One of the most explosive social forces of modern-day society is the phenomenon of urban intrusion into predominantly rural areas. The recentness of this "explosion" has not yet allowed for a crystallization of conceptual clarity as to just where this sector or zone, which has come to be known as the rural-urban fringe, belongs in regards to its place on the rural-urban continuum. Nor has there evolved from past fringe studies a delineation procedure which might fix the boundaries of the fringe area to such a degree that they would correspond even roughly with definitions of the rural-urban fringe.

The purpose of this study is twofold. First, it will review literature concerning theoretical and descriptive work on conceptualization and delineation of the fringe. And secondly, a case study of the Corvallis, Oregon rural-urban fringe will be made in
an attempt to better arrive at a meaningful conceptualization of the fringe through delineation by land use.

Much literature concerning rural zoning and land use outside the political city limits preceded the use of the "rural-urban fringe" concept. The focus of these earlier studies, however, seemed to have been concerned with what has been referred to as the "sub-division belt", an area comprising only a small portion of the fringe.

In 1940 the first use of the term "rural-urban fringe" was made. Numerous fringe studies were to follow, with each researcher attempting to crystallize his own concept. While most researchers were agreeing on essentially the same area as comprising the fringe in concept, it was apparent that the actual delineation of the fringe was resulting in the inclusion of quite different areas. The difference here, however, was more a result of methodology than of conceptualization.

In an attempt to arrive at what was felt to be a representative view of past studies, the Corvallis fringe was taken as a case study. A conceptualization of the fringe was gained in part from past literature of the fringe, and from experience gained in actual field inspection.

Working on the basis of having established a strong general concept of the fringe through knowledge of the past growth and economy of Corvallis, and aware of the inherent qualities of the
fringe, a delineation involving inspection and reconnaissance, and based on land use was made.

In view of past research of the rural-urban fringe it is felt that the concept and methodology involved in delineating the Corvallis rural-urban fringe comes as close in approaching what is considered the true fringe area as any previous methods applied.
THE CORVALLIS, OREGON RURAL-URBAN FRINGE:
CONCEPTUALIZATION, DELINEATION, AND LAND USE

by

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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Introduction .............................................................................</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Statement of the Problem</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Objective</td>
<td>3</td>
</tr>
<tr>
<td>II</td>
<td>Conceptualization of the Rural-Urban Fringe</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Early Studies</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Rural-Urban Fringe</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>The Fringe Defined</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>The Corvallis Fringe Defined</td>
<td>16</td>
</tr>
<tr>
<td>III</td>
<td>Methodology in Rural-Urban Fringe Delineation</td>
<td>18</td>
</tr>
<tr>
<td>IV</td>
<td>Corvallis - Growth and Economy</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>Corvallis from 1847 to 1910</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>1940 to the Present</td>
<td>32</td>
</tr>
<tr>
<td>V</td>
<td>Delineating the Corvallis Rural-Urban Fringe</td>
<td>38</td>
</tr>
<tr>
<td>VI</td>
<td>Land Use on the Corvallis Fringe</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>Section 1</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Section 2</td>
<td>57</td>
</tr>
<tr>
<td></td>
<td>Section 3</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>Section 4</td>
<td>72</td>
</tr>
<tr>
<td></td>
<td>Section 5</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>Section 6</td>
<td>94</td>
</tr>
<tr>
<td>VII</td>
<td>Summary and Conclusion</td>
<td>101</td>
</tr>
<tr>
<td></td>
<td>Bibliography</td>
<td>108</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES

