing the study group's development of an awareness towards the environment, including recommendations for their resolution; and finally, the fourth component acts as a Postscript.

### 7.100. CONCLUSIONS BASED DIRECTLY UPON THE FINDINGS OF THIS STUDY

#### 7.110. Image of Locality



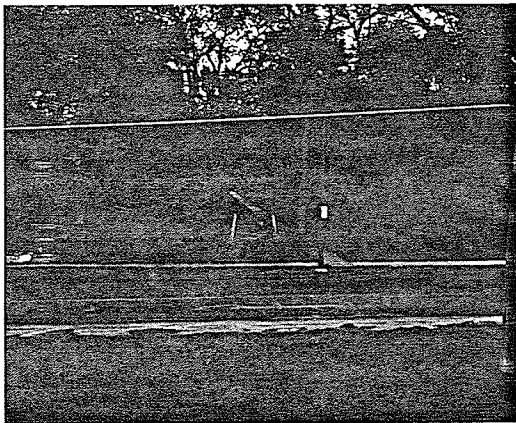
26 The Wildwood Park Development

When asked to draw a map of their "homes", the children in general illustrated typical North American single family detached dwelling units surrounded by outdoor spaces, varying in size. Each child identified areas of private or at least semi-private space in one form or another within the structure and, in some cases, on the land immediately surrounding the building.

There exists a marked difference between the boys' illustrations and those of the girls. In general the girls seemed to think of their homes in more detailed and specific terms than did the boys. The girls illustrated their structures in great detail, indicating each corner used for



27 The Wildwood Park Development from Oakenwald Road

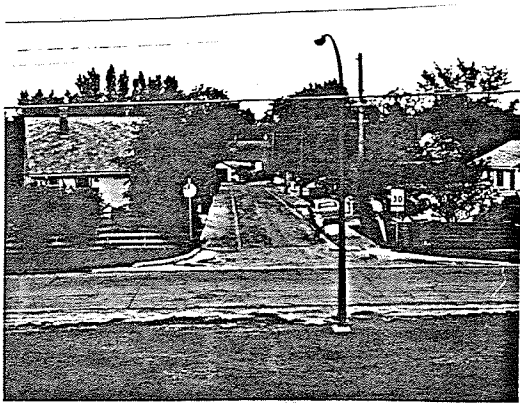


Oakenwald Road and The Wildwood Park Development from the Dyke

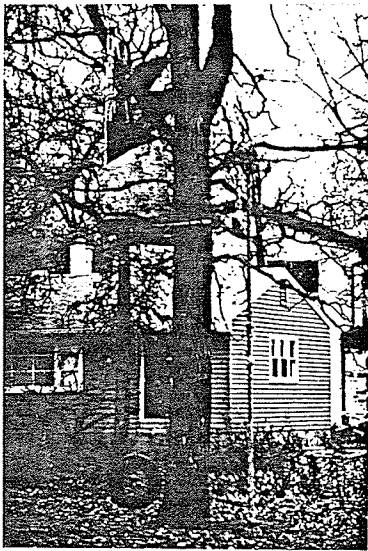
play. Similarly they identified nooks and crannies outdoors in their front and back yards that were important to them. In comparison, the boys illustrated far larger tracts of land surrounding their structures and the structures themselves in less detail. One boy identified his home as an area which stretched from his house in Wildwood Park, across Oakenwald Road, up over the Dyke and through the Wildwood Club Golf Course to the banks of the Red River. The boys seemed to be more willing to travel farther than the girls, more eager to "adventure". Their resultant knowledge of the study area illustrated on the maps indicated an awareness of a larger territory than that indicated by the girls.

When asked to draw a map of the "Area" in which they lived, the children drew localised areas surrounding their home (see map E). Some of the girls' "Area" maps were similar to the boys' "Home" maps. The girls in general illustrated extensions of their "Home" maps, showing their "Home" in less detail. The boys' "Area" maps were similar to their "Home" maps in some cases but the "Area" maps were illustrated in greater detail.

In general, the results did not identify one coherent place as a "Neighbourhood". However, there existed a marked difference between the results of the seven children who lived in the Wildwood Park Development and the other children in the study group. The illustrations of these seven children clearly indicate an area whose physical form was identifiable to them. They drew the entire development, or at least a major portion of it, on their maps. Each child bounded the area by identifying



An access road to The Wildwood Park Development showing Oakenwald Road



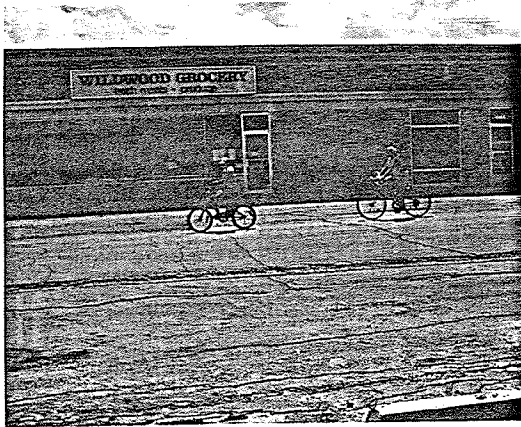
30 A tree house located within The Wildwood Park Development

Oakenwald Avenue and North Drive. It was concluded that the "organic" form of the development clearly set it apart from the surrounding grid pattern in the children's landscape (see fig. 30a). In comparison, the remainder of the group's illustrations indicated unclear and undefined boundaries. (There was one exception to this pattern: the subject, who lived on Calrossie Blvd., clearly identified Pembina Highway, Jubilee Avenue, Point Road and Riverside Drive as bounding his area.)

The Wildwood Park Development, in addition to projecting an image of a distinct residential unit through its physical form, had the appearance of a healthy, active community. Many of the residential units had been altered and extended, children's forts and treehouses were evident, the development had its own community club on the riverbank, and the local neighbourhood association, since the time of study, had developed and implemented an additional play area within the confines of the development. The area projected an appearance of public neatness, of sharing and of user programmed space (space which seemed to be owned and controlled by the community). A strong community identity was evident.

In comparison, the rest of the study area in general, though also neat and tidy, projected a different image. The strongly linear forms and distinct segregation between public and private space seemed to reduce the "inviting" quality that was projected by Wildwood Park. When walking through Wildwood Park one felt "a part of the community atmosphere"; when walking through the rest of the study area one generally felt "apart from the community atmosphere".

Vigorous comparisons are necessary; however, the marked differences among the children's "Image of Neighbourhood" raise interesting and unanswered questions concerning the possibility of a direct relationship linking "Physical Form" and "Sense of Community". Social and physical identity seem to reinforce each other.



31 The Wildwood shopping centre

The results on the subject of "Territory and Ownership" indicated that in general the children's perceptions of territory were not strong. However, there were no places in the study area where the children felt they could not go or did not belong (see fig. 25).

From the "Neighbourhood" illustrations, it was evident that the children did not recognise a category of "adult buildings" in the study area as landmarks or as important places such as: the public library, the police and fire department building, the Kiwanis Plaza home for the elderly, the new Holiday Inn development or Crescent Park. It can only be assumed that the children did not frequent these places, hence their omission from the cognitive mapping results.

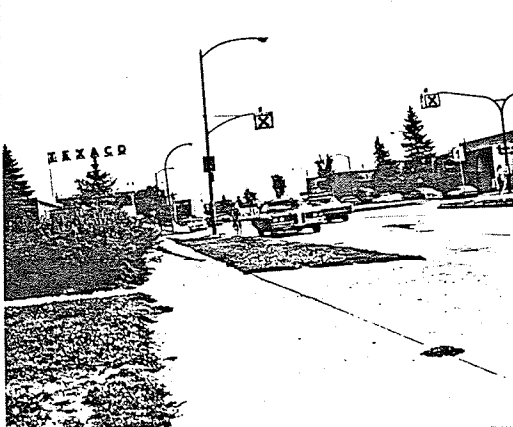
When asked to draw a map of their "City" the children's illustrations clearly indicated that their knowledge of Central Winnipeg and its surrounding regions was extremely limited. The form of Winnipeg, clearly bounded by a perimeter highway on all sides, could not be drawn. Neither could any of the major elements within the city be drawn: the meeting of the Red and Assiniboine rivers close to the heart of downtown, the perpendicular street grid pattern throughout the

city, or Portage Avenue or Main Street, at whose intersection the centre of the city lies. The majority of the children could not put pen to paper. Of those who did, the illustrations generally identified "Islands" linked by transportation routes. From the results it was concluded that the children's knowledge of the rest of the city and its resources was indeed limited and scattered.

#### 7.120. Spatial Mobility

When questioned on their spatial mobility outside the study area the results indicated a limited amount of travel. The children rarely ventured outside the study area and, when they did, they were usually en route to a sports facility or accompanying parents on "parental trips". The children rarely made use of the resources available to them. Trips to other city parks, art galleries, museums, or any other forms of cultural or historical centres were uncommon. When the children did travel with their parents, these trips were generally motivated by the parent and designed to accommodate the parent's needs: to visit the parent's friends, to see movies, to shop or to visit lakeside cottages for weekend recreation and the like. Based upon evidence gathered at the interviews and during discussions, trips specifically designed to help broaden the children's interests and/or educational development were uncommon.

In general, most of the children in the study group could travel outside the study area with parental permission. The boys, however, were



32 A pedestrian crossing over  
Pembina Highway

allowed greater freedom in this respect; the girls usually had to be accompanied, and both destination and time of return communicated to parents.

The study area is only three miles from downtown Winnipeg and, although the public transport service within the study area was limited, Pembina Highway provided a "10-minute" bus service downtown for anyone who was willing to walk to the Highway. It appeared, however, that in general the children had little motivation to travel by bus either downtown or to any other place in the city context.



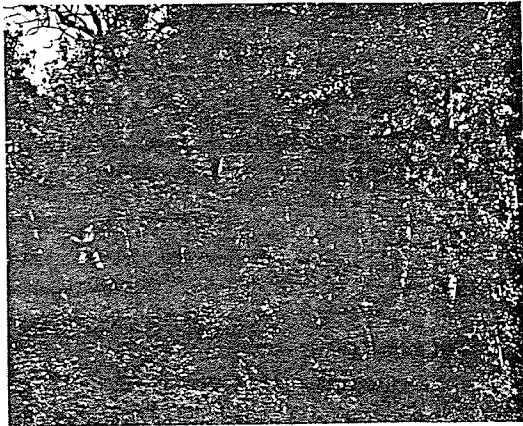
33 Oakenwald road looking onto  
The Wildwood Park Development

Bike riding provided the children with another opportunity to travel to other places, but this activity was often restricted by the hazardous condition of the major roads bounding the study area. From discussion it was concluded that the children would readily have travelled to other places on their bicycles if it were safe to do so.

The most important barriers to the children's movement were: dangerous traffic conditions on the roads bounding the study area, hazardous road surfaces for biking, poor public transport service within the study area, a general lack of spatial knowledge and, more importantly, a lack of adult direction and participation.

It was concluded that these restrictions to the freedom of movement of the children within the city context were likely to greatly reduce the number of environmental experiences available to them, which in turn may have an adverse effect on the potential for their environmental development.

### 7.130. Time Budgets



34 Manchester "Bush" Park



35 Stalking in Manchester "Bush"

Few of the Canadian children were involved in part-time employment nor were they responsible for extensive household chores (as many of the UNESCO series children were). Nevertheless it was found that their waking hours were rigidly structured. The results indicate that beyond the 40% of the children's waking hours absorbed by schoolwork, the majority of their free time was spent watching television (see fig. 16). On average, each child spent over one third of his/her late afternoon and early evening time (4:00 p.m.-10:30 p.m.) sitting in front of a television set. This time allotment represented twice as much time as was spent on unprogrammed play and fourteen times that spent on chores. During a typical midweek day, only 4% of the total time (from wake-up until bedtime) was unprogrammed, the remainder of their day was spent under the supervision of adults. Their unprogrammed time was generally spent outdoors, weather permitting, in the streets and backlanes, in backyards and woodlots, biking and playing various games. Outdoor activities were accredited with only 8% of the total midweek day.

During a typical weekend day, the time devoted to schoolwork was minimal in comparison. The amount of unprogrammed time rose from 4% to approximately 25%. Outdoor activity also rose, from 8% to just over 34%. This time was generally spent on the same activities and in the same places as the midweek time, with the addition of frequent visits to lake-side cottages in rural areas and related recreational activities (mostly during the summer months).

From the results it was evident that the children



rarely left the study area; in addition, most of their waking hours were programmed. On average, 90% of their waking hours were spent in the study area (95% during weekdays, 88% during weekends), 81.5% of these hours were programmed (96% during weekdays, 75% during weekends).

#### 7.140. Important Places



36 A Wildwood Park play area

It was concluded from the results that the children had evaluated their "Important Places" by relating them to suitability for play. Only one element, identified as "Important", is located outside the study area. This place, "Clear Lake", is a rural resort outside the city of Winnipeg.

Of all the elements identified, 14 were places providing the opportunity for unprogrammed play and 5 were places providing organised sports facilities.



37 Berry picking in the grounds of Oakenwald School

Comparing these results with those found in the "Time Budgets", it was noted that although the children's most important places seemed to be places that accommodated unprogrammed play, only 18.5% of their waking hours (4% during weekdays, 25% during weekends) were identified as being unprogrammed.

Wildwood Park, high in the ranks of importance, was used not only by the children who lived there but also by other children in the area. The play structures were used frequently for climbing, swinging and digging, and the pedestrian walkways provided the opportunity for biking and other hard surface requirement games. The school-

grounds provided a large open space for kite flying and team activities but were used more regularly for hard surface games.



38 Oakenwald Schoolgrounds

Although many of the children indicated that they were bored while attending school, the schoolgrounds were clearly identified as of importance. From observations made in the field, it was evident that the children did not use the playgrounds as frequently as they did other open spaces in the area. It was concluded from these results and from discussion that the children were identifying the importance of their early morning physical education programme. The staff at Oakenwald School and most of the children in the study group volunteered to participate in the programme which ran all year long. Participants arrived at school one hour before classes began.

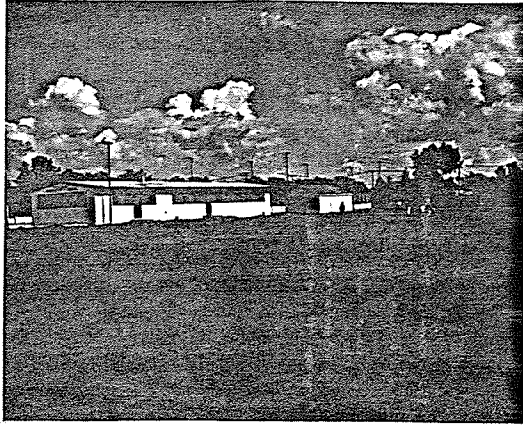
From the results it was concluded that this type of activity allowed the children to enjoy while learning. Such programmes should be implemented wherever possible.



A house and garage on South Drive

For obvious reasons the areas in the immediate vicinity of the children's houses were identified as areas of high importance. The Wildwood Club Golf Course was identified in this category. The golf course provided the children with a diverse set of resources which in turn stimulated many forms of play activity: golfball collecting, tree climbing, nest finding, bird watching, hiding, exploring, digging and building. The golf course also provided a challenge to the children, since adults preferred them not to be there at all. The children often had to conceal their presence

from "players" in fear of retribution. From discussion it was concluded that this activity was enjoyed for its excitement.



The Fort Garry Community Centre

Lower in the ranks of "Importance", Fort Garry Community Club was identified mainly because of its provision of an outdoor running track and outdoor pool. Byng Park was mentioned for its baseball diamond; Crescent Park, a regional park just south of the revised study area boundary, was indicated as being of importance due to its provision of a series of riverbank trails. These trails were used for jogging and cycling in the summer months, and for cross-country skiing during the winter months. However, it was noted that these trails were no safer than the riverbank trails made by the children in the study area.



A tree house on the riverbank

The low importance rating of the riverbanks was unexpected since many children had been observed there and activity was evident from the tree houses, bike tracks, well-worn paths, rope swings and litter in the area. Later it was found that 30% of the children in the study group did frequent the area but those activities were to remain secret since in general the children were advised to keep away from the river.



The Red River edge conditions

The river itself was difficult to use since most of its river-to-banks contact constituted an almost vertical drop of anywhere from four to ten feet.

From results obtained from questioning the children's riverbank activities in greater detail, it

was found that 30% of the children in the study group did use the area without their parents' knowledge. They biked there, jogged there, built treehouses there, walked there and were involved in numerous activities that will remain secret to them.



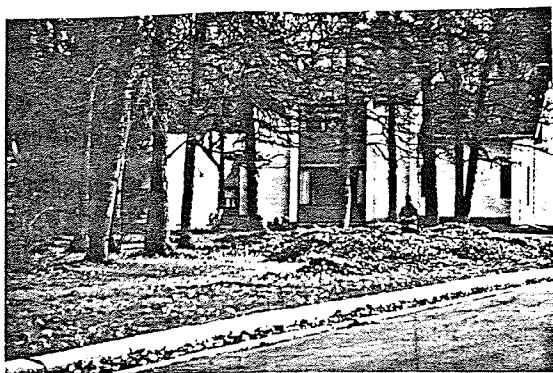
43 The Red River Trail

Many of the children had ideas to improve the area to better suit their purposes. Some children proposed the installation of proper bike paths and a fence so that no one could fall into the river. Others proposed a general clean-up of the area--in particular, to return the polluted river to its original state.

The riverbank area was the only area in the children's environment which provided a high degree of manipulability. In addition it provided an environment for private and exploratory activities, a place where the children could get away from parental supervision.

#### 7.150. Dangerous Places

When questioned on dangerous places in the study area, the children identified the Red River as the most dangerous element in their environment. Yet their second most common answer was "Nothing". There were no places the children could think of in their environment where they were afraid to go, or places where they could not do what they wanted, or places where they got hurt.



44 Playing in the leaves gathered  
from The Wildwood Park area

#### 7.160. Territory and Ownership

Similarly, when questioned on territory and ownership, the children identified no places where they felt that they did not belong. Although few of the children helped fix up any part of the study area, they did have a sense of ownership. Backyards, treehouses, clubhouses, woodlots, backlanes and bedrooms were all identified as being owned by the children. In some of the quieter residential bays, children were observed playing on the streets as frequently as in the backyards and backlanes. From discussion it was evident that some of the children also "owned" secret places, generally located in the woodlots and riverbank areas.

It was concluded that "Territorial Conflict" and pending hostility did not exist in the study group's environment. The children's freedom of movement in and around the study area was not limited by territorial dispute. Neither was there any evidence of "gang patches". Comments have been made about the study area as being a place to move to and not from. It was observed that there were few "For Sale" signs seen in the area.

#### 7.170. Places Liked Best and Least of All

When asked where they liked most of all to be, where they felt most at ease, and where was best to be if they wanted to be alone, the children consistently preferred to be "over the Dyke" or bike riding or at home. Nearly 40% of the study group could not think of a place where they

would go if they wanted to be alone; the remainder repeated "over the Dyke" and bike riding as places to go if they wanted to be alone.

Over 40% of the children could not identify a place they liked least of all to be. However, over 30% of the children disliked school.

From the results it was concluded that the children preferred to be in places that provided some form of play opportunity. Of the places liked best of all, over 70% offered unprogrammed play opportunities.

Contradictory to this conclusion, Byng Park was identified as being a place where some children liked least of all to be. This corner park did not meet the children's approval since it had no shade or running water in the summer months. The children had no input to the provision of their parks and in this particular case were annoyed that a sand pit had been removed from this park without their consent. In general, the degree of manipulability of the park reserves in the study area was non-existent.



45 A house on South Drive

#### 7.180. Beautiful Places

No one place was identified by the children as their most beautiful place, however the array of trees and flowers in the study area was mentioned far more than any other element. The children identified the Red River as being a beautiful element and had other favourite places such as "over the Dyke" and Wildwood Park. There were no ugly places in their environment. One child drew

a derelict house outside the study area as the ugliest place she could think of. Some children in the group could not think of any beautiful places in their area.



46 A stand of American Elm on Calrossie Avenue

The study area in general maintained an appearance of public neatness on all site visits. While city boulevards boasted mature stands of elm (*Ulmus americana*) and oak (*Quercus macrocarpa*), the residential yards provided highly manicured lawns, ornamental trees and abundant flower beds.

It was noted that no park reserves within the study area had been identified as places of beauty. Centennial Park, the only park reserve mentioned in this category, is a city park located within the grounds of the city's Legislative Buildings.

#### 7.190. Awareness of Local Environmental Conditions

From the results of investigating the children's knowledge of local floral and faunal life it was concluded that the children had accumulated little knowledge of local natural environmental conditions.

The study group knew of only 18 different wildlife species, in comparison to the predicted species list of over 100 species. Their knowledge of local vegetation was limited to a few plants which were bothersome: poison ivy and stinging nettles.

One subject who knew of fourteen different species

was a boy who spent most of his free time over the Dyke playing in the golf course woodlots. This individual had direct experience of frogs and snakes and squirrels and birds; he had experienced "direct experiential learning". The children who knew very little about the wildlife in their area were children who spent most of their free time watching television. Television watching is a form of "abstract experiential learning".

When asked what they had learned from moving in and around their area that they would not have learned from school or television the children replied: new street names, new places to play, new games to play, and some had met new people. Of the children who stated that they had learned of "the beauty of nature", all had been influenced by parental direction (see fig. 35).

It was concluded from the results that the children's knowledge of local environmental conditions was strongly linked to the amount of direct experiences they had accumulated from the environment and that their environmental awareness was intensified by adult direction.

#### 7.200. PATTERNS AND ANOMALIES OF FINDINGS AS COMPARED TO THE UNESCO-SPONSORED SERIES OF INTERNATIONAL STUDIES

##### 7.210. Image of Locality

The one area where anomalies were found to occur consistently was the way in which the children imaged their community.



When asked to draw a map of the area in which they lived, the Villa Las Rosas children all drew the same coherent place, an area of similar houses sharply bounded by a prison, hills, and a main road with a canal. The area has a steel arched entrance, a dead end main street as an axis, and a central plaza. Both community facilities, the church and school, are on that axis, and the axis points to a grotto on the hills. All their streets are named after flowers and the children are able to view their area by climbing the hills behind.

The graphics of the Polish village children were similarly detailed, exhibiting a strong image of place. Two thirds of them intended to remain in the village when they grew up (although current trends were of the opposite opinion).

The neighbourhood maps from the Polish peripheral housing projects (Zatrasie and Kozlowka) were totally different. These maps shared confused layouts of large dwelling blocks, most of them without any further detail.

The Australian children's maps vary widely in extent, from the surroundings of a single house to a region of six square kilometers. As was also the case with the Canadian study, every map was essentially a street map. The streets were drawn large; other locations were added as small rectangles along them.

When asked to draw a map of the city as a whole, the Polish peripheral housing project children produced "islands" of activities linked by long public transportation routes, while in Toluca,

Mexico one third of the children could not or would not draw a city map.

The central city children in Poland, however, , produced systematic, accurate street network maps filled with shops, institutions, places of entertainment and historical monuments.

The images of San Augustin (Argentina) showed an interesting dichotomy. One group (mostly boys) represented the environment as a map of streets and blocks almost void of any detail. Their image of the environment is that of a highly repetitive one. The other group (mostly girls) represented shops and parks and green areas. Their drawings were full of detail and colour, trees where none exist and sloping roofs where all are flat; they were seen as an escape from the harsh environment in which they lived.

The images of the Canadian children too showed an interesting dichotomy. The first group (mostly boys) represented areas in their "home" map almost as large as those of the second group's (mostly girls) "area" maps. However, the second group's "home" maps were drawn in far greater detail, locating areas in and immediately around the house.

From the results of cognitive mapping questions, it was concluded that the Canadian children more strongly identified with environmental elements which they had experienced directly than they did with those they had experienced indirectly or abstractly. A similar conclusion was drawn from the results of the UNESCO-sponsored Mexican study (Ecatepec, Mexico).<sup>1</sup>

1, Lynch, Kevin: GROWING UP IN CITIES: UNESCO.

In their maps, the Mexican children repeatedly represented the Legislative Palace, calling it the library, and also mentioned it as an important building within their city. However, they neither drew nor mentioned the Palace of Justice. The architecture of these two buildings is almost identical and they face each other on opposite sides of the same plaza. The conclusion was drawn that the similarity of the two buildings was not enough to give them equal meaning. The fact that the children used the library in the Legislative Palace (and that it was close to a unique fountain landmark) gave the Legislative Palace more meaning.

In general, the Canadian children had little or no knowledge of the city that could be illustrated by cognitive mapping. Since it was thoroughly explained to the children that the idea was to locate places in the city which were of importance to them, places that they liked or disliked and places where they had been or wished to go, the resultant lack of city elements in their city maps indicated that the children seldom visited places outside their own local environment.

#### 7.220. Spatial Mobility

From cognitive mapping results the Australian children's limited experiential range outside the study area was only too evident. Similarly, the Canadian children indicated that their knowledge of the city and its resources was minimal. One Australian girl had only visited her city

centre once in three years (the Australian study area was 13 km from the city centre).

In both the Australian and Canadian cases, most of the children were allowed to travel to other parts of their city. In general the girls were restricted by the condition that the parents had to first be informed of their destination and the time of their return; parents seemed to be more lenient with their boys. *city*

In the Australian study, in several instances, the limitations governing which places were accessible came from the child rather than the parent. As an example, when an Australian girl was asked if she could go wherever she wanted in the city she replied,

"Yes, but I don't like going to the city by myself. I could go with Vicki, but we don't know the way and would get lost."<sup>1</sup>

It was concluded that the general attitude towards city travel indicated by the Australian children was similar to that of the Canadian children.

#### 7.230. Time Budgets

When compared with the UNESCO-sponsored series of studies, similar results indicated the existence of a "Time Budget" pattern.

In each of the four countries, the results clearly indicate that the children's weekday schedules were rigidly structured. In general, schoolwork in the morning and early afternoon

1. Lynch. Kevin: GROWING UP IN CITIES: UNESCO.

absorbed 40%-45% of the children's waking hours. Eating, washing up, preparation of food and other general chores consumed another 25%-35%. Almost all of the remaining time was spent sitting in front of a television set (or, in Ecatepec, Mexico where there is no television, listening to the radio). Only 4%-10% of the children's day was unprogrammed.

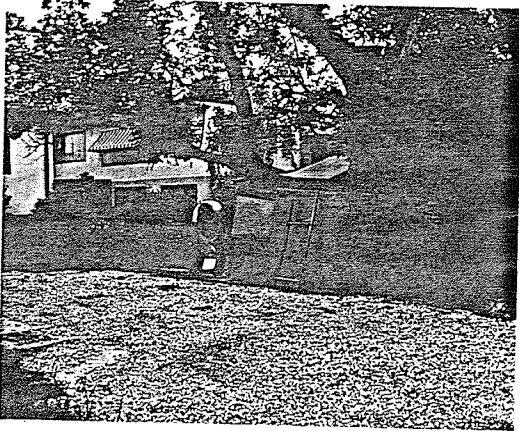
During the weekend, outdoor activity time rose to 25%-40% (from 8%-34% in the Canadian study) and unprogrammed time to 30%-35% (from 4%-25% in the Canadian study).

In the Polish village study of Bystra, Podhalanska, it was found that the children had a substantially higher amount of duties and chores, and very little "idle" time. The Mexican girls also had an important role in the household maintenance: cooking, washing, feeding animals, attending to younger family members, etc. In some cases the Mexican children contributed to the family production: helping a carpenter father, attending the store, etc. The Canadian children spent little time, if any, involved in household maintenance. Infrequently some helped with the preparation of meals and with cleaning up after meals.

The substantial amount of time devoted to the activity of television watching (or radio listening, in Ecatepec, Mexico) was consistent throughout the results of each of the five studies. In the Canadian study this activity consumed twice as much time as was spent on unprogrammed play and five times that spent on homework. Without

discussing the existing psychological or physiological effects (alpha wave generation in the brain and gamma ray bombardment) of television, or the content of the material presented, the sheer intensity of viewing alone must have an enormous influence on the children's development.

#### 7.240. Territory and Ownership



Building a fort on Somerset Ave

Throughout the UNESCO-sponsored series, results indicate that there was little for the children to bear responsibility for. Children's control or management of space was uncommon. In general their landscapes comprised public or private spaces, neither of which provided an opportunity for the children to develop a sense of responsibility. Even though in many cases vacant lots, derelict land and factory yards were not actively used by anyone else, the children were usually refused admittance. In the Australian study the children were driven off the derelict railway property they had used for a mini-bike trail, the one piece of land in all their area where they had managed to change the environment to better suit their purposes.

In the Canadian example it was concluded that the degree of manipulability of the children's environment was similar to that of the Australian children. Other than using steps and fences as seats, the only visible signs of the children's manipulation of their environment were the building of treehouses and the continual use of the riverbank trails for biking, walking, jogging, digging, building and adventuring.

From the Polish city centre and new district results, few children spoke of any place as being their "own". When they did, they usually referred to a piece of furniture or, at most, a part of a room. In comparison, the Canadian children identified the streets, backyards, club-houses, forts, woodlots and bedrooms as being "owned" by them.

The case was also different for the Polish village children, half of whom referred to their "own" house, garden and farmyard. From the results of this study it was concluded that since the children often shared in the management of those places, they had evolved more explicit connections to the community and place. In a similar way, the Mexican children of the Las Rosas study often referred to their personal roles in the local nativity celebrations.

#### 7.250. Places Liked Best and Least of All

Results from the Canadian study, derived from "favourite places" questioning, seemed to be consistent with those from the four other nations in the UNESCO series. The children preferred to be in places that provided opportunities for play and friendly interaction. In the Canadian study most of these places provided opportunities for "unprogrammed play": over the Dyke in the golf course, bike riding, in the schoolgrounds, in Wildwood Park, at home or at the home of a friend. When asked where they liked least of all to be, the children answered consistently: in school, in boring places, and in places where they had no



8 A Wildwood Park Development play area



49 A riverbank tree canopy

control or no friends. A few children mentioned places they considered to be dangerous.

#### 7.260. Beautiful Places

Consistent results indicated that the children in general felt that the principal dimensions of "beauty" were cleanliness, modernness and natural features, and that ugliness was represented by pollution, litter and dereliction. The general appreciation for trees and flowers was unanimous throughout the results of the four nations.

#### 7.270. Awareness of Local Environmental Conditions

From the results of a UNESCO-sponsored Australian study of suburban children it was concluded that:

The effect of the physical environment of these children is primarily one of limiting their experiences severely. The paucity of perceptual stimuli can be judged from the photographs. The range of experiences available to the children in the area is distinctly limited. The chance for self-development, broadening of outlook and contact with a variety of people and ideas is all very poor, hence the ability to diverge from the patterns set by parents and the area's subculture is limited.<sup>1</sup>

In comparison to the Canadian study area, the Australian study area was of a lower status both economically and physically: prefabricated

1. Lynch, Kevin: GROWING UP IN CITIES: UNESCO.



concrete and timber houses, considerable industrial development, derelict land and a shortage of trees and public open space. Nevertheless it was concluded that the Canadian children were also experientially limited, even though their local environment was far greener and more "natural" than that of the Canadian study.



50 Just "fooling around"  
in The Wildwood Park-  
Development

The Canadian children in general knew little of the resources available to them in the areas outside the study area. Their knowledge of local natural environmental conditions was minimal and any understanding of broader environmental concepts was uncommon. They liked trees and flowers but knew little of the roles they played in the vegetative community; they observed signs of pollution but were ignorant of its sources. The limited knowledge of broader concepts and of understanding "inter-relationships" which did exist had been stimulated by adult direction.

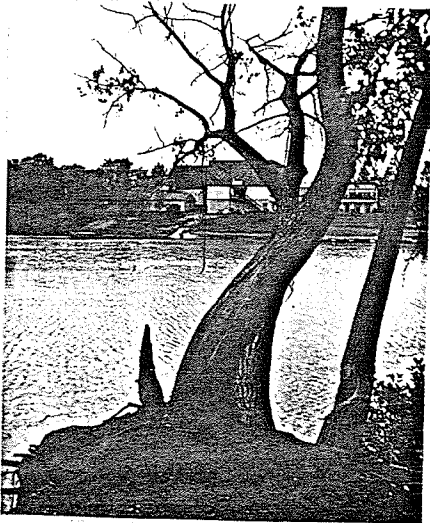
The Australian study concluded that the children's experiential range or environmental knowledge was limited directly by the paucity of their immediate physical environment. The results of the Canadian study indicate quite clearly that both the children's experiential range and their environmental knowledge were strongly influenced by the intensity of the adult involvement and direction experienced. These results contradict the hypothesis identifying "existing physical conditions" as being solely responsible in "providing the groundwork" for the child's environmental development.

From these conclusions it may be deduced that, although the greener, more natural environment may provide the potential to acquaint the child with

natural environmental conditions, it does not directly follow that the child will be more environmentally aware.

In both the Australian and Canadian suburban studies, when asked what they did with their free time, the children in general indicated that they just "messed around". They stated that they never did anything new or exciting, and that they were usually always bored.

The major failing of the Australian public outdoor space was that it was perceived to be boring. The children perceived their social, physical and educational environments to be lacking in interest. It was concluded that the absence of creativity and invention in thinking and use of time and space was directly traceable to the lack of experiences, challenges and opportunities available to them in their social, physical and educational environments.



51 A rope swing over the Red River

In the Canadian example, the children were forbidden to play in the vicinity of the riverbank, the only environment in the study area with a high degree of manipulability. Similarly, the Australian children were driven off derelict railway property since it was private land. In both cases the parks reserves were unmanipulable by their users. The children enjoyed digging, building, tearing down and rebuilding. Prohibition of these activities can only reduce the potential for the children's development.

#### 7.280. SUMMARY

We have seen quite clearly throughout this section that certain "common denominators" do exist between the results of this Canadian study and those of the UNESCO series. Similarly, many anomalies have been identified as raising interesting points which yet remain to be questioned.

A comparison of the ways in which the children imaged their localities revealed an interesting anomaly between the results of the Argentinian study group and those of the Canadian study group.

The Argentinian children, whose village lay at the foot of a hill and who had the opportunity to view their locality from the slopes of that hill, all drew beautifully detailed maps identifying the same landmarks, plazas and streets. In contrast, the Canadian children, who lived in an area of flat terrain which offered no opportunity for an overview of their locality, drew localised, unbounded maps of their "neighbourhood".

This would seem to suggest that the opportunity to view an area from above may heighten the potential to understand that area better. However, since no detailed landform information was presented in the UNESCO series, we are left only to speculate.

The comparisons made between the ways in which the children imaged their cities raised many questions. With the exception of the Polish and Mexican children who lived in the city centre, the children in both the UNESCO studies and the Canadian study generally drew "city maps" which

indicated they knew little of the resources available to them outside their own locales.

The ways in which the Mexican and Canadian children imaged their cities seemed to be closely related to the degree of their "direct experiences" (refer to the discussion on the Mexican Legislative Palace, chapter 7.210). Canadian children identified elements and places they had visited and experienced directly; places they had read about or been told of (historical monuments, etc.) were identified only rarely.

The patterns inherent in the "Territory and Ownership" results throw additional light on the subject of "sense of place". It would seem that degree of responsibility for, and ownership of, "place" can be generated by the management and control of that "place". In the UNESCO series, the children who were given various levels of management and control of parts of their local environments seemed to have developed a stronger sense of community and place than children who had little to do and less to be responsible for. These conclusions imply that the concepts of "community" and "sense of place" may well be closely linked to the degree of control one has over one's environmental conditions.

The existence of these patterns reinforces the hypothesis that the degree and quality of children's environmental development can be strongly influenced by parental (or adult) direction.

A comparison of the time budget results from each study clearly indicates the existence of rigid time schedules. This pattern identifies

television-watching as the activity in which the children spend most of their free time. Since this machine is fast becoming the medium through which children perceive reality, a more detailed discussion on this subject is given in the following section.

In summary, it would appear that existing physical conditions most certainly do have an effect upon children's development of an awareness of the environment, though perhaps not as much of an effect as the literature might suggest. The children's environmental development would seem to be more closely linked to both the way in which those physical conditions transfer information and the quality of the information transferred. The media through which that information may pass en route to the child (via parent, friend, school, television, etc.) play a major role in the child's environmental development process.

#### 7.300. FACTORS FOUND TO BE NEGATIVELY INFLUENCING THE CHILDREN'S DEVELOPMENT OF AN AWARENESS OF THE ENVIRONMENT, AND RECOMMENDATIONS TOWARDS THEIR RESOLUTION

The study outlines three main problem areas which have negative influences on the potential for the children's development of an awareness of their environment (outside school): (a) the restriction of freedom of movement, (b) the lack of diverse experiences in the local environment, and (c) the lack of a positive direction towards learning about the environment. The most obvious factors under each of these headings have been presented

graphically in this section in order to emphasize their interrelationships (see fig. 37); recommendations are made towards the resolution of these problem areas; and a number of "unclear" areas requiring further investigation are identified.

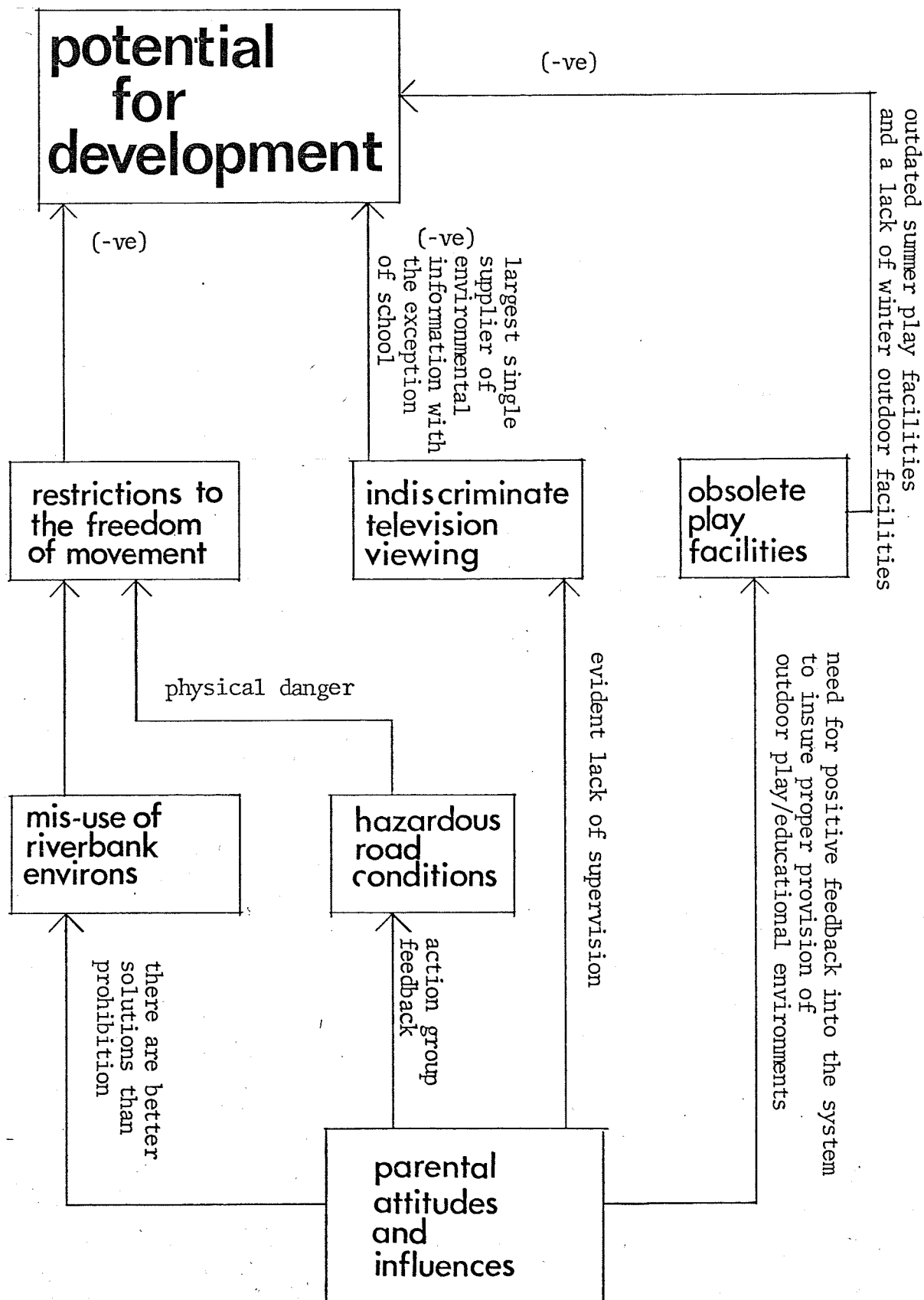
#### 7.310. Restrictions to the Freedom of Movement

It was concluded by this study that both physical and psychological restrictions to the freedom of movement were experienced by the study group. These have been presented separately in order to clearly identify them.

7.311. Existing Physical Restrictions. The results indicate two major physical elements within the study group's environment which directly influenced the children's spatial mobility: the heavy traffic flows and bad road surfaces of Pembina Highway and Jubilee Avenue, and the dangerous edge conditions of the Red River and its banks.

The problems inherent in heavy traffic flows impinging on children's safety occur in most large cities throughout the world. One fact that is known is that an increase in road surface does not resolve the problem. In some cases community action groups have been formed in an attempt to bring about necessary change. For example, in certain European countries and in a number of more adventurous North American cities, the introduction of bus/bike lanes not only has provided safer travel routes for cyclists but has

(fig. 37) Factors Found to be Negatively Influencing the Children's Development of an Awareness of the Environment.



resulted in more efficient public transportation systems.

#### 7.312. Existing Psychological Restrictions.

The second concern for the physical safety of the children stems from parental attitudes towards the Red River and its edge conditions, since these riverbank areas were accessible to the study group. Though the riverbank woodlots posed no particular threat to the children's well-being, the edge conditions were dangerous in places, and parental fear of the children falling into the river had resulted in the prohibition of activity in the area. This solution to the problem was unsatisfactory, however, as it resulted in a reduction in the number of diverse environmental experiences available to the children.

The entire issue of riverbank safety becomes even more interesting when a comparison is drawn between the riverbank edge conditions of the Crescent Park area and those of the other riverbank areas in the neighbourhood. In all cases the physical educe conditions are identical, yet the children were allowed to play in Crescent Park, a designated park area, but not in other areas bordering the river. (It was evident, however, that the children did not restrict their activities to Crescent Park; the monkey trail bike paths were earthworm along all the riverbank areas accessible to the study group.)