Figure

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Generalizations of Internal Structure of Cities</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>Corvallis and Vicinity</td>
<td>28</td>
</tr>
<tr>
<td>3</td>
<td>Corvallis and its Environs</td>
<td>30</td>
</tr>
<tr>
<td>4</td>
<td>Corvallis Annexation History</td>
<td>33</td>
</tr>
<tr>
<td>5</td>
<td>Corvallis Rural-Urban Fringe</td>
<td>44</td>
</tr>
<tr>
<td>6</td>
<td>Corvallis Rural-Urban Fringe</td>
<td>50</td>
</tr>
<tr>
<td>7</td>
<td>Legend for Section Maps</td>
<td>51</td>
</tr>
<tr>
<td>8</td>
<td>Section Map 1</td>
<td>52</td>
</tr>
<tr>
<td>9-10</td>
<td>Photos of the Fringe</td>
<td>54</td>
</tr>
<tr>
<td>11-12</td>
<td>Photos of the Fringe</td>
<td>56</td>
</tr>
<tr>
<td>13</td>
<td>Section Map 2</td>
<td>58</td>
</tr>
<tr>
<td>14-17</td>
<td>Photos of the Fringe</td>
<td>59-60</td>
</tr>
<tr>
<td>18-23</td>
<td>Photos of the Fringe</td>
<td>62-64</td>
</tr>
<tr>
<td>24</td>
<td>Section Map 3</td>
<td>66</td>
</tr>
<tr>
<td>25-31</td>
<td>Photos of the Fringe</td>
<td>68-71</td>
</tr>
<tr>
<td>32</td>
<td>Section Map 4</td>
<td>73</td>
</tr>
<tr>
<td>33</td>
<td>West Corvallis Zoning District</td>
<td>74</td>
</tr>
<tr>
<td>34</td>
<td>Section Map 4a</td>
<td>76</td>
</tr>
<tr>
<td>35-38</td>
<td>Photos of the Fringe</td>
<td>77-78</td>
</tr>
<tr>
<td>39-42</td>
<td>Photos of the Fringe</td>
<td>80-81</td>
</tr>
<tr>
<td>43-47</td>
<td>Photos of the Fringe</td>
<td>83-85</td>
</tr>
</tbody>
</table>
List of Figures (cont'd)

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>48</td>
<td>Section Map 5</td>
<td>87</td>
</tr>
<tr>
<td>49-58</td>
<td>Photos of the Fringe</td>
<td>89-93</td>
</tr>
<tr>
<td>59</td>
<td>Section Map 6</td>
<td>95</td>
</tr>
<tr>
<td>60-65</td>
<td>Photos of the Fringe</td>
<td>97-99</td>
</tr>
</tbody>
</table>
## LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rural-Urban Fringe Population</td>
<td>35</td>
</tr>
</tbody>
</table>
THE CORVALLIS, OREGON RURAL-URBAN FRINGE: CONCEPTUALIZATION, DELINEATION, AND LAND USE

CHAPTER I

INTRODUCTION

There has been a marked growth of interest in the characteristics and problems of the rural-urban fringe during the last two decades. The flow of population to the fringe has resulted in a heterogeneous and mixed nature of physical and social characteristics. To the geographer, sociologist, political scientist, economist, public administrator, and planner the fringe zone has provided a sometimes confusing, sometimes enlightening field of research. In addition, it has proved to be a highly challenging and dynamic study area posing numerous problems to those concerned.

Statement of the Problem

One of the most explosive social forces of modern-day society is the phenomenon of urban intrusion into predominantly rural areas. During the last two decades (1940-50, 1950-60) this growth has been so rapid that little clear-cut distinction can be made between the rural and urban community. Sociologists and others have customarily subdivided the total population into two parts: rural and urban. By so doing they have conceptually created two distinct
sectors presumed to differ from each other in culture and in way of life. Indications of the characteristics of the rural-urban fringe, however, seem to fit neither of these "worlds". We have, then, an intermediate or third sector or zone of intrusion which we have come to call the "rural-urban fringe".

As long as population increases there will be, in most cases, a continual urban expansion on the periphery of cities. It does not seem likely that this expansion will subside, and in instances where expansion has occurred in an orderly fashion there is no cause to hope that it will. The results of this expansion, however, have taken many forms, at the extremes of which are: (1) a highly-planned system of expansion in which each particular land use is that best adapted to the highest order of use; and (2) where the pattern of land use in the fringe area is determined by free market forces and results in sporadic, intermittent, scattered, wasteful, and inefficient development.

It is development tending toward the latter case in which particular attention needs to be focused. In many instances there has been little or no planning beyond the political limits of the city, and the resulting urban expansion has had varying degrees of impact upon both the rural and urban dwellers.

A systematic plan of development needs to be established within and on the peripheries of the fringe area. This plan,
however, cannot develop until a thorough survey has been made in terms of present land use, an establishment of factors influencing this use, and the establishment of uses which are commensurate with the best use of the land.

Objective

It will be the objectives of this thesis to characterize past and present concepts in determining the fringe area; to present various ideas and methods of fringe delineation used by previous researchers; to form what is felt to be a characteristic definition of the rural-urban fringe; and finally to apply this definition in terms of a land use procedure to the Corvallis rural-urban area.