This dichotomy points toward the possibility that a direct relationship may exist between "perceived safety" and "the designation of public



land". This, in turn, would have many implications. For instance, does the designation of public management of an area alter the degree of responsibility perceived by parents? In other words, does the designation of public management automatically convey an image of safety and security? And, if government designated all "unmanaged" natural areas as parks, would this increase the degree of accessibility of those areas to children? Of course, we can only speculate on these questions, since this study only identifies the possibility that such a relationship exists. Herein lies yet another area where a future "child and the built environment" investigation may well be directed.

Since it has been hypothesised by this study that the potential development of an environmental awareness in children is in part directly linked to spatial mobility, it is recommended that further studies be undertaken with a view to developing methodologies and strategies which will bring children and the city's resources closer together. On the one hand we are faced with the problem of how to provide an easier information transfer from the city to the children (see Appendix XIV, Case Study: "The Lowell Discovery Network"), and on the other hand we must somehow find ways to motivate the children themselves to find and make use of those resources (see Appendix XV, Environmental Education Recommendations). Teaching our children how to learn rather than (by rote) what to learn may perhaps be a fruitful direction in which to head.

### 7.320. The Lack of Diverse Experiences in the Children's Local Environment

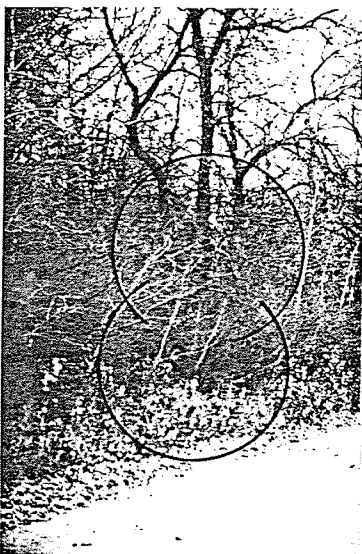
The second broad area to be identified by the results as presenting negative influences on the potential for the children's development was the lack of diverse experiences in the local environment. It was found from discussion that the existing outdoor play facilities presented no challenge to the study group. Field observations reinforced this finding and, as well, noted the exclusion of other user groups.

From the results of the "Time Budget" questioning it was evident that, after television-watching, unprogrammed play was the next single largest consumer of the study group's free time, an activity presumably provided for by the local park reserves. In reality, this time was spent not in the parks but in the streets and backlanes, in the front and backyards, on the golf course or the Dyke and at the riverbanks and in woodlots.

In the Australian suburban study the prohibition of certain activities in park reserves and public open spaces resulted in the omission of most user groups. These groups were forced to use two areas of derelict land, the only environments providing any degree of manipulability.

In the Canadian example, without the riverbank area, the manipulability of the children's environment was minimal.

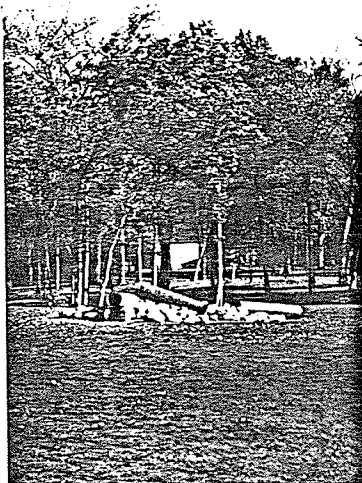
No member of the Canadian study group identified a park as a place he/she liked best to be, even though their favourite pastime was playing. On



52 More Stalking in the Manchester Boulevard Park



53 A front yard in the Wildwood Park Development



54 A play structure in Crescent Park

the contrary, one park (Byng Park) was identified amongst those places where the children liked least of all to be!

Both Wildwood Park and Manchester Boulevard Park, in comparison, were rated highly by the children. These areas, both of which were visited frequently, are not characteristic of traditional parks in the city. Manchester Boulevard Park is simply an extended boulevard stretching two residential blocks on which grow a community of bur oak (*Quercus macrocarpa*) and aspen (*Populus tremuloides*). Wildwood Park is a large central open space onto which the homes of the Wildwood Development front. On this site a large percentage of the original upper canopy trees survived development. The lawn area below is broken by pedestrian paths which provide access to the homes. The play structures within this parkland were used frequently by very young children (preschoolers), generally under supervision. Activity was always present in this open space.

The results raise many questions concerning the existing provision of outdoor space. For example, does the standardisation of play equipment reduce the children's incentive to discover new forms of play or to develop new motor skills? Does this same standardisation accommodate the needs of a variety of user groups? Does the standard equipment itself detract from the overall character of the neighbourhood (or even city) by reducing its diversity? Are the existing recreational concepts, most of which were based on Victorian horticultural attitudes and late 'twenties reform attitudes, valid for the needs and problems

of today's society? An investigation of the physical character of both Manchester Boulevard Park and Wildwood Park may provide some useful information--another area for future research!

The Parks bureaucracy is presently faced with many problems concerning obsolete or inappropriate concepts.<sup>1</sup> The National Parks wilderness areas have become overloaded with people who are leaving the cities in order to experience different environments, people who are not familiar with natural ecosystems and who are environmentally unaware. This has resulted in the damage and destruction of valuable ecosystems and the continual contamination of the wilderness remaining.

In the study area's public parks we have found planned outdoor facilities that are uninteresting and unchallenging to the youth of today, yet local government officials have publicly admitted to spending more taxpayers' money on maintaining these obsolete facilities than they did on developing new ideas. There is an apparent lack of "feedback" from the user groups (or their guardians) to the decision makers.

It is out of necessity that further research be undertaken to gather more evidence in order to bring about a needed change in this bureaucratic system. It is evident from the results of this study that a re-evaluation of the present system of decision-making is of vital importance if future open space provisions are to be appropriate.

As has been brought to our attention by this study and by the UNESCO series of studies, television is fast becoming the way in which children today are perceiving reality. Why should this be so? Is it simply that by some magic television producers have discovered a universal formula which, when applied to the content of TV programs, demands the children's undivided attention? Or does the root of this phenomenon lie deeper in our culture? Perhaps an investigation into the existence of "television alternatives" would be enlightening. What other sets of stimulating experiences--just as exciting, informative, interesting, imaginative, and as readily available to children as television is--are part of our children's environment? If the answer is that few other such sets exist, then it follows that television has little competition. One could even go so far as to say that television has cornered the market of "awareness development" in children!

This brings us to the point of trying to establish relationships between the quality and availability of all sets of potential experiences existing in the children's environment and to identify strategies which will enhance the quality of those experiences and increase their availability. As one can imagine, a work of this scope will consume much effort in many areas. For example, it would require fundamental changes in the approach to the design processes concerned with the built environment, and changes in the direction of our children's education (stressing direct experiential learning rather than abstract experiential learning).

There is no doubt that issues such as those discussed in this section must be addressed in order for us to provide stimulating and rewarding living environments.

7.330. The Lack of a Positive Adult Direction  
Towards Enhancing the Study Group's Environmental  
Education

It was concluded by this study that the children were not receiving enough direction to enable them to develop an awareness of their environment and come to understand their position in it.

The study group were readily acknowledged to be academically strong students, responsive and alert, yet their basic environmental knowledge was limited. From the daily half-hour activity charts it was clear that the children spent much of their free time watching television or in some form of unsupervised play. The majority of this time was spent alone or perhaps with a friend or two. The only time parents (or other adults) specifically spent with their children was on occasions when the children accompanied parents on shopping trips, visiting parents' friends, going out for dinner or to a cinema, etc. During these periods the children's part in the interaction was seen as "passive", in other words the children were simply "tagging along". The results indicated that there were few "educational" visits on the parents' agenda expressly designed to improve the child's development. There was little evidence of television censorship, and indiscriminate television addition was present in many cases.

From the cognitive mapping results it was found that the children knew little of the resources available to them. Few city maps identified the city zoo, the Museum of Man and Nature, the Planetarium, Lower or Upper Fort Garry, the Living Prairie Museum, or any monuments or places of social or cultural interest.

It has been concluded by this study that, in general, the responsibility for directing the children towards developing an awareness of their environment was not being accepted. Until this responsibility is accepted, children's ability to break out of existing subcultural patterns will be limited.

It is recommended that research be initiated in order to investigate ways in which to resolve this situation. It is out of necessity that strategies be developed which will increase the potential for development of the children's environmental awareness; for example, to motivate children to discover and search on their own, to increase access to and the quality of existing city resources, to develop new resources and experiences in areas found to be lacking, to motivate the children's "adult world" to develop this sense of responsibility and act accordingly, and to develop any strategy which will increase the information transfer between the environment and the children.

Unless an environmental awareness is developed in the children of today, future societies will be as unable to cope with global issues (such as, pollution of land, air and water; erosion of natural food sources through land desecration;

the exponential build-up of nuclear armaments) as their predecessors are right now.

It is irrational for us to respond to acts of which we are not aware. Let us make our children aware for their own sakes!

#### 7.340. Summary

It has been concluded by this study that the existing physical conditions of the Canadian suburban residential environment under investigation do influence the potential for the development of an awareness towards natural environmental conditions. This influence, however, was found to be less active than was first expected. Left to their own devices, the children learned very little about the richness and diversity of their surroundings. It was concluded that the existing physical environmental conditions of the children played no more important a role than did their own psychological environmental conditions (educational, social and cultural influences); in some cases, even less.

Perhaps the most enlightening discovery of this study is the identification of the importance of the "medium" through which information is or may be transferred from these environments into the minds of our children (and ourselves).

The existing "natural element" in the study group's environment was found to present an esoteric image in the sense that it maintains a "passive" nature. Although endowed with unlimited resources, this "natural element" did not readily transfer knowledge. Unless the recipient



is aware of the existence of such knowledge and sets forth to discover more, the relationship remains "passive". It has been concluded by this study that an "activation" of this relationship existing between the child and his/her environment must take place if any level of "awareness" is to be developed.

To simply identify the existence of this catalytic element (or "medium") alone may not be enough for the reader who wishes to discuss the "content" of such an information transfer. However, it was felt by the author that this study already more than strongly indicates his own personal biases, to the point of becoming less than scientific. Without reducing the credibility or objectivity of the factual evidence presented in the main body of the study, this discussion has been offered as a postscript. The reader should also refer to Appendix XV for an example of the content of the environmental knowledge the author recommends may be transferred. In the example presented in Appendix XV, the "medium" through which the information transfer may occur could be a "concerned parent", a "school teacher", or similar.

To bring this summary to a close, it may well be enough to re-state, in point form, those areas identified by the author as areas where future investigation would well be directed in order to bring about a broader understanding of issues concerning human relationships and the built environment. It should be kept in mind that the following list is by no means complete and that investigation of these areas will more than

likely raise many more unanswered questions....  
such is the nature of the beast!

#### ENVIRONMENTAL AWARENESS

(a) To develop strategies to motivate the children to make use of the resources which are available to them in areas outside their own locale.

For example, an investigation of the potential for an inner-city, unobstructed bike route which would increase both public biking safety and the spatial mobility of its users would be of great value.

(b) To develop strategies which will provide the potential to increase both the physical and psychological access of the resources available to the children. For example, an investigation into ways in which the safety and educational potential of the riverbank area could be increased.

(c) To develop new resources which will provide information presently not available to the children (or public in general).

(d) To develop methods by which these same resources mentioned in (a), (b) and (c) may transfer information readily.

(e) To develop strategies whose goal it will be to increase parental motivation. For example, to direct the parents towards spending more energies on helping their children develop an awareness of their environment and come to understand their position in it. This could be achieved by development of a local programme which

would (i) inform the adult world of the importance and value of developing an awareness of natural environmental conditions, and (ii) inform the community in general of the richness and diversity of the existing natural resources and of their relationship to the global ecosystem.

(f) To uncover stimulating methods of transferring information which will induce learning in children. From the results it was found that the children remembered "direct" experiences more vividly than "abstract" experiences gained through word of mouth or by reading.

#### IMAGE OF LOCALITY

(a) To investigate the relationships between the elements identified by this study as having a major influence on the children's image of locality. For example, what makes the Wildwood Park Development's "sense of place" stronger than that of other areas? Do the results of this study identify a direct relationship between "physical form" and "image of locality"?

(b) To investigate the relationships between the "image of locality" and the "existing physical visibility of place". Does the variance in topographical features affect the degree of cognition? For example, does the fact that the Canadian study area terrain is flat, offering no vantage points to allow viewing from above, affect the children's cognition of their locale? (Section 7.210, "Image of Locale", compares the maps of the Canadian study group with those of the Las Rosas children who could view their

entire village from a local hill.)

(c) To investigate the relationship between the degree of "image of locality" and the degree "accumulated direct experiences" within the environment. The concerned reader should refer to the Canadian results on city cognitive mapping and to the results of the Mexican children concerning the Legislative Palace and Library cognition.

(d) To investigate the relationship between the degree of responsibility for the degree of responsibility present in communities and the degree of "sense of place". It was concluded that the Canadian children bore little responsibility for any areas on their environment. Neither were they given any opportunity to manage their own areas or any other parts of their environment. Both the Polish and Mexican village children who were found to take part in managing their environment were also found to have developed a sense of responsibility for that same environment.

(e) To investigate the relationships between the degree of manipulability of an area with the actual physical use of that area. In a sense this may be closely related to the relationships existing between the "image of locality" and the degree of "user management" of that place. In the Canadian study and throughout the UNESCO series of studies it was concluded that the amount of physical use of an area was directly related to the degree of manipulability available. In the Australian study, very little designated park property was used by local children in the study group's age group.

(f) To investigate the existence of a direct relationship between the designation of public land management and the degree of perceived public safety. This point was raised when a comparison of the existing physical conditions of the riverbank edge conditions was made between the riverbank area in Crescent Park and other riverbank areas in the children's locale not designated as being publicly managed. Would the riverbank problem in the Canadian study be resolved if the entire riverbank area were designated as public domain? What other influences would this designation have?

(g) To investigate the "attractiveness" of unstructured places as play areas. Why are certain age groups attracted to woodlots, riverbanks and similar places? Is this phenomenon related to the degree of manipulability of those areas; the opportunity to get away from parents' supervision; the discovery or sense of adventure? If we identify these elements which seem to be so necessary to our children's development, we should introduce them into our presently unchallenging designated play areas.

(h) To investigate the occurrence of a marked difference between the ways in which the Canadian (and Mexican) boys and girls of this age group imaged their homes and neighbourhoods.

#### 7.400. THE POSTSCRIPT

It was felt to be adequate for the main body of the study to identify the fact that children need direction in order to develop an awareness of their environment. This postscript serves to

discuss the direction and content pertinent to the information transfer which must occur in order that it may respond directly to existing environmental conditions.

Since it has been concluded that children cannot be made responsible to direct themselves, that responsibility must lie within the adult domain. However, in today's society, where success and quality of life seem to be perceived in terms of "material accumulation", responsibility has been abstracted to the point where the individual is fast becoming anonymous. Today's adults experience little control over their own world, let alone the complex world of children. The responsibility to provide shelter and, to some extent, food now lies with government and the private sector (as with food manufacture, food quality, hygiene standards, public safety, the education of our children, control of our homes and places of work, conditions of war....). The very quality and health of our planet lies in the hands of those few who control such global forces as politics and the economy. As these responsibilities are abstracted from daily life, ignorance and anonymity prevail. The one basic fact which seems to have been forgotten is that the responsibility for evolving a healthy and harmonious living environment lies with each and every one of us!

The dominance of the machine metaphor and, with it, the insistence on linear thought, has almost blinded us to all aspects of our culture other than the economic. As a result, we are losing our awareness of realities such as beauty, nature,

love and reciprocity which, due to their subjective nature, cannot be categorised in an objective world.

We are the only species that has developed the means to force our habitat into patterns which we desire--we can prevent undesirable patterns as we please. (All other species work within the existing patterns, their survival depending upon a complex interrelated system of which they form a small part and over which they have limited control.) Yet our society denies its relationship to the total ecosystem by continually ignoring feedback which it finds undesirable. It has developed an attitude of seeing our habitat as being totally flexible according to its wishes and desires. The attitudes which it has developed towards our environment are now so inappropriate that only a fundamental change in our thought and action patterns will make any real difference to our society's future.

Environmental awareness has grown out of a recognition that society has failed to take responsibility for the reality in which we live. Many of the existing environmental groups are expending most of their energies on resolving symptoms of the environmental crisis rather than dealing with the central problem. Some groups are concerned with population growth, others believe that the problem stems from an abuse of technology, many have attempted to create a consumer's revolt against shoddy and valueless goods in order to reduce consumption. It is my shared belief that the causes of our

environmental crisis lie far deeper.<sup>1</sup> And it is these causes, not the symptoms, which must be addressed.

We as individuals have entered a new era of responsibility. Society must dispense with the attitude that it can do anything it wishes.... the "man over nature" concept. The fitness of our planet now sets limits on the power of society. Desired goals often have secondary and tertiary consequences that are totally undesirable. The nature of the issues inherent in the question "What can be done?" differ profoundly from those inherent in the question "What should be done?" After all, what is technologically possible is not necessarily humanly desirable.

Our own survival depends upon our ability to increase our qualitative decision-making capacity as greatly as society has increased its productive and consumptive powers. New constraints and ideas are needed. Our behaviour should be attuned to our ecological understanding.

It is believed by many that society has the solutions to the environmental crisis but is simply failing to apply them. This is a falsehood. Society has nothing....recalling its abstract nature. The power to bring about change is vested in the individual. Each and every one of us must develop a new way of thinking; only after we, as individuals, change will society change. Society is a follower, not a leader.

If we are to tell our children anything, let's tell them the truth!

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1.Disch.R.: THE ECOLOGICAL CONSCIENCE: Values for Survival. Prentice-Hall, Inc. Englewood Cliffs N.J. 1970



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## APPENDIX I

### Techniques

The recommended UNESCO techniques were employed by this study.

The first requirement of the study was to locate a person who could provide direct and friendly contact with the study group. This was achieved through Mr. Dennis Wilson, Principal of Oakenwald School in the community of Fort Garry.

The general setting of the area was favourable, a relatively mature and stable residential suburban area. The study area was chosen initially by recognizing natural physical boundaries: Pembina Highway, Jubilee Avenue, the Red River and Crescent Drive. At a later date, after considering the children's cognitive mapping, the study area was reduced by changing the southern boundary from Crescent Drive to Dowker Avenue.

Since the research was exploratory and holistic, it was assumed that the case study of a small, defined population was more appropriate than a survey sample of a whole population.<sup>1</sup>

Twenty children were selected to take part in the study. The group was comprised of eleven girls and nine boys (only nine boys were available), 11-12 years old, with not more than two children (one of each sex) per household.

After the group selection was made, the purpose of the research was explained to the children.

In these early stages of the study the most important factor was to become accepted by them

1. Lynch. Kevin: GROWING UP IN CITIES: UNESCO.

as a friend and not as an observer. The time required to accomplish this varied from individual to individual; however, in general candid responses to personal questions came after the first two weeks of contact.

Individual interviews were held with the children over twenty-five half hour periods. During these sessions the children answered a questionnaire containing twenty-four core questions (see Appendix XII). A supplementary list of more personal questions followed. Throughout these meetings group discussions were recorded.

To supplement the data collected from the individual interviews, eight one hour walking observations were made during the following specific periods: 8 a.m.-9 a.m., 12 noon-1 p.m., 4 p.m.-5 p.m., 5 p.m.-6 p.m., 6 p.m.-7 p.m., 7 p.m.-8 p.m., 8 p.m.-9 p.m., and 9 p.m.-10 p.m. Two separate seven hour holiday periods were also observed, from 8 a.m.-3 p.m. and from 3 p.m.-10 p.m.

In addition, the children's activities were identified by type, timing and location in the completion of daily half hour activity charts.

To help define the physical setting the following background information was gathered:

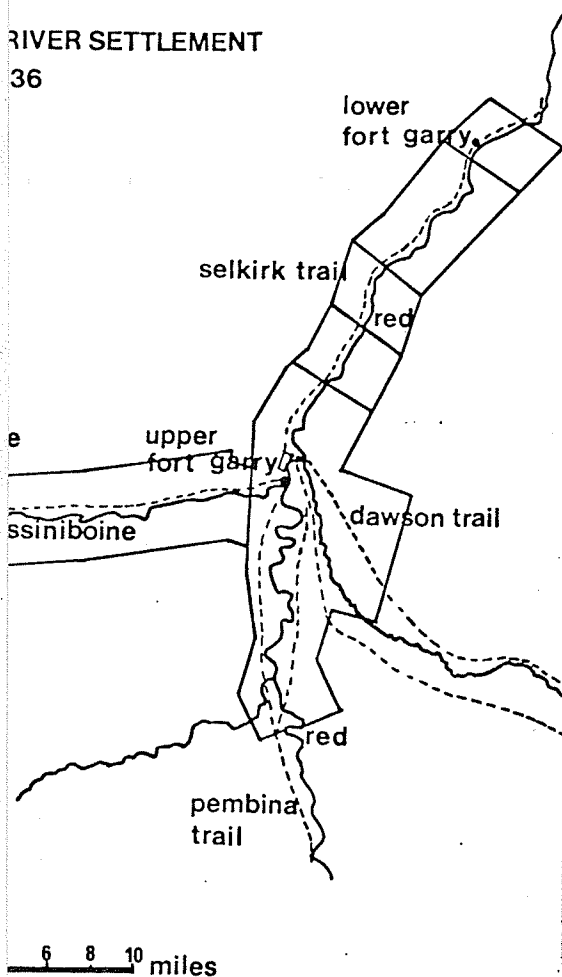
a. An outline base map of the area which keys and locates all ground photographs and diagrams, names the principal features and land uses and gives the scale and orientation. This map also serves as a reference for the children's cognitive mapping.

- b. A photographic character description of the area.
- c. A location map showing the relationship of the study site to the City of Winnipeg.
- d. A base map with landforms and soil information.
- e. A base map with the vegetation mosaic.
- f. A base map with the existing recreational facilities.
- g. A base map with the transportation services in the area.
- h. River information concerning the hydrology and quality of the Red River.
- i. Relative information concerning the natural wildlife in the area.
- j. A statement on the climatical conditions in the area.

To complete the descriptive section there is a historical dialogue and a description of the general socio-economic setting compiled from the 1976 Canadian Census Tract.

APPENDIX II  
Historical Setting

RIVER SETTLEMENT  
36



The study area is located in one of the most historic communities in Manitoba. Incorporated in 1912, the rural municipality of Fort Garry is situated on the southern environs of the City of Winnipeg. At the time of the study, Fort Garry was the largest suburb in Winnipeg and covered an area of 28 square miles, more than 17,000 acres.

Fort Garry is the site of the first private residence in southern Manitoba. Believed to have been built in either 1811 or 1812, it was the home of Baptiste Charrette. The house, which was long and narrow, was used as an inn for travelers and was called "The Half-way House" because it stood halfway between the Red River Settlement and the Scratching River (now known as the Morris River). Recurrent flooding so badly damaged the old house that restoration was impossible.

The trail made by the Red River carts moving south through Fort Garry became the first "highway" from Winnipeg to the United States as early as the mid-1840's. It was on this famous Pembina Trail that Louis Riel erected his wooden cross and barrier at the old crossing of the Sale River. The Pembina Trail later became glamourized to accommodate the arrival of the stage coach, and ever since has been referred to as Pembina Highway.

In the mid-1890's it became fashionable for the residents of Winnipeg to build summer homes along the banks of the Red River. A very popular spot



was located in the study area on the bend of the Red River stretching from a private pontoon bridge near the present Elm Park footbridge, through to Wildwood.

Close to the pontoon bridge, Mr. J. B. Hall, of the Hudson's Bay Company, built a two storey house in 1898. It was a landmark and was commonly referred to as the only house in the area with a telephone. It stands now as number 40, Riverside Drive.

Another well known local figure was a Mr. George Dowker, who came from England with his wife and baby son in 1896. Mr. Dowker bought a strip of land extending from the river all the way to Fort Whyte, upon which he built a poplar log house chinked with clay. On these grounds he carried on his market gardening business.

A local painter in the early 1900's who recently wrote of her childhood said, "To walk to the Dowkers' place through the woods and come across their lovely vine covered cottage and flowers was to me like finding an oasis in the desert." Her painting of the Dowker market garden can be viewed in the Fort Garry Public Library, which was built in 1960 on the final site of the Dowkers' home.

To replace the pontoon bridge that linked the east and west sides of the river the Elm Park bridge was built at a cost of \$100,000 and was operated as a toll bridge until 1945. The toll house still stands.

In the years before 1913, Winnipeg's urban land-

scape was built according to a strict pattern determined by history, geography and economics. The familiar and historic pattern of long narrow strips of land fronting onto the river provided the basis for new street plans.

By 1910 a few areas in Winnipeg had been fully built up, however the suburbs followed the direction of Portage and Main during this period. By 1913 the south end had gone no further than what is now Jubilee Avenue and the Pembina Highway subway.

The construction of bridges across the Assiniboine River helped facilitate growth in southern Winnipeg and Fort Garry. The first Osborne Street Bridge was built in 1882, the Maryland Bridge in 1894, and the Main Street Bridge in 1897. The southern areas of the city, with the exception of St. Boniface, had relatively little or no commercial or industrial development. With their wider streets and larger lots, only the more affluent of Winnipeg's citizens could live there, the majority of these being Anglo-Saxon.<sup>1</sup>

It was only with the increased popularity of the bicycle and the extension of the street railway lines that expansion into the suburban areas began. The growth of Winnipeg's suburbs was really only getting under way when the First World War broke out.

During the thirty-one-year period between the First World War, through the depression and up to the end of the Second World War in 1945, most of the patterns of physical growth established

1. Artibise, Alan: AN ILLUSTRATED HISTORY OF WINNIPEG: J. Lorimer, Toronto 1977.

in the preceding decades were maintained. The urban landscape of Winnipeg was only slightly different from that established in 1913.

The City of Winnipeg's population growth rate between 1946 and 1960 was slower than it had been since its incorporation in 1874. The main reason for this was that significant numbers of people were moving to suburbs outside the city limits.

Areas like Fort Garry experienced considerable growth due to the influx of Anglo-Saxons moving into the area, generally from older areas of the city.

Although the city's developers and builders got off to a slow start, it was not long after 1945 before they were reshaping the city with their housing projects. Fort Garry saw an almost exponential population increase during these post-war years (see fig. 38). Between 1941 and 1951 the population of Fort Garry increased by 84%!

FORT GARRY	1931	1941	1951	1961	1971
POPULATION	3926	4453	8193	17528	26135
1931-1971					

Wildwood Park was subdivided in 1913; however, development of the district did not begin until 1945. (Mr. George Dowker had been appointed by the Wildwood Estate Company as caretaker of "The Point" to safeguard the standing hardwood.) When the Bird Construction Company began work in the spring of 1946, the housing project was declared by Ottawa to be the largest in Canada at that time. The following year the Wildwood shopping centre was advertised as the most unique in all the country (Wildwood Development, gross area 74.7 acres, 286 single family dwelling units).

The residents of Wildwood Park were delighted

with their new environment:

"Mr. McNeil owns one of the seven roomed houses, situated on a pie shaped lot, 90 ft. frontage, 120 ft. deep. Thinks the absence of through traffic is a boon to the public safety, and to the children. . . . amazed at how low the fuel bill was during the winter of '47-'48 which amounted to \$150 for oil. Mr. McNeil mentioned that he and his wife had made lots of friends in the community since the majority of people were young and in the same income bracket, which made for community spirit and cooperation."<sup>1</sup>

An abrupt, though brief, halt was brought to all building activities by a major flood in the spring of 1950. In this year the Red River rose 30.3 ft. above the datum and caused enormous damage to the study area. Thousands of sandbags were dumped in Fort Garry as citizens fought to save their homes near the Oakenwald and Riverside Dykes. Typhoid inoculations were planned as a danger of the disease was feared. On May 6, 1950 the army took control as the Wildwood Dyke collapsed. The Riverside Dyke broke after an all night rain. At 4.30 a.m. the compulsory evacuation of Fort Garry began. Within a few hours the removal of 20,000 inhabitants was effected and 540 square miles of land lay under water south of the Jubilee/Pembina subway. The then five-year-old Wildwood Development was reported to be one of the hardest hit suburbs in Winnipeg.

1. McLean: THE MCLEAN BUILDING CATALOGUE: 1946.

Many of the mink ranches, turkey farms and market

gardens did not reappear in the municipality and these areas quickly became absorbed by land developers.

After this catastrophe a system of dykes along the Red River was installed, and later the idea for a floodway was conceived. Construction of the Red River Floodway was a huge task, comparable to scooping out a river basin almost thirty miles long (from St. Norbert to the town of Selkirk)--an earth moving job greater than digging the Suez Canal, the Panama Canal, or the St. Lawrence Seaway.

(Statistics on the 1978 spring runoff estimates indicate that the level of the Red River would have risen to 33.3 feet above the datum that year, three feet higher than the 1950 flood level.)

### APPENDIX III

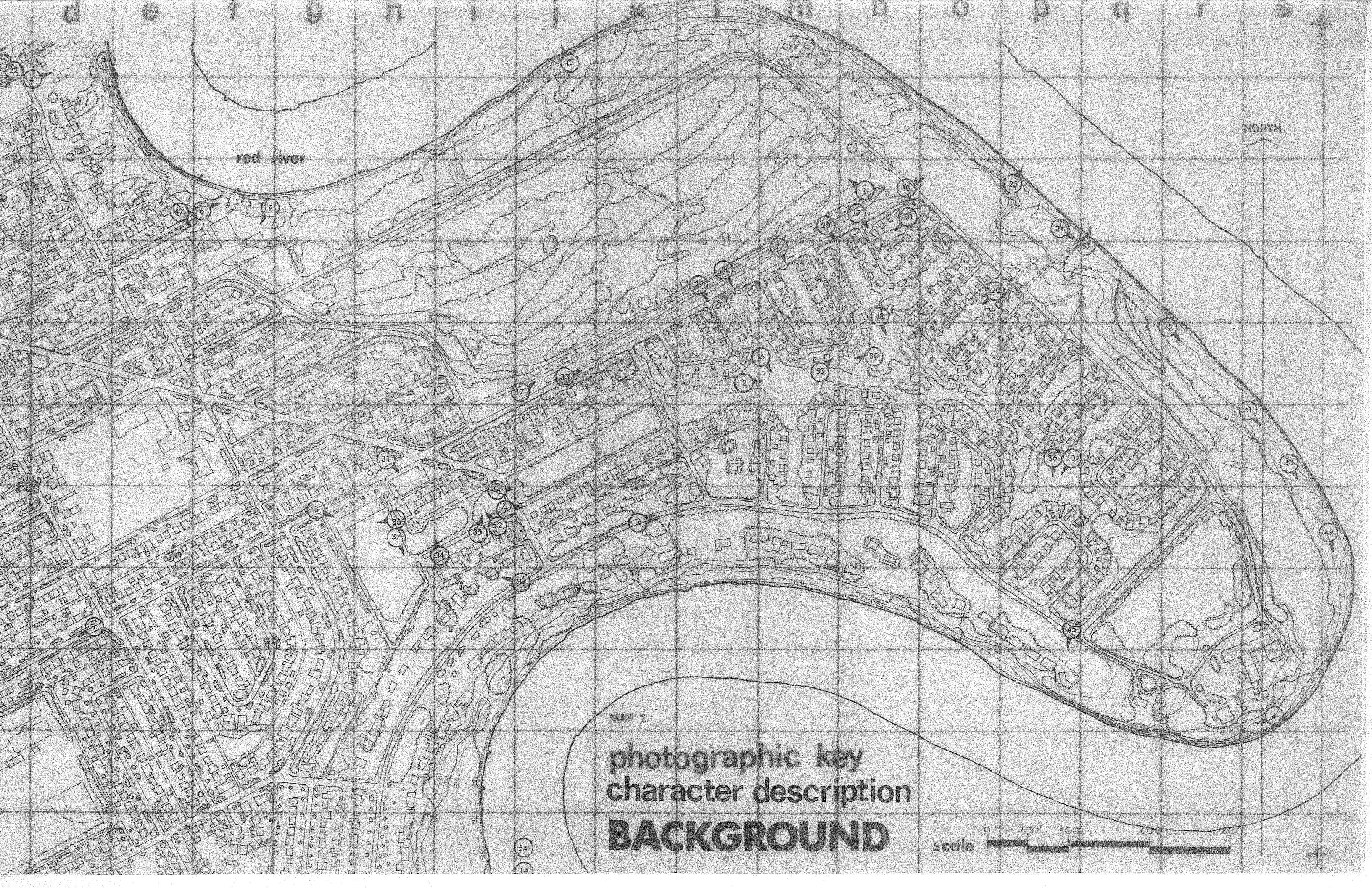
#### Character Description

The series of photographs describing the general character of the study area has been presented in the form of a running account throughout the main body of the text. Each photograph has been located and identified on a base map in this appendix for the convenience of the reader (see map I).

- 1 Oakenwald Road
- 2 Wildwood Park
- 3 Oakenwald School
- 4 St John's Ravenscourt School
- 5 Pembina Highway
- 6 The Red River
- 7 Manchester Boulevard South
- 8 Fort Garry Memorial Recreation Park
- 9 The Wildewood Club
- 10 Wildwood Park
- 11 Toiler's Memorial Park
- 12 The Red River
- 13 A Typical Single Family Detached Dwelling Unit
- 14 Crescent Park
- 15 A Wildwood Park Play Area
- 16 Jogging Along South Drive
- 17 Playing Football On The Dyke
- 18 Playing Football In The Grounds  
Of The Wildwood Community Club
- 19 Maze Playing In Wildwood Park
- 20 The Wildewood Club Golf Course From The Dyke
- 21 A Pedestrian Walkway Through The Wildwood  
Park Development
- 22 Byng Park
- 23 A Grey Squirrel On The Banks Of The Red River
- 24 A Dogwood
- 25 A Riverbank Upper Tree Canopy
- 26 The Wildwood Park Development
- 27 The Wildwood Park Development From Oakenwald
- 28 Oakenwald Road And The Wildwood Park Development  
From The Dyke
- 29 An Access Road To The Wildwood Park Development
- 30 A Treehouse
- 31 The Wildwood Shopping Centre
- 32 A Pedestrian Crossing Over Pembina Highway
- 33 Oakenwald Road
- 34 Manchester Boulevard Park (Bush)
- 35 Stalking In The Manchester Bush
- 36 A Wildwood Park Play Area
- 37 Berry Picking In The Grounds Of Oakenwald  
School

- 38 Oakenwald Schoolgrounds
- 39 A House On South Drive
- 40 The Fort Garry Community Centre
- 41 A Tree House On The Riverbank
- 42 The Red River Edge Conditions
- 43 The Red River Trail
- 44 Playing In The Leaves Gathered From The  
Wildwood Park Development
- 45 A House On South Drive
- 46 A Stand Of American Elm On Calrossie Avenue
- 47 Building A Fort On Somerset Avenue
- 48A Wildwood Park Development Play Area
- 49 A Riverbank Tree Canopy
- 50 Just "fooling Around" In The Wildwood Park  
Development
- 51 A Rope Swing Over The Red River
- 52 More Stalking In The Manchester Bush
- 53 A Front Yard In The Wildwood Park Development
- 54 A Play Structure In Crescent Park





red river

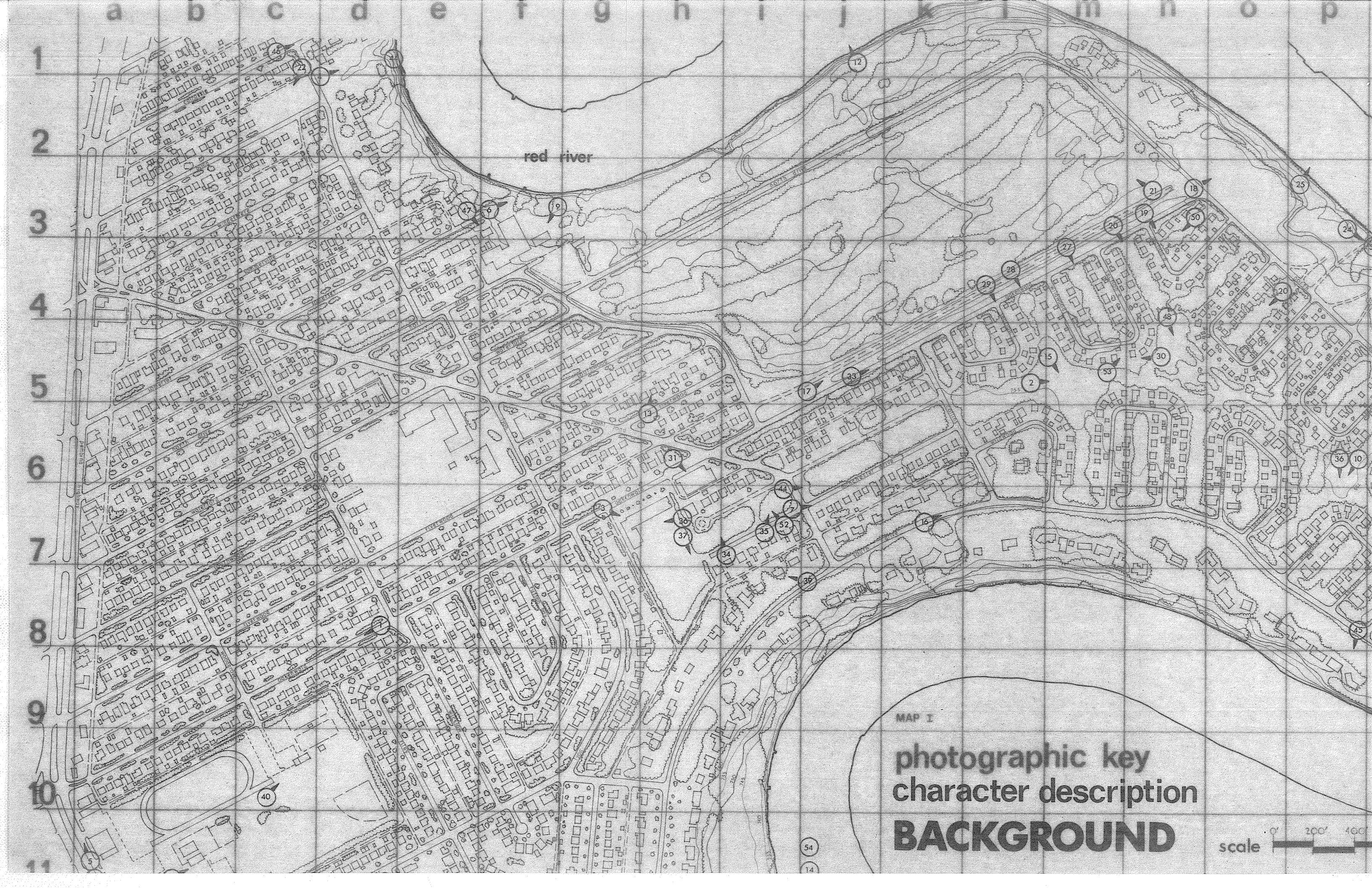
NORTH

MAP 1

photographic key  
character description  
**BACKGROUND**







red river

MAP I

photographic key  
character description  
**BACKGROUND**

scale 0 200' 400'



## APPENDIX IV

### Landuse

The landuse elements in the study area have been described in detail in the main body of the text (see section 5.000). This appendix serves to locate and identify those landuse references graphically on a base map (see map C).

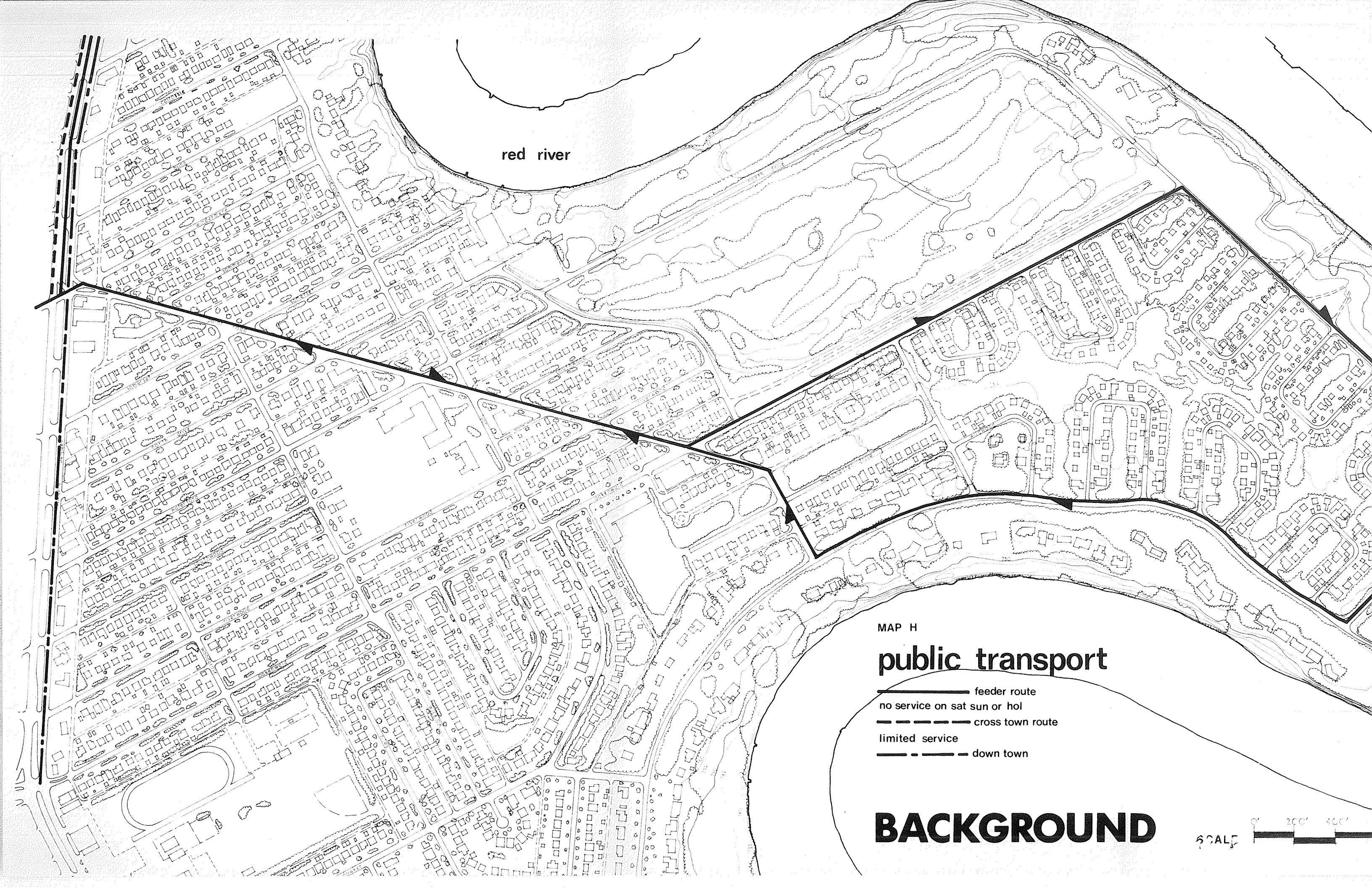
APPENDIX V  
Access and Transportation  
(see map H)

The study area for the most part is serviced by standard City of Winnipeg road alignments for southern Winnipeg residential areas. All roads in the area are examples of "two way secondary road systems". The majority of homes are, in addition, serviced from the rear by back lanes.