Through the utilization of concepts and delineation procedures brought out in this thesis it may be possible for future researchers to better classify or delineate fringe areas.
CHAPTER II

CONCEPTUALIZATION OF THE RURAL-URBAN FRINGE

Early Studies

The city's influence on surrounding areas is of historical significance. In 1826, von Thünen conceived the idea of the "isolated state" (8, p. 192-193). In order to minimize the influence of soil, climate, and topography he placed a hypothetical city on a flat plain. Idealized concentric zones were established to represent the types of agricultural production which would result under such conditions. On this basis, von Thünen envisaged six zones around the city: (1) a narrow belt in which perishables were produced; (2) a forest belt for fuel and building material; (3) a rotation grain cultivation zone; (4) an area of less intensive cultivation with pasture; (5) a wide belt of the traditional European three field farming system; and beyond, (6) the grazing and hunting area.

Theories of city growth also have had a place in the evolution of peripheral studies. Hurd, Burgess, Hoyt, and Harris and Ullman have theorized that cities expand outward from their centers, either in concentric circles, along radial lines, in sectors, or in multiple nuclei. Figure 1 represents a generalization of the theories put forth by Burgess, Hoyt, and Harris and Ullman.
Figure 1. Generalizations of internal structure of cities. The concentric-zone theory is a generalization for all cities. The arrangement of the sectors in the sector theory varies from city to city. The diagram for multiple nuclei represents one possible pattern among innumerable variations. Source: (16, p.13)
Hurd (21) formulated his principles of central and axial growth in which cities tend to expand in concentric circles and in axial spokes along main transportation routes. Burgess (30, p. 50), applying his concentric circle theory to Chicago, illustrated the "typical processes" of the expansion of the city. The zone nearest the business district or "loop" is one in transition, and contains the factory area and slums. The third zone is that of the worker's homes, followed by the residential zone, and finally the commuters zone.

Hoyt (18) theorized that cities did not grow in complete concentric circles, but rather, that the rings were broken into wedge-shaped sectors which continued from the city center out into the new periphery. In a later study he said that with the marked increase in registered automobiles "...there has been a great movement into that belt of rural landscape beyond the city and between the main spokes of the transportation wheel..." (20, p. 477). Harris and Ullman (16) have proposed yet another theory of growth involving interrelated nuclei, with a primary concept that certain activities require special facilities, e.g., low rent, nearness to rail lines, etc., and will, therefore, tend to group together.

These studies are related only indirectly to fringe studies in that city growth was studied from a metropolitan viewpoint, without regard for the city line. Fringe areas are thus included within the various schemes, but no study has concerned itself specifically
with the fringe.

The actual study of the fringe area was preceded by a period in which studies of suburbs and suburbanization were in vogue. There have been numerous articles and books on these subjects, however, only those which were more directly in line with fringe studies will be noted.

Perhaps the most adequate research study of the underlying problem of the rural suburbs was that made by Arnold and Montgomery (4). Further studies by Gordon (14), Whetten (38), and Douglas (10) contributed to the understanding of the processes involved in suburbanization. A study by Smith (33) on a community in the commuter zone was more limited in scope. More general in nature is an article by Hiller (17). None of these early works are to be confused with fringe studies. Although it might be said that the fringe is included in the studies it should be pointed out that this is true only insofar as the studies go. There is, however, quite a difference between conceptualization of suburbanization studies and fringe studies. The former have usually dealt with one or more political units somewhere in the confines of the metropolis and may vary from completely urbanized areas to those which are purely agricultural. The areas chosen for study may or may not have been assumed to be representative of larger areas in which the same process of suburbanization is taking place.
Fringe studies, as will be seen later, are generally conceived as being more or less homogeneous in nature and containing a mixture of both rural and urban characteristics in a belt around the city. Various neighborhoods of the fringe belt may be selected for more intensive study, however, the area of which they are supposed to be representative is by no means identical with the areas which the students of suburbanization have in mind.

**Rural-Urban Fringe**

It would be extremely difficult to point out one factor or one period of time where a division can be made between what had previously been known as suburbanization and the present concept of the fringe zone. Modes of transportation, however, could be chosen as having perhaps the greatest effect of decentralizing the well-organized city structure.