The western boundary of the study area, Pembina Highway, is a major circulation route whose two way, six lane traffic flow is separated by means of a central boulevard.

The city's Department of Public Transport provides the area with two bus services: the Point Road/Beaumont bus and the Stafford bus. The routes taken by these services are indicated in the diagram (see map H). The Point Road/Beaumont bus is available from Monday to Friday every twenty minutes during the periods 7.00 a.m.-9.00 a.m., 12.00 noon-2.00 p.m., and 4.00 p.m.-6.00 p.m. This service does not operate on Saturdays, Sundays or holidays. The Stafford bus operates every day but the service is limited, being available only from 10.30 a.m.-9.00 p.m.

The general opinion of the community was that the bus service in the area was unsatisfactory.



red river

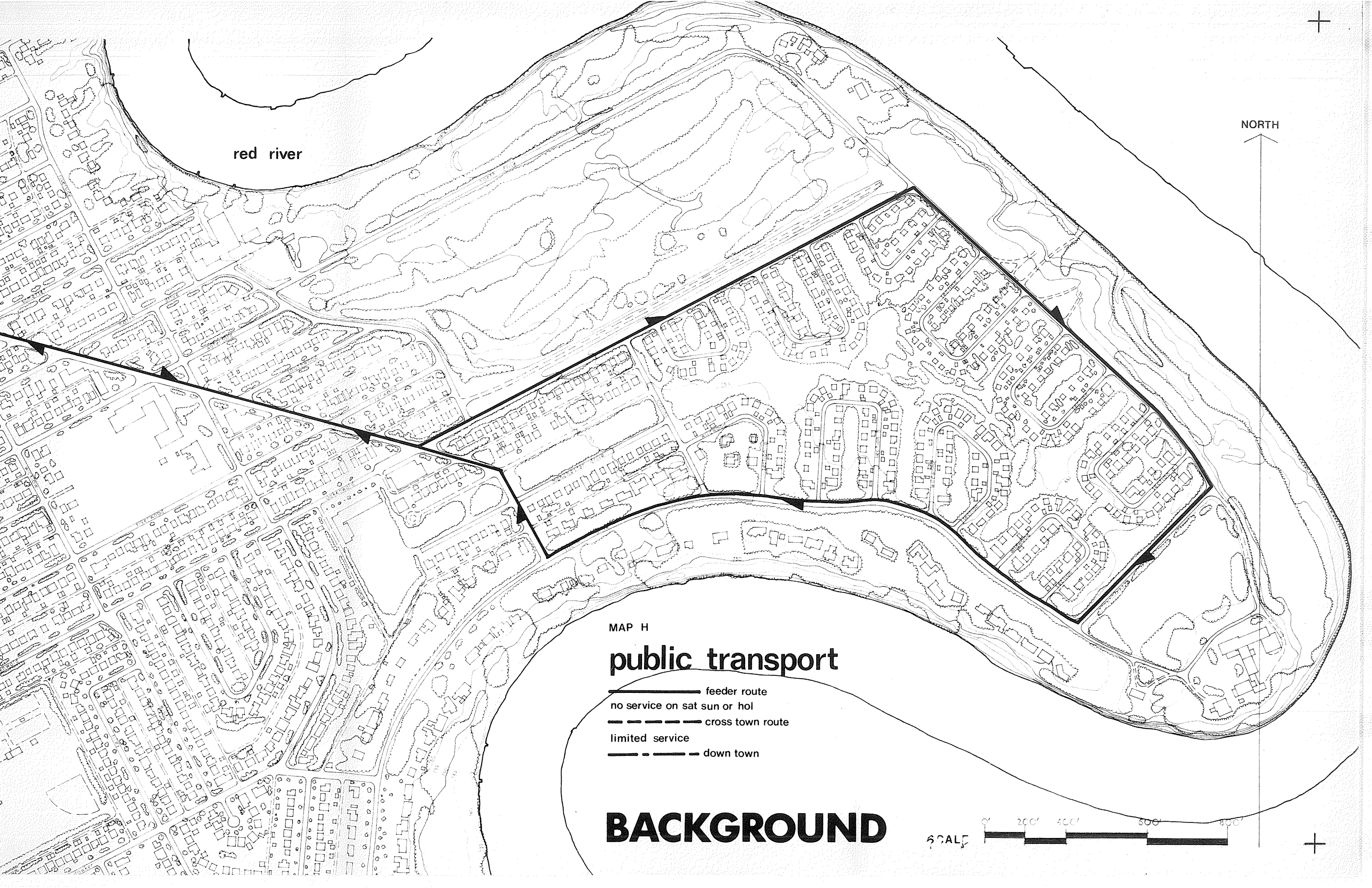
MAP H

# public transport

- feeder route
- no service on sat sun or hol
- cross town route
- limited service
- - - - - down town

## BACKGROUND





red river

NORTH

MAP H

# public transport

- feeder route
- no service on sat sun or hol
- cross town route
- limited service
- down town

## BACKGROUND



APPENDIX VI  
Landform and Geology  
(see map F)

The Red River Plain is covered with glacio-lacustrine deposits and alluvial deposits. The glacio-lacustrine deposits consist of thick layers of clay and silt that settled out from the waters of Lake Agassiz. These sediments were deposited on top of till and consist of a lower clay unit deposited in the deep waters of Lake Agassiz I and an upper silt unit deposited in the shallower waters of Lake Agassiz II. The lower clay unit is 20-40 feet thick, the silt unit is 15 feet thick. In recent geological history, the glacial clays of the Red River Basin were covered by 3-15 feet of calcareous clay, probably deposited during flood stages of the nearby Assiniboine River.<sup>1</sup>

As a function of its glacio-lacustrine surface deposits, the topography of the Red River Plain is categorised as level to very gently sloping (3-5 feet per mile). In addition, the Red River Plain is located in the mid-continent topographic low which is drained by the Red River and its tributaries. The study area is an example of this landform. The topographical map of the study area illustrates the present relief (see map F). Some sections of the study area show micro-relief, the golf course and the riverbanks in particular. The entire area is prone to flooding. In general the water table in the meander belt would be approximately equal to that of the river. During flood periods the water table in the sand layer would rise with the river

1. Davies. J.F: GEOLOGY AND  
MINERAL RESOURCES IN MANITOBA:  
Department of Mines 1962.



red river

MAP F

## landform

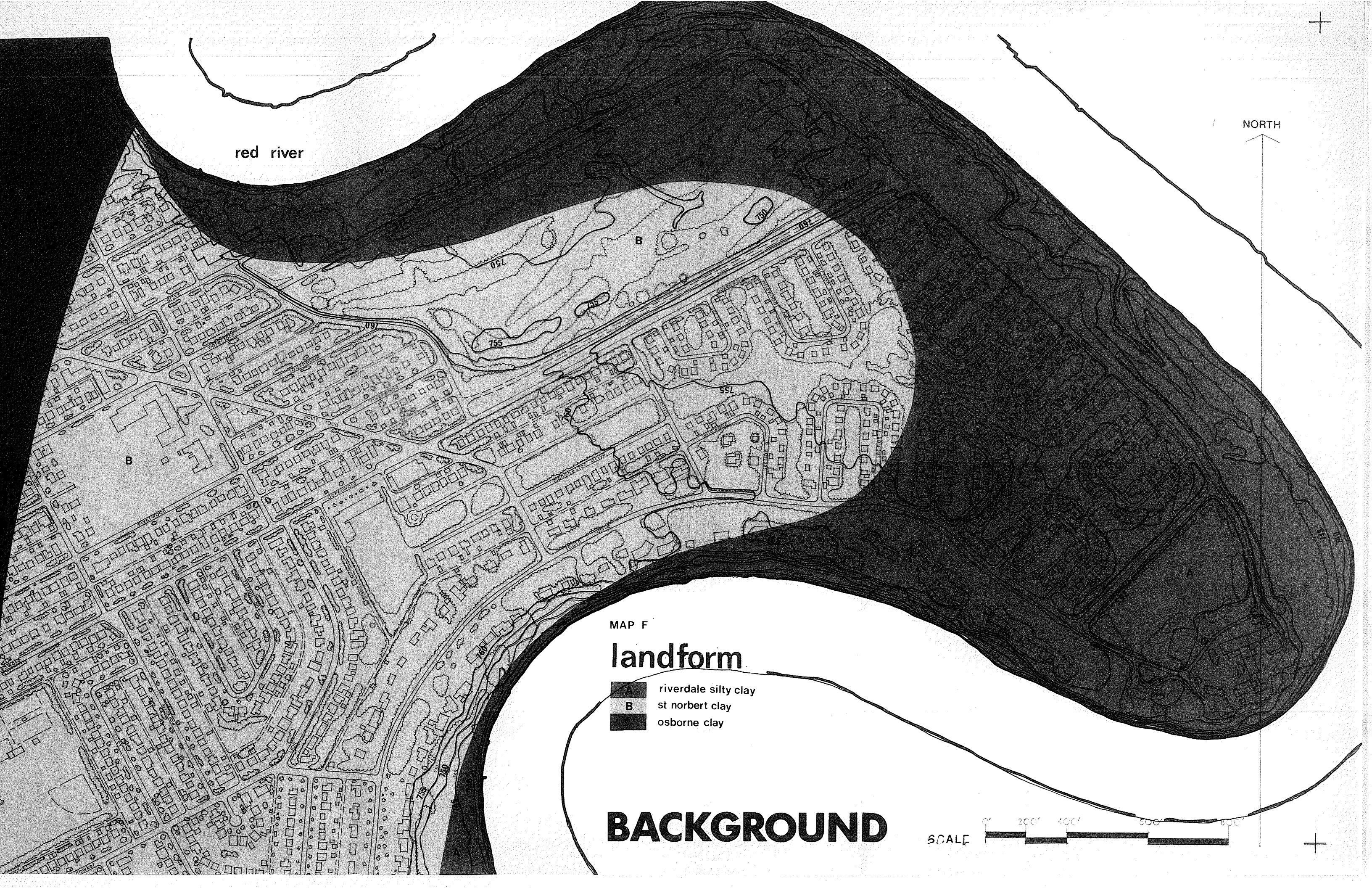
- A riverdale silty clay
- B st norbert clay
- osborne clay

# BACKGROUND

SCALE







red river

NORTH

MAP F

# landform

- A riverdale silty clay
- B st norbert clay
- osborne clay

# BACKGROUND





level to meet the upper clay levels. The level of the water table in the meander belt results in a great supply of moisture to the vegetation of the Flood Plain. The water table in adjacent areas does not have any effect on the vegetation, here the soil depends on precipitation for supplies.

The soils of the study area have been mapped as belonging to three different soils series: Osborne Clay, St. Norbert Clay, and Riverdale Silty Clay.<sup>1</sup>

The soils of the Osborne Series are poorly drained. They develop on moderately to strongly calcerous fine textured lacustrine and alluvial deposits. Their depressional topography corresponding to the swale in ridge and swale micro-relief characteristic of the Red River Flood Plain results in poor drainage. Run-off is negligible to very slow, and permeability is slow. The native vegetation of these soils consists of meadow grasses, sedges, reeds, cat-tails and some willow.

The soils of the St. Norbert Series are moderately well to well drained, and are developed on moderately calcerous, fine textured lacustrine and alluvial deposits. This soil type occurs on the well drained levees of the area. Run-off is moderate and permeability is moderately slow to slow. The native vegetation of these areas is dominantly Bur Oak, with some Maple, Elm and Aspen. Hazel, Saskatoon and Dogwood form the shrub layer, with associated herbs and grasses as ground cover.

1. Michalyna, W.: SOILS IN THE WINNIPEG REGION STUDY AREA: Canada-Manitoba Soil Survey, Canada Department of Agriculture; Manitoba Department of Mines and Natural Resources, Department of Soil Science, University of Manitoba 1975.

The soils of the Riverdale Silty Clay Series are very juvenile, highly fertile soils found on the terraces and flood plains along the Red River. These soils are recent alluvial deposits with feeble or no development of soil horizons, greyish brown throughout, and ranging in texture from fine sandy loam to silty clay. These grey-brown deposits are naturally found under fairly dense deciduous forest consisting of Elm, Basswood, Ash, Cottonwood, and Manitoba Maple. Organic matter derived from tree growth may be present at the surface but, as the thin leaf mat is often covered by alluvial deposits during subsequent inundation, the cross-section of the soil profile shows thin, numerous bands of organic residue interlayered with the variable textured grey-brown alluvium. The Riverdale Soils are slightly alkaline in reaction and highly productive. These soils may be used for the production of all classes of agricultural crops. They are equally suited for market gardening and small fruit culture. They will also support a wide variety of utility and ornamental trees. These soils have been rated as good to excellent, with few natural problems except that the river terraces are prone to flooding during the winter/spring break-up.

APPENDIX VII  
Vegetation Mosaic  
(see map G)

The native vegetation in the area has been identified by using two broad categories, the Riverbottom Vegetation type and the Oak Upland Vegetation type. The third variable indicated in the diagram (see map G) represents a highly disturbed area with little or no remaining native vegetation. The existing flora in all three areas bears little resemblance to the original conditions, however many stands of Oak and Elm remain in the residential areas, and some examples of native flora are evident in undeveloped areas such as the riverbank.

The tree species which are characteristic of the Riverbottom Vegetation type are adapted to moist soils and their distribution can be related to the existing moisture gradient. The dominant tree species are American Elm, Green Ash, Basswood, Manitoba Maple, Bur Oak and Cottonwood. In areas of wet soils, Manitoba Maple and Green Ash compose the canopy layer. In areas with less soil moisture American Elm forms the upper canopy and Green Ash and Manitoba Maple form the understorey. Basswood and Bur Oak are occasional trees in the canopy.

In areas with progressively drier soils Basswood forms the canopy, with Green Ash as the dominant tree species of the understorey. American Elm and Bur Oak maintain a sub-dominant position in the canopy. In areas where the moisture gradient is diverse, as is the case in most of the river-

bank areas, American Elm, Basswood, Manitoba Maple and Green Ash integrate and, although subtle distribution patterns do occur, generally the areas designated as Riverbottom Vegetation are dominantly American Elm.

Where native vegetation still exists, Green Ash, American Elm, Hazel and Dogwood usually combine as the most dominant shrub species.

In areas of Upland Vegetation the Bur Oak is the dominant tree. In its natural state this area would have been characterised by Downy Arrow-wood, Saskatoon, Bur Oak, Hawthorn, Green Ash, Choke-cherry and wild rose in the understorey, but due to the severity of residential influences these species have been replaced mostly by lawns of Kentucky Blue Grass, Colorado Blue Spruce, cedar and numerous other ornamental imports.



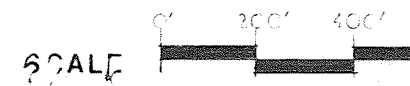
red river

MAP G

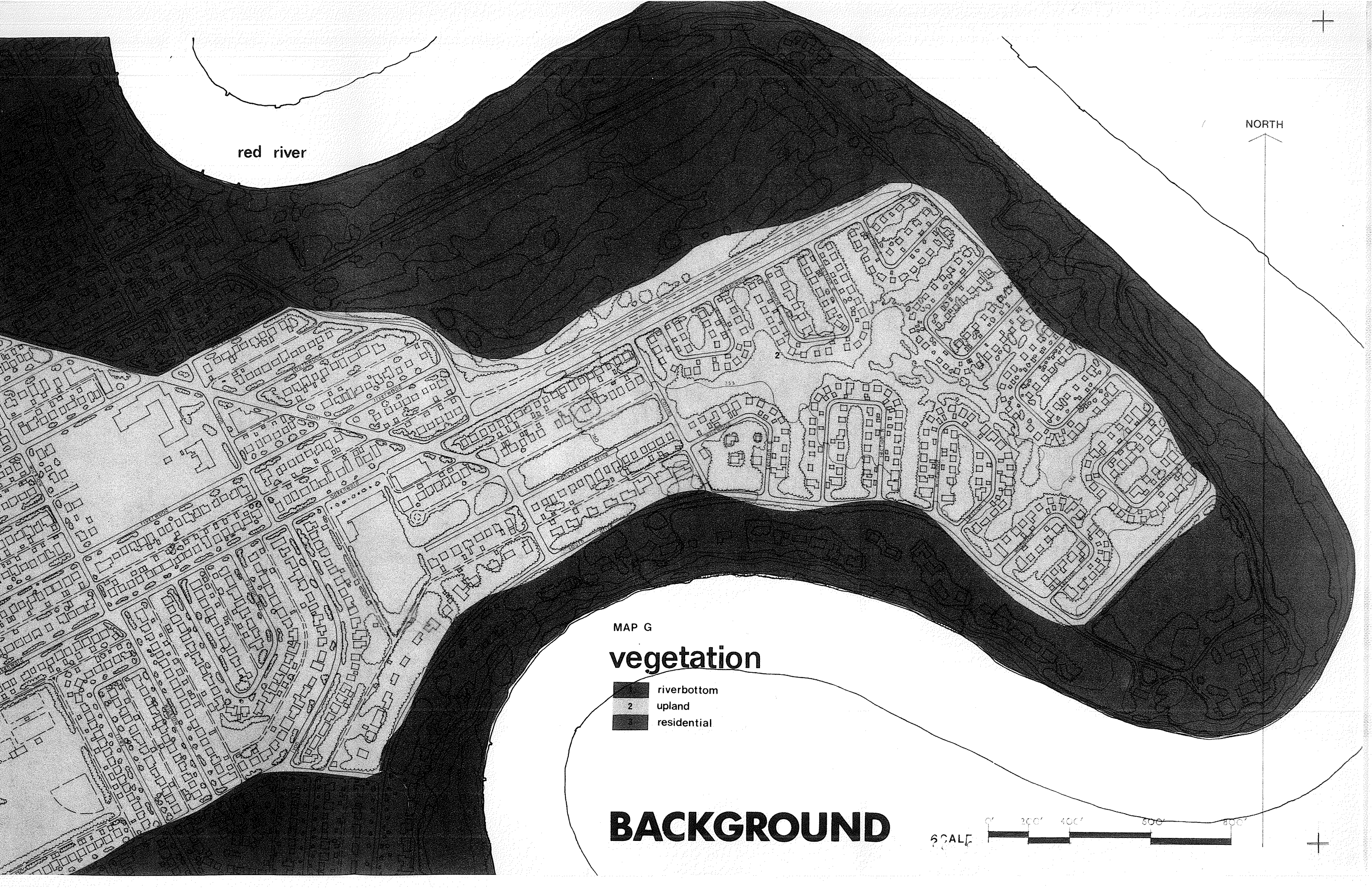
# vegetation

- 1 riverbottom
- 2 upland
- 3 residential

# BACKGROUND







red river

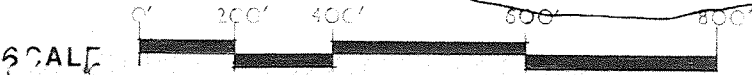
NORTH

MAP G

# vegetation

- riverbottom
- 2 upland
- 3 residential

**BACKGROUND**



## APPENDIX VIII

### Wildlife

Since the settlement of Winnipeg, many of the native faunal species have disappeared from the landscape. The wildlife which in recent history would have dominated the area were Bison, Pronghorned Antelope, White-tailed Deer, Elk, Moose, Bear, Red Fox, Badger, and numerous smaller mammals.

The study area, however, still plays host to a variety of wildlife. Although site specific data were not available, a recent wildlife count in the Beaudry Natural Provincial Park was seen to be representative of the study area (see table A). According to these results, the study area houses approximately 90 bird species and 15 mammal species. It was noted that just prior to the time of the study both a bear and a bobcat were moving around the area until they were exterminated by the police.

The Red River, though suffering from pollution, still provides an environment for some fish. The Lake Sturgeon, the most unique fish found in Manitoba waters, was once plentiful, but due to a high demand and low sexual maturity, stocks were depleted in the early 1900's. Commercial records show some of these fish to have weighed in excess of 200 lbs.!

The fish now found in the Red River are regarded as coarse fish. There are no salmon or trout, only fish that can survive a harsher environment: walleye, sauger, channel catfish, goldeye, pike, white sucker and bullhead. These are classed as warm water fish.



Bird families identified within Beaudry Natural Provincial  
Park during the Spring and Summer of 1977

<u>Family Name</u>	<u>Common Name</u>	<u>Total Number of Species</u>
Gaviidae	Loons	1
Podicipedidae	Grebes	1
Phalacrocoracidae	Cormorants	1
Ardeidae	Herons and Bitterns	2
Anatidae	Swans, Geese, Ducks	9
Accipitridae	Kites and Hawks	4
Falconidae	Falcons	1
Tetraonidae	Grouse and Ptarmigan	1
Gruidae	Cranes	1
Rallidae	Rails, Gallinule, and Coots	2
Haematopodidae	Oystercatchers	1
Scolopacidae	Woodcock, Snipe, and Sandpipers	1
Laridae	Gulls and Terns	5
Columbidae	Pigeons and Doves	2
Cuculidae	Cuckoos, Roadrunners, and Anis	1
Strigidae	Typical Owls	3
Caprimulgidae	Goatsuckers	1
Trochilidae	Tyrant Flycatchers	7
Alcedinidae	Kingfishers	1
Picidae	Woodpeckers	5
Tyrannidae	Tyrant Flycatchers	7
Alaudidae	Larks	1
Hirundinidae	Swallows	6
Corvidae	Jays, Magpies, and Crows	2
Paridae	Titmice, Verdins, Bushtits	1
Sittidae	Nuthatches	1
Troglodytidae	Wrens	1
Mimidae	Mockingbirds and Thrashers	2
Turdidae	Thrushes, Solitaires, Bluebirds	2
Bombycillidae	Waxwings	1
Sturnidae	Starlings	1
Vireonidae	Vireos	4
Parulidae	Wood Warblers	6
Ploceidae	Weaver Finches	1
Icteridae	Meadowlarks, Blackbirds, and Orioles	8
Fringillidae	Grosbeaks, Finches, Sparrows, and Buntings	7
Total		95

(fig. 40) TABLE A



Mammalian families identified within Beaudry Natural  
Provincial Park during the Spring and Summer of 1977

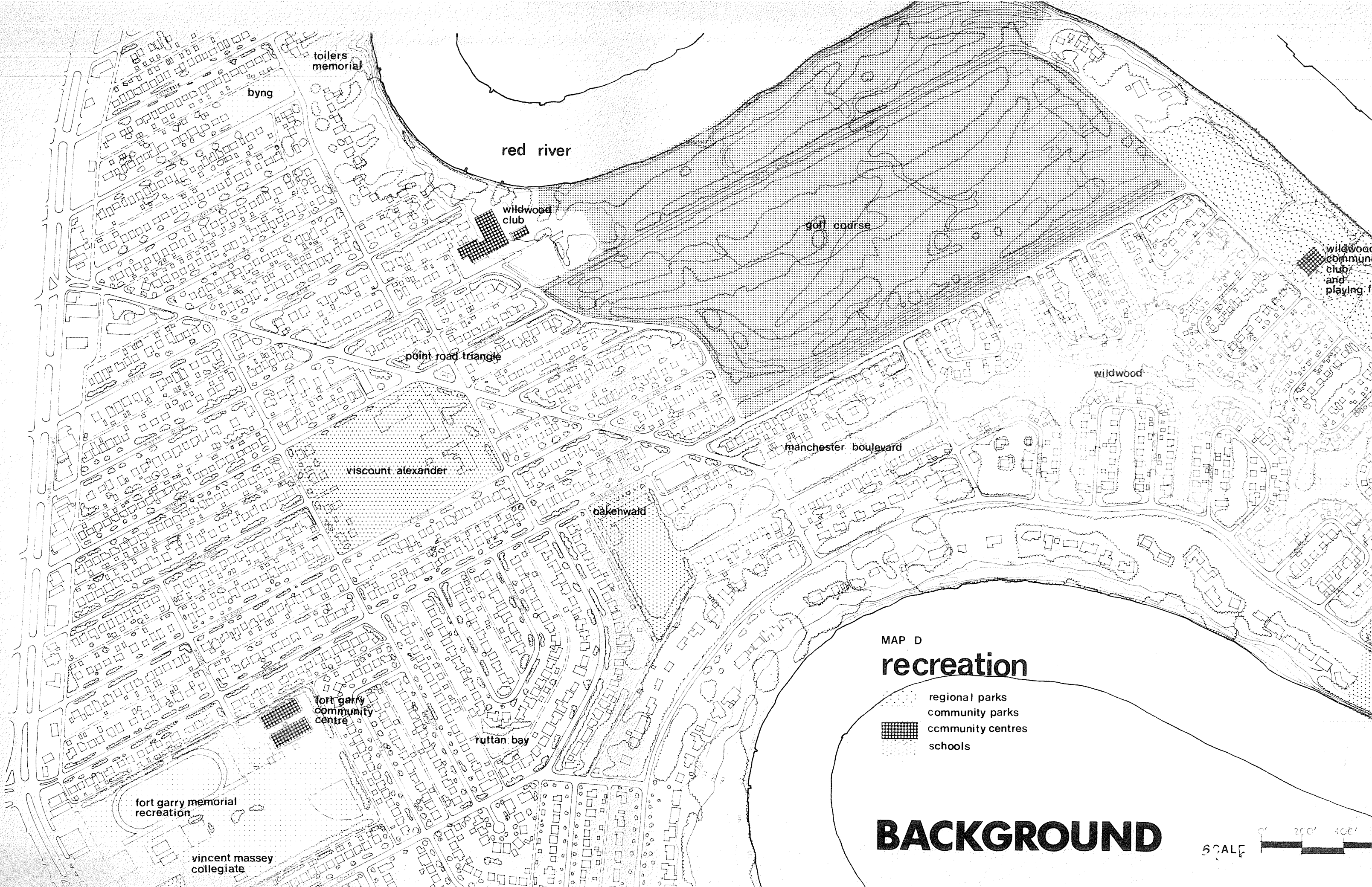
<u>Family Name</u>	<u>Common Name</u>	<u>Total Number of Species</u>
Soricidae	Shrews	?
Leporidae	Rabbits and Hares	1
Sciuridae	Squirrels	8
Castoridae	Beavers	5
Dipodidae	Jumping Mice and Jerboas	1
Canidae	Dogs	1
Procyonidae	Raccoons and Their Allies	3
Cervidae	Deer	1
		<hr/>
Total		20

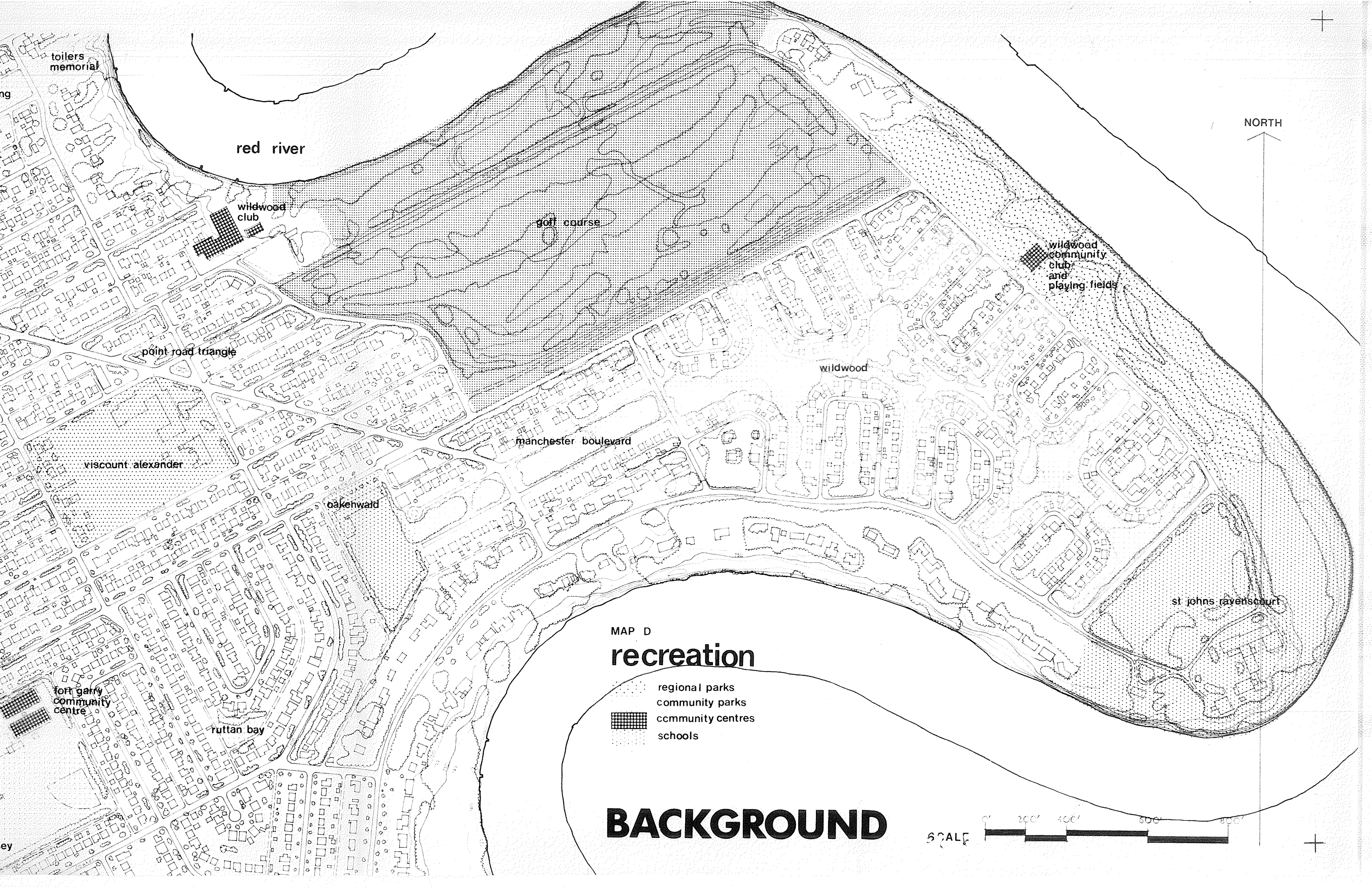
(fig. 41) TABLE B

## APPENDIX IX

### Recreation

The existing recreational facilities in the study area have been identified and documented in the main body of the text (see section 5.000). This appendix presents graphically the location and magnitude of those facilities (see map D).





toilers memorial

red river

wildwood club

golf course

wildwood community club and playing fields

NORTH

point road triangle

wildwood

viscount alexander

manchester boulevard

oakwald

st johns ravenscourt

fort garry community centre

rattan bay

MAP D

## recreation

- regional parks
- community parks
- community centres
- schools

# BACKGROUND

SCALE



## APPENDIX X

### The Red River Quality

There are no specific water quality objectives for any surface waters in Manitoba.<sup>1</sup>

Concerning the municipal water supply, the Red River is treated by coagulation, settling and filtration, then chlorinated to meet the Canadian Drinking Water Standards (1968). The Red River water is used for a variety of industrial processes, supplying industries such as the Manitoba Sugar Company in Fort Garry, the Imperial Oil Refinery, the Manitoba Hydro Electric Company, and a large number of independent market gardeners. These industries all use the river to dump their waste disposal.

It is assumed that fish from the river are fit for human consumption, though tainting of the flesh is to be expected.

For microbiological reasons the river is considered to be unsafe for swimming, and no body/water contact sports are recommended. At the time of study the recommended maximum limit of 5000 coliform organisms per 100 ml of water was not being met. The effluent discharge is not being disinfected. The disinfection of wastes could be undertaken at the waste treatment plants, and even though the south-end plant has the facilities to disinfect its wastes, the process is not being carried out!

1. Government of Manitoba:  
THE RED RIVER IN MANITOBA:  
Information Series no 10,  
Department of Mines,  
Resources and Environmental  
Management.

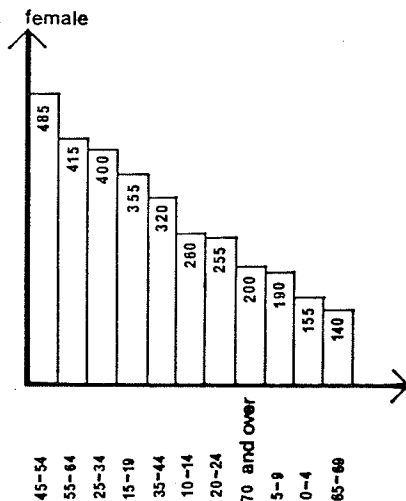
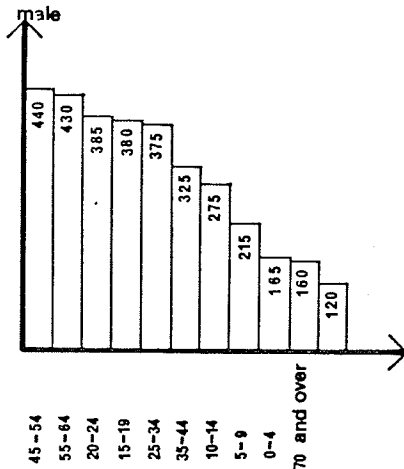
There was also concern regarding the discharge of enriched phosphorus and nitrogen constituents from community sewer outlets. There are no waste

treatment plants in Manitoba practising phosphate removal. The town of Selkirk, downstream from Winnipeg on the Red River, dumps all of its waste directly into the river untreated!

## APPENDIX XI

### Socio-economic Setting

SEX AND AGE GROUP



(fig. 40)

The following information was gathered from the 1976 Canadian Census Tract, made available through the Federal Government Agency. It should be noted that the figures in this section refer to the enumeration boundaries of the original study area bounded by Pembina Highway, Jubilee Avenue, the Red River and Crescent Drive. At a later date, the size of the study area was reduced by making Dowker Avenue, rather than Crescent Drive, the southern boundary after it was found that the study group were not active in the area omitted.

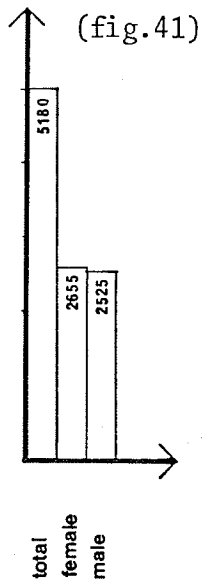
The original study area contained a population of 6390 living on a total land area of 1.35 square miles--a resulting gross density of 7.4 people per acre.

From the first diagram in this series it can be seen that the area is more heavily populated by males between the ages of 15-64 years than by females in the same age group (see fig. 40). The second diagram shows a peak of women between the ages of 45-54 years. The population of males and females over the age of fifteen is 2525 and 2655 respectively--5180 in total (see fig. 41). In addition, the area houses some 1210 children fourteen years and under. There are 535 children in the area who are in the same age group as the children in the study group, 275 boys and 260 girls.

The total number of families living in the area is 1750 (see fig. 42). There are 1620 two-parent families and 130 single-parent families.



POPULATION  
15yrs AND OVER

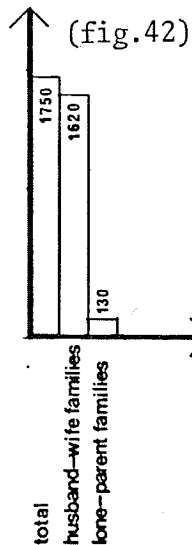


It is clear from the diagram that most of the families have children, 1140 in comparison with 595 (see fig. 43). The average number of children per family is 1.3, the average number of people per family is 3.3.

The largest number of children in any one age category are children between the ages of 6 and 14 years--630 in total (see fig. 44). In addition there are 1210 children under the age of eighteen and 515 over the age of eighteen. The diagram also reveals the fact that there are 4320 people in the area who are members of families and 2070 who are living on their own.

In the study area there are 3345 people who are married (see fig. 45) and 2680 who have never married, 1455 of whom are fifteen years of age or over. There are also 300 people who are widowed and 80 who are divorced.

FAMILIES



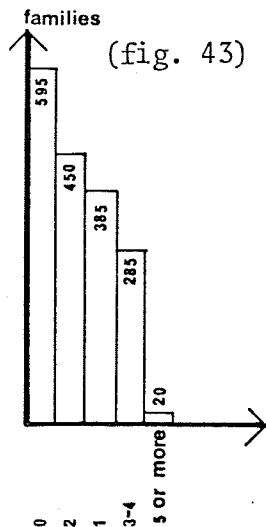
Of the area's total labour force of 3010, 1805 are male and 1205 are female (410 of whom are married females). Only 100 people are unemployed --60 males and 40 females (see figs. 46 and 47). The overall unemployment rate is 4.55--3.6 for males and 5.5 for females.

The majority of the population are non-movers, 4120. Of the total population only 2055 people are movers, 1400 are non-migrants, 660 are migrants. Of these movers 305 have moved from a different province, 145 within the same province (Manitoba) and 170 from outside Canada (see fig. 48).

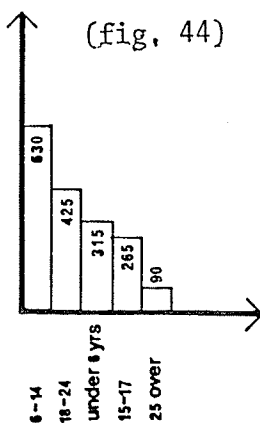
There are 4530 people in the community whose



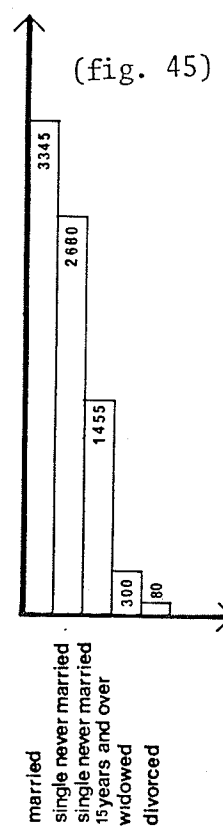
# FAMILIES BY NUMBER OF CHILDREN



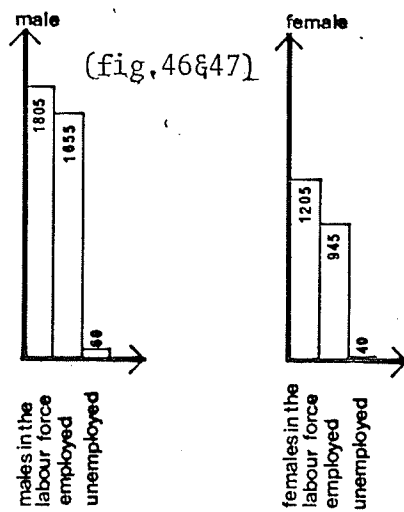
# CHILDREN IN FAMILIES BY AGE



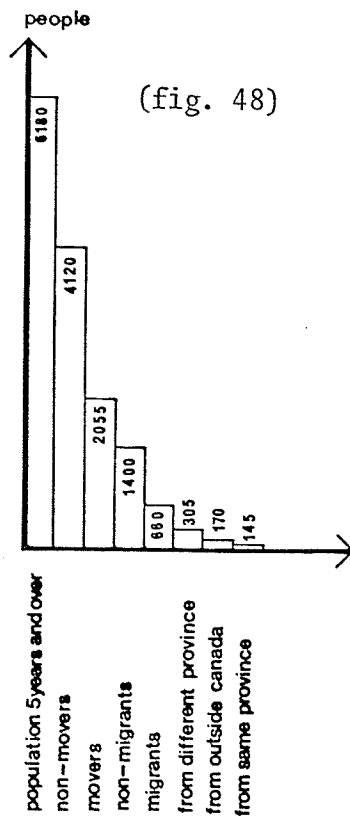
# MARITAL STATUS



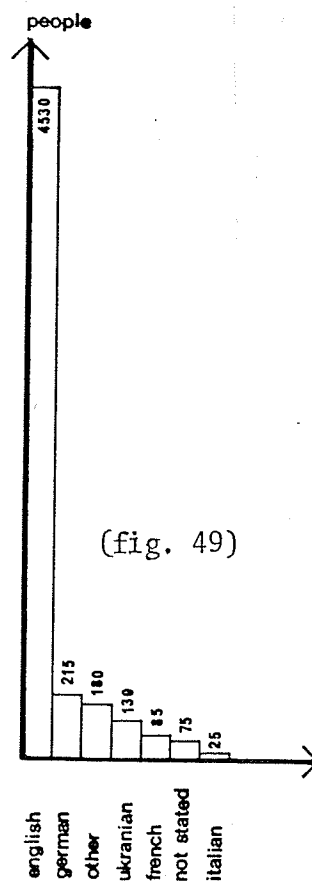
# LABOUR FORCE



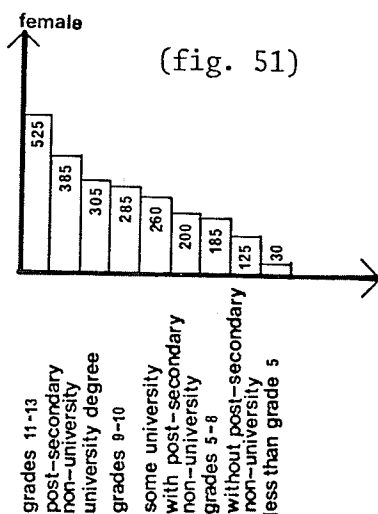
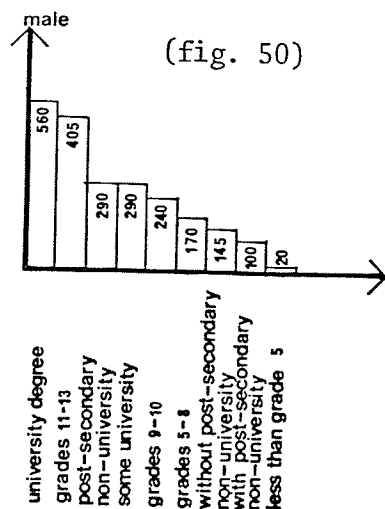
# MOBILITY STATUS



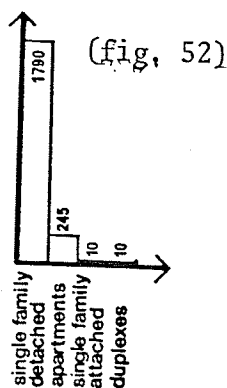
# MOTHER TONGUE



# EDUCATION



## OCCUPIED PRIVATE DWELLINGS



mother tongue is English, as compared with only 690 whose mother tongue is other than English. The area maintains its strong Anglo-Saxon background (see fig. 49).