The early distribution of residence was determined by the proximity of places to work. In the early cities the only method of local transportation was by horse, bicycle, or foot. This situation changed with better transportation. The first electric streetcar began operating in 1886, and although it provided faster transportation than the horse-drawn rail cars, the tracks seldom extended beyond the city limits. In time, however, the electric streetcar began extending into the surrounding countryside,
connecting unincorporated hamlets or small towns, and thus allowing the city workers to move out of the city and still retain a relatively swift means of transportation to and from their jobs.

The real exodus of people and commercial establishments generated by traffic, however, did not arrive until the automobile and the hard-surfaced roads provided swift, individual transportation. Cities thus assumed a starfish-like pattern. The fringe population was strung out along the highways, and the radius of the cities became increasingly longer. As more and better roads penetrated into the countryside from the city, the interstitial areas between the major exodus routes began to expand outward beyond the city limits.

Lower-priced land, lower taxes, larger acreage for home gardens and part-time farming, as well as better water supply and sewage disposals, provided additional advantages and attractions to lure the established residents of the city. These, however, only gave incentive to the shift while the more flexible mode of transportation in the hands of the people made it possible for this expansion.

The Fringe Defined

Much literature concerning rural zoning and land use outside the political city limits preceded the use of the "fringe" concept.
It would be difficult to tell whether or not the authors of this literature were concerning themselves with the term "fringe" as it is known today since no concise or even general definition of their area is given. It would seem, however, that this earlier work was concerned primarily with what has been referred to as the "subdivision belt" of the rural-urban fringe. The earlier and more general literature concerning these areas will not be discussed here.

Wehrwein was perhaps the first to use the term "rural-urban fringe", and he was certainly one of the pioneers in conceptualization of the fringe. The first article discovered in which he uses the term appeared in 1940 (35). His concern here was with rural zoning and land use patterns in the fringe. In it he brings out problems of zoning in the fringe area, however, there is little conceptualization of the fringe given.

A paper presented by Salter in the same proceedings briefly defines the fringe as "an area in which there is a mixture of land uses that are related to farming and to urban interests..." (32, p. 149) and also gives the divisions of the fringe. For Salter, the fringe was divided into three zones. The inner zone was what he calls the "subdivision belt". This zone starts at the outer limits of fully developed city streets, which could be well within the legal city limits or beyond the limits of the satellite or suburban city. Land in this area is developed on urban or suburbanized building lots.
with some acreage used for intensive cultivation or part-time farming.

Adjacent to, and outside the subdivision belt is what he calls the "rural residence belt". Here, part-time farms and rural residences on small acreages predominate. Still further out is the tapering threads of the city's "outer fringe" where widely scattered land uses for purposes other than agriculture or forestry may be found. In terms of the "outer fringe", Salter states that:

"Many of these uses will stem directly from the urban center. Along the main arteries, traffic-attracted commercial uses may be strung for miles. Inter-spersed with these uses, or just off the highways, will be found many part-time farms, rural residences, and retirement homes. Public recreational areas in the form of golf courses and parks, and such private recreational uses as summer homes and weekend cabins are very likely to be present. Commercial farming may predominate in these areas, but the nature of some of it may be immediately affected by its location with respect to the city" (32, p. 148).

Although no subsequent work by Salter on the rural-urban fringe has been found to further crystallize his concept, his work, and that by Wehrwein has definitely put land use in the foreground as the principle criterion for determining the extent of the rural-urban fringe.

In 1942, Wehrwein came out with two more articles on the rural-urban fringe. In both papers he gave a fuller conceptualization following the beginnings that he and Salter had made earlier.
In one (37) he was concerned with factors which conditioned land use in the fringe, and furnished examples of the fringe around Indianapolis, Indiana.

In his other paper presented at Eugene, Oregon, Wehrwein furnished a more concise definition of the concept he had in mind. Briefly, the fringe was defined as "the transition zone between the city, with its highly intensive land uses, and the farming area where people live the rural way of life" (36, p. 2).

Arpke (5), in 1942, conducted a land use survey of Portland, Oregon. His principle emphasis was on land-use patterns, changes in property values, governmental framework, and changes in population.

Land use is but one aspect of the fringe phenomena. Other aspects involve the various interactions among the residents and their adjustment to land use choices, community awareness, living conditions, and opportunities for social participation to name but a few.