Of the total population, 4615 have experienced some form of formal education; only 50 have less than grade 5 (see figs. 50 and 51). On the other hand, 865 people have attained university degrees, 550 have had some university training, and 975 have had a post-secondary, non-university education. In addition, 1810 people had achieved varying degrees of secondary education: 930 grades 11-13, 525 grades 9-10, and 355 grades 5-8. Of the 775 people who had no education, 725 were of pre-school age. These figures infer that the remaining 1050 people either did not answer the census tract or they had had no formal education.

From the final diagram in this series the results reveal a total private occupancy of 2105 dwellings. Of these dwellings, 1790 are owned and 320 are rented (see fig. 52). Over half of the total number of private occupied dwellings are single family detached (1845). In addition, there are 245 apartments, 10 single family attached units, 10 duplexes, and no mobile homes. Only 280 of these dwellings are occupied by one person; the remaining 1835 are occupied by two or more persons per household. The average number of persons per household is 2.9.

## APPENDIX XII

### UNESCO-Recommended Core Questionnaire

In order to gain a better understanding of the motivations behind the children's behaviour, and to supplement a series of interviews regarding the children's knowledge of the environment, the following questionnaire was presented.

1. "Please draw me a map of your home and show me all the places in it that you use and the places which are important to you."
2. "Please draw me a map from memory of the area you live in and show me whatever you think is important in it."
3. "From memory, please draw me a map of the entire city and the surrounding region as far as you know it. Show me all the places which are important to you, how you get around the city, and where your own area is in it."
4. "On what occasions do you get out of your area? Where do you go and what do you do there? How do you get there and do you go there by yourself? Can you go whenever you want to? How do you find your way there?"

(The children were asked to complete the following question for both a typical midweek day and a typical weekend day.)

5. "Please indicate on the charts provided all that you did yesterday, what games you played, where you played them, who you played them with, when you ate, did homework, chores, etc."

6. "Please write out a list of all the places that you know of in your area inside and out. Tell me in which of these places you spend most of your time. What do you do there? Which of these places you have named are the most important ones? Finally, how would you describe these places to a stranger?"

7. "What does the river and its banks mean to you? How do you use these areas? Would you make any changes in order to improve what already exists?"

8. "As you go about your usual day's activities, what particular things or places give you the most difficulty? Are there places where you get hurt or have trouble or cannot do what you want to do? Are there places where you cannot get into and wish you could? Are there dangerous places in your area and, if so, what makes them dangerous?"

9. "Do you help fix up any part of your area? Does any part seem to belong to you? Are there any places where you feel that you do not belong, where you feel like an outsider? Who owns the streets and what do you use them for if you use them at all? Are there any places that nobody owns?"

10. "Please tell me where you like best of all to be."

11. "Please tell me where you like least of all to be and why."

12. "Please tell me where the best place would be to go if you wanted to be alone."

13. "Please tell me of any beautiful places in your area, or in the city. What makes them beautiful? Are there any places you respect and are proud of?"

14. "Please tell me what kinds of weather are worst for you and why that is so."

15. "Please tell me all the animals that you know of in your area."

16. "Please write out a list of all the plants and animals that you like in your area, then write out a similar list for all the plants and animals you dislike in your area."

17. "Please list out all the new things which you have learned from moving in and about your area. What sorts of things have you learned from working, playing, watching or adventuring? Have you learned anything that you wouldn't learn from school, home or watching television?"

18. "Please write out a list of all the historical monuments that you know of both in your area and in the city. Are there any places of historical interest in your area?"

APPENDIX XIII  
Supplementary Questionnaire

After an analysis of the core questionnaire results was made, a second line of questioning, tailored individually to further illuminate problem areas identified by the children, was conducted. An example of these individualised questionnaires follows.

1. "You tell me that teenagers 'bug' you; what do you mean by this, in what ways do they bother you?"
2. "You say that you like being sent to your room least of all; what sorts of places outside do you dislike?"
3. "Do adults try to keep you away from the golf course? What sorts of things do you do there? Do you go there mostly with friends or do you go there alone?"
4. "Do you ever go downtown alone or do you ever go there with friends? If so, what do you do there and where do you go?"
5. "You tell me that the riverbanks are used often. What sorts of things go on there? Some people say the riverbanks are unsafe to use because someone might fall into the river. Do you have any ideas on how to make the area safer? Is there anything that you would do to the area in order to make it better for you and your friends? What would you change?"
6. "What do you do during the winter months for play activities? Do you ever play outside? If

so, please tell me where you play, what you play and who you play with. Is there anything you would change about winter to better suit your purposes?"

7. "Are there any places where you are not allowed to ride your bike? Would you ride your bike to other areas in the city if it were made safe for you to do so? Can you bike along the riverbank trails? What changes would you make to your area in order to make it better for biking?"

8. "Of all the green open spaces that you play in--parks, schoolyards, woodlots, riverbanks, etc.--could you please list them in order of preference and rate them 1-10, 1 being the best place and 10 being the worst."

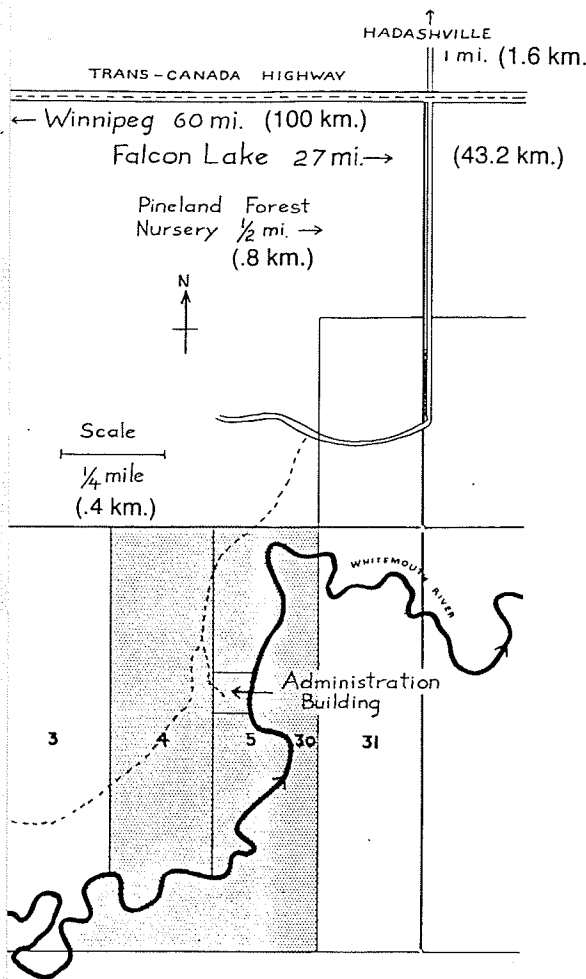
APPENDIX XIV  
Existing Outdoor Environmental Education  
Centres Available to the Study Group  
Case Studies

This appendix summarises a number of case studies carried out on a few of the existing "Outdoor Education Centres" that are available to the residents of Winnipeg (some of which are specifically geared to school children). The Lowell Discovery Network case study has been added to this series as it proposes alternatives to traditional concepts of "Environmental Experiences". (The Lowell Discovery Network was not visited since a trip to Lowell, Massachusetts, U.S.A. was beyond the scope of this study.) The aim of these case studies is to investigate the content and quality of the information presented and to illuminate any existing problem areas.

CASE STUDY: "A Visit to the Conservation Training Area" (An Outdoor School in the Forest). The Conservation Training area, operated by the independent non-government Manitoba Forestry Association Incorporated, is located 100 km east of the City of Winnipeg on the Trans-Canada Highway. The area is a 120-hectare tract of land located along the Whitemouth River, granted to the Association in 1954 by the Provincial Government for the purpose of conducting a programme of youth training in Forest Conservation. The main object of the Conservation Area is to provide visitors with a better understanding of their "Natural Heritage".

Three separate trails are used for instruction in Tree Identification, Ecology and the Natural





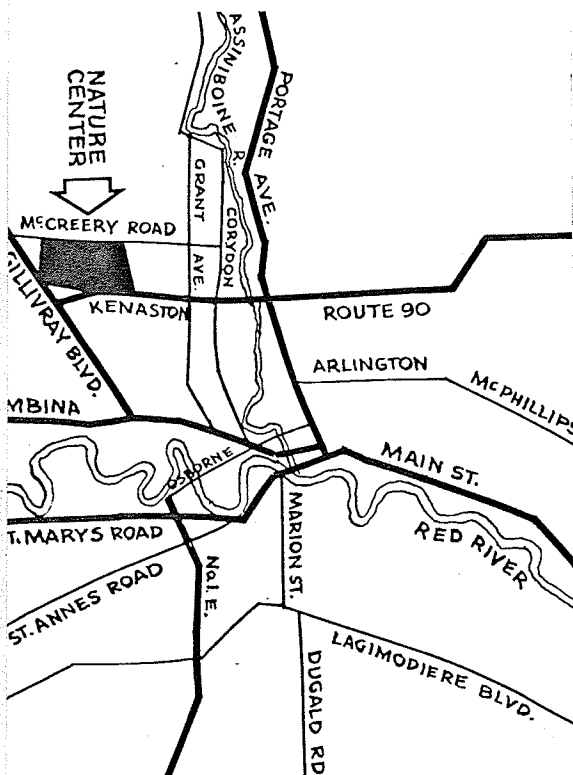
(fig. 53)

History of the area. Each lesson runs 30-45 minutes and presents the following information:

- How a tree grows,
- Forest fire prevention,
- The study of natural ecology and tree identification,
- Natural history,
- A visit to the Pineland Forest Nursery.

The participant is supplied with a booklet which explains topics a) and b) in very general terms, though some of the information may be misleading. Each of the three nature trails presents information on ecological principles. The "Old Beaver Dam Trail" introduces the participant to plant succession, plant identification and some soil differentiation. The "Forest Trail" is used specifically for tree identification, although a small section of bog provides a differentiation of changing soil types. The "Whitemouth River Trail" is primarily informative on deciduous forest ecology, however this trail is long and is not recommended for large school groups or small children due to the abundance of insects along its length. On these three trails an instructor may give his or her own interpretation of the existing ecological communities. Generally, however, the information presented identifies plant species and some uses of certain plants. The participant is provided with a checklist to note observations of flora and fauna along the way.

CASE STUDY: "Fort Whyte Nature Centre." The centre is located within the property of the Canada Cement LaFarge Limited, at Fort Whyte,

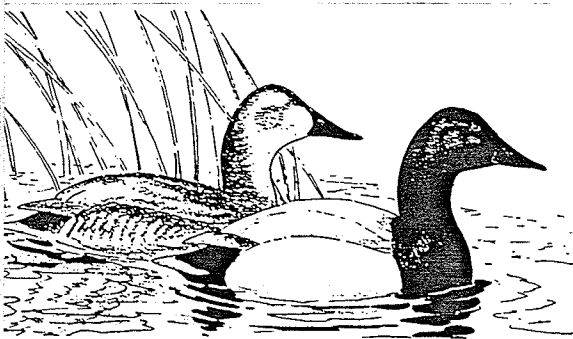


(fig. 54)

Manitoba. The site is in the south-western quadrant of the City of Winnipeg, bordered by McGillivray Boulevard, McCreery Road, and Kenaston Boulevard, only seven miles from downtown. The site contains 400 acres of meadow, trees, water and wildlife.

The Fort Whyte Nature Centre is a joint project of many individuals and organisations sharing one common interest: "To create a natural wildlife area within the boundaries of Winnipeg, to provide a learning experience for the youth of Manitoba." It was particularly hoped that the centre would help young people evolve a greater awareness and appreciation of their wildlife heritage.

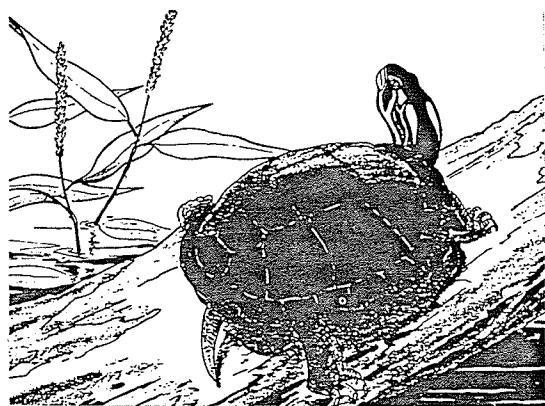
The centre has five ponds (the result of digging for clay to make Portland Cement) providing an environment for waterfowl. There are about 250 permanent resident waterfowl and approximately 13 migratory species. In addition, a good representation of southern Manitoba wildlife is found: white-tailed deer, mink, weasel, shrew, vole, squirrel, rabbit, racoon and fox. The site is typical of the aspen parkland areas of the Prairies.



(fig. 55)

The Nature Trail, conceived of in 1957 and laid out in 1965, was one of the first in the province oriented toward the school curriculum. This trail has 14 interpretation points and 1-1½ hours are required to complete the walk. The trail portrays basically how the existing environment has evolved from a clay pit to a wildfowl habitat and what artificial elements were added to compensate for inadequate natural materials.

Also included is some information on plant identification and succession, plant moisture requirements and soil characteristics, as well as a brief history of the LaFarge Cement Company.



(fig. 56)

It is apparent that this trail was set out to bring as many of the natural history principles as possible to the attention of the participant. "You will observe more varieties of plants and animals than has been possible to include in the guide. As the seasons, months, days and hours change, so will the various populations, their kinds, numbers and interactions. At best the walk will give you a sense of the variety of this area."

The Fort Whyte Nature Centre provides a second trail, the Indian Trail. "You are in Indian Country. For thousands of years Indian bands camped in these areas, hunting buffalo on the prairie and fishing by the rapids in the Red River. The prairie has almost disappeared but a number of plants common to the plains of the Old Indian days can still be seen along the path we call the Indian Trail."



(fig. 57)

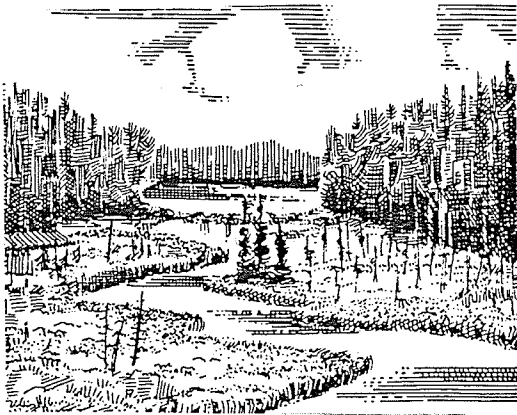
In comparison with the Nature Trail, the Indian Trail appeals more to the imagination of the participant, attempting to maintain a high level of curiosity. The information presented explains how the native people lived off the land, how they used certain plants as sources of food, weapons and shelter before the white man came. By increasing awareness, the trail induces the participant to identify certain plant species and and rock forms.

CASE STUDY: "The Living Prairie Museum"

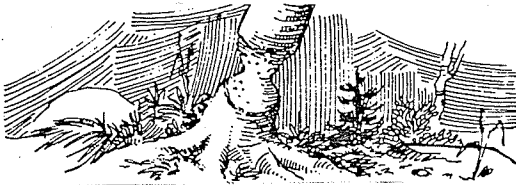
In 1968 a local sub-committee of the International Biological Programme undertook a search of Manitoba for unploughed soil with native vegetation. Of the more than 60 sites investigated, only four were found unploughed. The largest of these four was discovered in an urban area on the north-west side of the City of Winnipeg, at the junction of Ness Avenue and Daisy Road. This sample of unploughed turf contains approximately 151 native plant species. The area is presented as a unique remnant of Manitoba's natural heritage and is preserved for the education of future generations. The interpretation centre offers displays and audio-visual programmes to give a brief introduction to the prairie before entering the trail system. Naturalists conduct guided tours at regular intervals during the day.

This educational experience provides the participant with an excellent introduction to prairie ecology and, in addition, reinforces the concept of conserving Manitoba's "Natural Heritage".

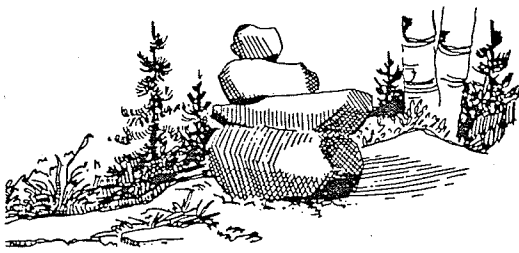
CASE STUDY: "The McGillivray Trails." These trails are part of the Manitoba Department of Tourism, Recreation and Cultural Affairs and are located in the Whiteshell Provincial Park. The area between McGillivray Lake and Caddy Lake has been divided into three trails, the longest of which is 2½ miles and takes 1½ hours to walk. This trail has 20 interpretation points based upon basic observations. For instance, Point 2: "McGillivray Falls. The water tumbling down these rocks flows northward (through many lakes



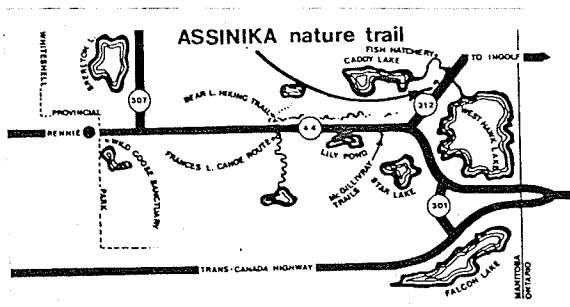
(fig. 58)



(fig. 59)



(fig. 60)



(fig. 61)

and rivers) and on to the Hudson Bay."

The accompanying informative booklet identifies interesting artifacts throughout the trail but does not discuss their relevance or interrelationships within the larger system. Point 5: "From this lookout rock you can see McGillivray Lake to which the trail leads. Note the change in the valley, from grassy meadow to typical northern swamp. On the left, Alder and Willow stretch out to meet Tamarack (light green) and Black Spruce (dark green) nearer the creek. Some 200 yards away on the left bank of the creek there is a beaver lodge, a Tamarack grows beside it."

These trails fail to interpret any environmental concepts or ecological principles, rather they depend heavily upon basic observation. Point 19: "A vein of blue quartz crosses the trail." The information presented on the back cover of the handbook is also under criticism. In many cases the script concerning plant species does not correlate with the representative graphic. This ambiguity may lead to a misinterpretation of the information, thus defeating the objectives of the educational experience.

CASE STUDY: "The Asinika Trail." This nature trail, also part of the Manitoba Department of Tourism, Recreation and Cultural Affairs, Parks Branch, gives an introduction to Canadian Shield Ecology. The information presented is basically concerned with the vegetation in the area; plant identification, succession and moisture gradients are discussed. A general indication of the

"Unseen Forces" behind the existing landform is given and different parent rock materials are identified. Local historical interest points are observed and present an image of the Native People of the area.

This trail is a series of observation points physically linked together; the accompanying interpretive literature does an adequate job of presenting explanations of the observations made.



city-forest interchange

(fig. 62)

CASE STUDY: "The Lowell Discovery Network." In the township of Lowell, Massachusetts, planners have taken the role of educators in order to raise the quality of life in an industrially derelict environment. They propose that people learn about environments as they move through them and they conclude that the experience gained depends proportionately upon how well the environment communicates itself to those within it. The town was planned around the resources of an earlier industrialisation which could not adapt to changing technologies and shifting economies. Economic, physical and social decline characterised the life of the city.

The Lowell Discovery Network Plan was formulated by planners Michael and Susan Southworth. It is a broadly based plan designed to retain those remaining elements of Lowell's past that are unique to its industrial history while at the same time enlightening the populace on the processes and consequences of industrialization by integrating education with the life of the city. It was their contention that the residents' apathy towards the city was caused in part by an

inability to understand the forces that shape the environment, resulting in an inability to deal with change. Community development efforts, they felt, should be aimed at making the physical, social and institutional environments of the city into resources for learning. If carried out with the active participation of the residents, this creative process would help individuals to discover new interest; develop new skills; articulate needs, values and ideas; and deal more effectively with environmental change by developing an understanding of the forces which affect their lives.

"An educative environment is a place where people cannot help but learn, not because one has to or even wants to, but because the place itself communicates something of its form, function, people and past."<sup>1</sup>

#### SUMMARY OF CASE STUDIES

From an analysis of existing operative environmental interpretation trails it is evident that many problems still exist within the system. In general, these problems are related to either the quality of the educational information presented or the quality of the environment from which the experiences are to be obtained.

The Physical Erosion of Trails: Many trails suffer from a combination of high use and static interpretation points. The continual pounding of pathways between stations has in many cases eroded the ground surface, damaging tree roots and changing drainage courses. In some of the

1. Progressive Architecture:  
SAVING PLACES FOR PEOPLE;  
THE LOWELL DISCOVERY NETWORK:  
PA. no11 pp70-83 1972. and  
PA. no1 pp104 1973.

larger national parks the high numbers of "day trippers" overload the ecological carrying capacities of environments and degrade the whole environmental system.

Damage to Ecosystems: When people go off the beaten track into the vegetation layers, damage is inevitable. In some cases this can result in the loss of fragile ecosystems and reduce species diversification.

Travel Distances to Interpretation Centres from Urban Centres: The vast majority of interpretation centres are located in rural areas; usually they are about 100 km from urban centres (where the people who are to be educated live). This physical detachment imposes economic restrictions on young families and large school groups who may otherwise be eager to make frequent use of the facilities, and may completely isolate poorer urban families from an environmental education.

Presentation of Information: Generally, information is presented in booklet form, read from interpretive boards at stop points, or listened to from pre-recorded tapes. It was felt important that the information presented should accommodate the varying degrees of intellect among the participants and that recurring visits should be induced by presenting information that will hold the attention and interest of the participants throughout the experience. Inattentiveness reduces the potential transfer of information into the long term memory. An outdoor environmental education centre must present information that is easily understandable, maintain a high level



of curiosity, and provide a meaningful learning experience.

Most existing centres have evolved around the conservation of a special environment and the content of the information presented is derived directly from the physical elements which make up that environment. In most cases this includes information on plant ecology, identification and succession, endangered species, and interrelationships within the environment being described.

It has been concluded that, in addition to teaching children that the natural environment is the sole provider of all our physical "lifelines", they need also to be informed of those "unseen forces" which mould our lifestyles.

A change in our attitude is needed if our behaviour towards nature is to change. A society which is geared towards "reaping the benefits" cannot at the same time be one which "lives harmoniously" with the natural environment.

APPENDIX XV  
Environmental Education  
Recommendations

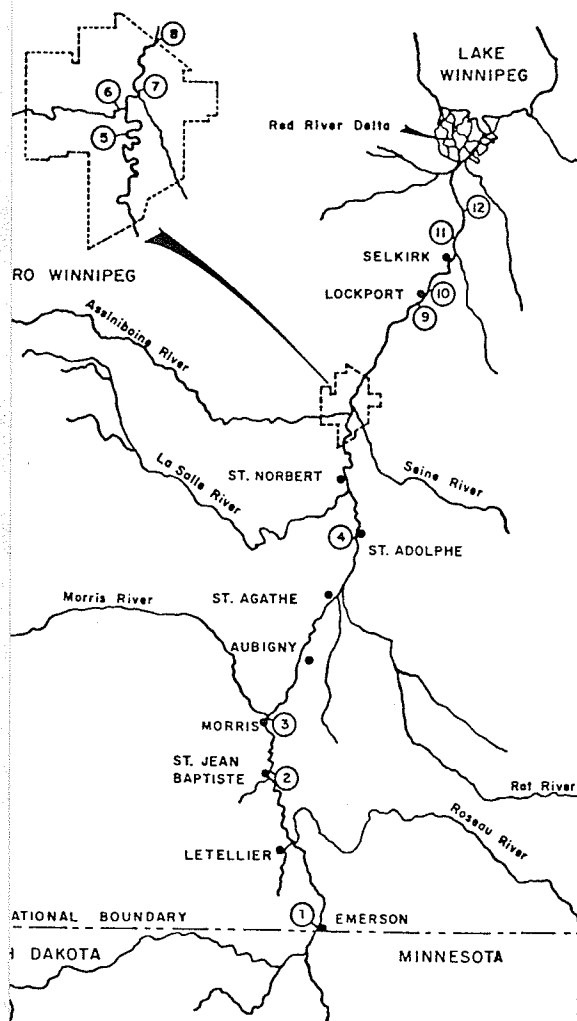
Since it has been concluded by this study that the children are "Environmentally Unaware", this appendix proposes three examples of "Environmental Information" which would direct the children towards developing an awareness of the environment and, more importantly, of their position in it.

To gain full benefit from this and similar information, such concepts would need to be continually reinforced by parents, schools and community clubs. School curricula from kindergarten through university should contain such education. Excellent reference material can be found in "Environmental Education in the Elementary School", a textbook intended to help instructors plan and implement environmental education experiences for elementary school children.<sup>1</sup> Although prepared for teachers, this text should be rewarding reading for anyone concerned with man's interaction with the environment.

Ideally, the information that follows would be presented by an instructor, whose presence would help to induce further searching and learning and who would be on hand to answer questions posed by the children.

These three examples utilise important elements in the study group's local environment as catalysts to present environmental information: The Red River, Oakenwald Schoolyard and Wildwood Park.

1. Sale, L.L.: ENVIRONMENTAL EDUCATION IN THE ELEMENTARY SCHOOL: Canadian Education Association 1972.



RED RIVER STUDY AREA IN MANITOBA

(fig. 63)

THE RED RIVER: Direction towards evolving an environmental ethic. A brief discussion of man's negative impact on the Red River, resulting in pollution and degradation of the environment. Are there any alternatives?

The Red River was so named because of its original reddish tinge caused by suspended particles of sand and clay. It was not always as brown as it is today. At one time man depended upon it as a source of food. Around the 1880's the first Winnipeg "Goldeye" fish was smoked over burning Dogwood branches; there were also many large sturgeon caught here. During those early years of the "White Man's" settlement, swimming was a favourite pastime. Sampson's Marina in Fort Garry, just off Pembina Highway, used to be a swimming club not so long ago.

The quality of the Red River has changed dramatically over the last 50 years. We are now officially warned that the river is not safe for any body/water contact sports. The aquatic life in the river also has suffered through a reduction of its plant and fish species.

What has caused the river to deteriorate so badly in such a relatively short period of time? The answer is simple. Throughout the growth of Winnipeg we have not responsibly controlled our waste disposal system which dumps wastes into the river. Domestic wastes alone, from our bathrooms and kitchens, contain enormous amounts of bacteria. We must be especially aware of two of these bacteria: PATHOGENIC organisms and bacteria from the COLIFORM group. The Pathogenic organ-

**RED RIVER – 1973**  
**COLIFORM (MPN/100 mls)**

Δ2	<240	<240	24000	930	<240	<240	<240	4	<240	2300	<240	<240
Δ3	4300	430	<240	430	<240	<240	<240	9	4600	2300	460	<240
Δ4	<240	930	430	—	—	430	460	23	460	2300	460	110000
Δ5	46000	4600	150000+	43000	11000	9300	11000	1200	46000	11000	11000	<240
Δ6	4300	1500	—	15000	2300	46000	110000	1500	110000	24000	46000	—
Δ7	24000	24000	46000	24000	—	24000	24000	110000	110000	110000	110000	24000
Δ8	150000+	150000+	46000	110000	—	46000	46000	110000	150000+	110000	110000	150000+
Δ9	46000	24000	110000	110000	—	1500	1100	460	1500	110000	150000+	24000
Δ10	150000+	46000	46000	24000	—	15000	460	460	240	24000	150000+	46000
Δ11	150000+	46000	110000	110000	—	2400	1100	1100	24000	150000	110000	110000
Δ12	110000	15000	7500	4300	—	<240	1100	1100	4600	4600	46000	46000

\*Refer to site plan, page 4 for location of sampling sites.

isms cause illness in people and are responsible for diseases such as TYPHOID and PARATYPHOID FEVER. It is difficult to detect Pathogenic organisms but since they very rarely exist in the absence of the Coliform group (which are readily detected), the quantity of the Coliform group is used as an indicator of the Pathogenic organisms. Both types always occur in human excrement.

We are informed by experts that a reading of 5000/100 ml of total Coliforms is an upper limit. In other words, if the reading is higher, then the river is in bad shape and anyone flopping around in it is liable to catch disease. If we look at the 1973 Coliform tables for the Red River we can readily see that the testing stations (5 to 12) from Winnipeg to Lake Winnipeg all have readings well over the maximum 5000/100 ml. Some are as high as 150,000/100 ml, thirty times greater than the limit set by the experts to maintain a healthy environment.

What causes these high levels of bacteria in our river, can't something be done to eliminate the health hazard, and if so, why isn't something being done right now to return the river to its original healthy state?

The direct cause of the high level of bacteria in the river is waste disposal. The Red River is used extensively by the communities and industries within its reach to dump their liquid wastes. Though the majority of these wastes are treated to some degree, they are not being treated adequately. In other words, acceptable microbiological objectives are not being met.

(fig. 64)

Can anything be done to reduce the high level of bacteria in the river? Luckily, the answer is still yes. Disinfection of the wastes could be undertaken after a few modifications to the treatment plants.

This brings us to the ethical question, "Why isn't something being done immediately to correct the system?"

There are many reasons why these problems are not corrected immediately even though the solutions are at hand: political problems of people not willing to take the responsibility for long-term change; financial problems, people telling us that it is not economic to install pollution fighting devices (it's too expensive to be clean!); problems related to the attitude of the general public, "if it's not affecting me I don't care"; and so on. To understand the problems indicated here we must try to understand pollution.

Pollution is waste, the accumulation of waste in an unnatural way, with resulting destructive effects on the environment. Who pollutes? Any person living in a developed technological country pollutes.

Canadians pollute. According to our economic tradition, pollution is normal and acceptable. For example, the car is the biggest single air polluter in North America. The motorist is happy to blame the automobile industry for the inefficiency of his machine, but he is unwilling to maintain it in peak condition. Neither is he willing to give up his personal transportation

in favour of public transportation in order to save energy and reduce air pollution.

As another example, the farmer must compete if he is to survive financially. To be efficient is his only choice. This results in the application of chemical fertilizers, some of which run into the rivers and lakes. As we know, nutrient rich water causes algae, and when algae die they use up the oxygen in the water. This reduction in oxygen can result in the eventual death of the lakes and rivers--no fish, no plants. Many pesticides and chemicals are new and their effects are not yet fully understood. Only recently has DDT been banned after years of use on farms (the chemical was found to be transmitted through the food chain to humans, resulting in disease and deformation of babies).

Concern for the environment has generally been secondary to financial profit, and has been seen as uneconomic and impractical. We must realise that the basic cause of pollution and environmental destruction is the individual's attitude towards the environment.

Traditionally we have focused our energies on how to take from the environment in order to make life easier for us. Little or no thought has been given to understanding the environment and how to return things to it--recycling materials, new clean energy sources, etc. Usually attempts are made to correct mistakes only when they are incorrectable. It is time to become responsible individuals aware of our environment and to show respect for it.

OAKENWALD SCHOOLYARD: Direction toward forming an environmental ethic. A discussion on the food we eat, with reference to misleading information.

After a walk around any area where people live litter is evident. Many of the articles we see lying around are old food containers, chocolate bar wrappers, etc. Many people are beginning to realise now that the natural environment is not the only environment that can become polluted. We can pollute our bodies, too, by eating foods that do us no good at all and are, in fact, harmful if taken over a long period.

If we look closely at any label or wrapper we can see that food contains additives and preservatives. Recently I bought a jar of Mint Jelly and, after reading the label, I was amazed to find that there was no mint in it! This is an example of an artificial food made from chemicals to look and taste like its natural counterpart. However, artificial food has a very different effect on your body than natural food has!

We must start to pressure our government and, in turn, the food manufacturers to give us wholesome food, without dyes, without flavouring agents, without biotics, without hormones.

Nature is perfectly willing to provide us with a richness of nutrition in our fruit, vegetables and meat. But we no longer farm or hunt for our own food; we buy it from food manufacturers and wholesalers and retailers and livestock dealers and all sorts of merchants--all of whom sell their produce at a profit.

In order to sell in a competitive market, these food manufacturers process their food, preserve it for a long shelf life, give it an attractive colour, sweeten it, emulsify it, cure it, stabilize it, salt it, irradiate it, bleach it, blanch it, polish it, de-germ it, de-bran it, gas it (to delay ripening), and spray it with insecticides, with nematovides, with rodenticides, with fungicides--not to mention their use of sex-hormones, antibiotics, tranquilizers, disinfectants, anti-spoilants, anti-sprouting agents, desiccants and sex sterilants. By the time the food reaches us it has lost much of its nutrient value.

We should take time to read the list of ingredients on the label and to learn which of the ingredients are nutritionally useful and which are useless and possibly harmful.

During television periods--children's programs in particular--it is extremely difficult not to become heavily influenced by demanding commercials dictating to the viewer to eat, buy, consume. The mechanics behind television itself generates alpha waves in the viewer's brain. In this state the subconscious becomes easily influenced by sensory information. On Saturday mornings this information amounts to a barrage of cheaply animated cartoons with little or no storyline other than violence, the humor of which depends solely upon laughter at others' misfortunes, and food and toy commercials constantly pounding out the promotion of their products so often that it nearly becomes ambient. Although the use of subliminal advertisement is now illegal, many



commercials are so ambiguous that the information they present verges on complete untruth.

One favourite plea in many commercials is the presentation of the idea that "kids need energy from candy". Medical authorities disagree. Television informs us that "candy bars contain many dairy products and provide us with vitamins and minerals essential to health". What candy does have is sugar, plenty of refined sugar that robs B vitamins, encourages low blood sugar and fatigue, and is implicated in heart disease and diabetes. It also has synthetic vanilla, musk, peppermint, almond and a dozen other flavourings. The taste and smell of natural foods are added to the candy with chemicals called esters, and these can be made in laboratories to give flavours similar to that of pears, apples, bananas, etc. The creamy fillings of many sweets are made with preparations of cellulose. Most of the gay colours of today's candies are products of chemical dyes, blended to match exactly the flavour the consumer expects.

The candy industry is the eighth largest food industry in the United States. Candy is the most widely distributed food in America. Every year each American consumes about 120 lbs. of sugar! Medical authorities agree that sugar deceives the body by interrupting communication between the liver and the "hypothalamus" (a gland in the brain). These two organs regulate the flow of blood sugar into the system to keep it at a level necessary for a healthy body. The brain gives the signals and the liver follows by decreasing or increasing the release of blood sugar.

When we eat a candy bar which contains a lot of sugar, the sugar is dumped into the bloodstream quickly and then carried up into the brain. The hypothalamus, picking up the signals, transfers them to the liver. The liver closes a valve or two and no more blood sugar is released into the system. A deceiving feeling of contentment is created. Unfortunately the body has not been nurtured because sugar contains very little except calories. Therefore the blood sugar level drops again, an "open up" signal from the brain to the liver follows after a very short time, and a repeated sensation of hunger is created. Enter another candy bar... And so the vicious circle goes on. The calories settle down while the body is actually undernourished.

We need energy from substance foods that contain nutrients and not just calories. Using sugar for energy could be compared with using straw to heat a house on a cold Manitoba winter evening. It burns for a few seconds, but it does not last long enough to do the job. It also leaves large amounts of residue or waste.

It's not just kids who are readily influenced by the magnetism of television and its misleading information--adults too are susceptible. Utah's Democratic Senator Frank F. Moss, Chairman of the Senate Consumer Sub-committee, after hearing charges that 40 of the leading dry breakfast cereals were so low in nutrition that they constituted "empty calories", said, "I urge American consumers to take heed; the Breakfast of Champions or Tony the Tiger's favourite cereal may be letting us down".

Breakfast cereal manufacturers are among the worst offenders in creating advertisements that present misleading information. Why do adults urge their children to eat cold breakfast cereal? Because they are told that it will add to their children's nutritional intake. In many cases the commercial will present the cereal as part of a healthy and nutritional breakfast. It can make this statement because coincident with the statement the TV screen shows a hand pouring milk on the cereal, and adding fresh strawberries. In addition, there is usually some cheese and bread on the table. In nutritional value the cornflakes "full of sunshine" that millions of people eat at breakfast are closer to straw than food--and straw is cheaper!

Imagine a kernel of corn fairly rich in protein, phosphorous, three B vitamins and vitamin A that begins its processing in a lye bath, followed by a cooking in steam. What's left of the corn kernel is mixed with a flavouring syrup heavy with refined sugar. Then it is dried and rolled under 75 tons of pressure with rollers hot with friction, toasted at a high temperature in an oven, sprayed with chemical preservatives and sealed into a brightly coloured box with a rubber-band-toy inside and an arm-long list of nutrients printed on the outside. What is actually left of the A vitamin is now miniscule, and the known B vitamins have been stamped out so thoroughly by too much cooking and over-heating that the manufacturer adds incomplete synthetic imitations.

You are the one who eats, it is your body that is directly affected by what you eat, you are

the one who must decide what is good for you. Look out for misleading commercials, see how many you can spot and share the information with your parents and friends and others who are not as aware as you are of what is going on.

There are alternatives to eating "PROCESSED FOOD-STUFFS". Evolve your own diet from nutritional foods bought from health food stores, or make your own snacks from natural healthful ingredients. Most of all, be aware of your environment and beware misleading information.

WILDWOOD PARK. A discussion on the formation of soil and an indication of man's dependence upon it.

Where does our food come from? Do we depend on the supermarkets as the source of our food?

An average topsoil of an active garden might consist of 25% air, 25% water, 49% minerals and 1% organic matter. In a virgin prairie soil the organic matter may be as high as 10%.

The entire earth was once a mass of rock surrounded by water and atmosphere and the only living things were microbes--single celled organisms. Through their activities these bacteria and fungi liberated carbon dioxide and certain organic and inorganic acids which had a solvent action upon the rocks, beginning a process of their breakdown into soil. The dead bodies of these organisms were the beginnings of the organic matter that was mixed with tiny fragments of rock to form soil. The action of heat, cold, wind, rain,

glacier movement and other influences took a hand in the further gradual breakdown. The difference in temperature between night and day, and between seasonal extremes, caused expansion and contraction which produced open seams in the rock, permitting water to enter.

Part of the process of soil formation consists of the decaying remains of low forms of plant life such as lichens and mosses covering the exposed rocks. These slowly formed a film of soil. This wee bit of soil provided a foothold for plants like ferns and, gradually, as the soil thickened, higher plants and trees began to grow, until there came into being overgrown jungles.

We must remember that without the soil organisms --the bacteria, fungi, etc.--no soil formation could take place. The making of soil is a biological process, meaning that living forces take a prominent part in it. The process of soil formation consists of physical, chemical, and biological elements. The physical part is accomplished by the wind and rain, the chemical by the excretions and respirations of the microbes, and the biological by other activities of these organisms.

Soil is constantly being created by the same forces that formed it originally--climate, decaying plant matter, etc. Deep down at bedrock some of the rock is still gradually changing to subsoils by processes requiring perhaps 500 years to make 1 inch of topsoil. If you rub two rocks together you will realize the amount of time and effort that goes into forming soil.

Fundamental to healthy plants is a healthy soil, and the animal life within the soil plays an important role in maintaining its health. The earthworm is of extreme value in this concern. He eats the soil, digests it and conditions it. Our topsoils have been made by earthworms. An average worm will produce its own weight in castings every 24 hours. They burrow into the ground, aerating the soil and making holes for rain to penetrate. As the life of an earthworm is only a year or two, their decaying bodies furnish a substantial amount of fertilizer each year. The worms have a high nitrogen content which enriches the soil. An earthworm-worked soil will absorb a two inch rainfall in 15 seconds, because every earthworm burrow-hole is like a watering tube. A neighbouring clay soil takes sometimes as long as two hours to absorb the same amount of water. The worms, by aerating the soil, allow much needed air to penetrate to the roots. They also draw green matter below the surface, much of which decays and enriches the soil. Many roots use the long tunnels made by the worm as a means of reaching lower levels.

Soil is the provider for all vegetative life--the same vegetation which supports the animal kingdom of the world, the birds, fish and animals which in turn support man. We could say that man, the animal kingdom of which he is a part, and all vegetative life are dependent upon the earthworm to maintain a healthy fertile soil.

Today's farmers rely on chemical fertilizers for mass food production (the more food they produce, the more money they make). Where strong chemical

fertilizers are used, earthworm numbers decrease to the vanishing point. Ammonium Sulphate, a fertilizer used extensively by farmers, is especially harmful to these soil workers. The U.S. Government acknowledges this fact by recommending it as a specific where earthworms are to be killed off, in areas such as putting greens and bowling lawns.

Strong insect sprays containing lead, arsenic, copper, lime sulphurs, and tar oil are even more destructive to earthworms. In tracts of potato growing land where these sprays are doused periodically, never an earthworm will be found. What is equally bad is the fact that much of the bacterial population is adversely affected. The soil becomes less fertile each year and therefore requires the use of more spray and chemical fertilizer to get the necessary yield. In such places the earth becomes hard-packed and extremely difficult to cultivate. Some bird life may move away because of the lack of its usual food source, with the result that the earthworm and the land will suffer further since the birds destroy immense numbers of noxious insects and larvae.

As we have seen, man can change natural processes, and he may do so with good intentions. However, he must be aware of the fact that any change to the natural system, no matter how small, may in time produce adverse effects which may become impossible to reverse.

In the example presented, man sets out a goal-- "To increase the production of food". But in the process of reaching that goal he disregards secondary and tertiary consequences which may

lead to the despoilation of healthy topsoil and result in his dependence upon chemicals. Presently man's incentive for increasing the production of food is for purely financial gain, to make money on a short term basis. The problem of environmental decay is of secondary importance to him.

In order to enable us to make responsible environmental decisions in the future we must become fully aware of our natural environment, we must fully understand our position in it, and, most importantly, we must accept our absolute dependence upon it. Decisions based on ignorance can only lead to the destruction of the environment as we know it.