Coincident with the paper presented by Wehrwein at Eugene was one by Faust (12) in which portions of the fringe were selected for special study. The methodology of the study is of doubtful value, however, the work represents probably the first attempt at a sociological oriented survey of a portion of the fringe. As only a portion of the fringe was selected for survey, with no
support for the typicalness of the area, some doubt is thus cast on
the value of the findings.

Dobriner, (9, p. 156) in his sociological study of suburbia,
presented a zonal view of the patterning of metropolitan areas.
Zone I consists of the densely populated and highly commercialized
and industrial core which would be identified as the central core.
Zone II consists of the industrialized satellite cities and rapidly
growing suburban communities. The third and outer zone was
identified as the rural-urban fringe. He has defined this latter
belt as the "geographical area in which the prevailing use of land
is neither clearly urban nor suburban (residential, industrial,
commercial) or rural (agricultural)" (9, p. 156). Although the
definition itself is not unlike those presented in other studies, it is
quite clear that he is referring to only the outer portion of the
rural-urban fringe other researchers had in mind. Dobriner points
out that "no matter how broad and inclusive the view,
or how abstract the delineating categories, one is bound to leave
out something that someone else regards as crucial" (9, p. 150).
In this case the focus of the study was on suburbia with the urban
inner zone and the outer zone or rural-urban fringe acting only as
boundaries for his study.

Other significant studies on the sociological aspect of the
fringe include: Andrew's on Janesville, Wisconsin (1); Whetter
and Devereux on Windsor, Connecticut (38); Firey's on Flint, Michigan (13); Kimball (22); and Martin's on Eugene, Oregon (26).

Martin's study of the Eugene, Oregon fringe presents a thorough examination of the adjustments of the people to their various situations in the fringe. The entire area was delineated and studied as a whole. Data was gathered through interviews with fringe dwellers and evaluated in terms of response to a schedule of questions.

An idea of the conceptualization of the rural-urban fringe can be obtained through a review of the theoretical or descriptive definitions of the fringe by various investigators. Several illustrative examples would include:

Wehrwein: "The area of transition between well recognized urban land uses and the area devoted to agriculture" (37, p. 217).

Andrews: "A transition area... adjoining the urban fringe outward from the economic city in which there is an intermingling of characteristically agricultural and characteristically urban land uses" (1, p. 169).

Salter: "An area in which there is a mixture of land uses that are related to farming and to urban interests" (32, p. 147).

Rodehaver: "That area in which the land is utilized in an urban manner while at the same time certain attributes of the rural are present as well" (31, p. 53).

Anderson: "... that area of mixed urban and rural land uses between the points where full city services
cease to be available and the point where agricultural land uses predominate (which includes waste lands and wooded areas)” (3, p. 79).

Martin: "...that area of interpenetrating rural and urban land uses peripheral to the modern city..." (26, p. iii)

Arpke: "...that cultural development that takes place outside the political boundaries of central cities and extends to areas of predominately agricultural activity" (5, p. 468).

In order to present the rural-urban fringe as a delineable entity, only those definitions which were found to emphasize the rural-urban fringe were given. It should be pointed out, though, that several other studies have defined certain segments of the fringe. Most noteworthy of these would include:

Andrews: The urban fringe - "The active expansion sector of the compact economic city" (1, p. 169).

The Bureau of the Census: Urbanized area - "An urbanized area contains at least one city which had 50,000 inhabitants or more in 1960, as well as the surrounding closely settled incorporated places and unincorporated areas that meet... certain criteria" (34, p. XVII).

As the concern of this thesis is with the rural-urban fringe, only definitions involving the fringe as an entity will be discussed. These definitions vary in both their characteristics and restrictiveness.

As the definitions stand, Wehrwein, Andrews, Salter, Rodehaver, and Anderson would seem to include
incorporated territory. Arpke and Martin, on the other hand, would exclude incorporated territory. Martin might include incorporated territory if he were speaking of the economic city rather than the political, however, in delineating his study area he uses the political as the inner boundary.

The outer boundary of the fringe area encountered in most definitions seems to be one of degree rather than of a specific factor. Anderson says that it is the "point where agricultural land uses predominate". Arpke also utilized essentially the same criteria.

It would seem that of the five definitions presented as defining the rural-urban fringe, only that by Anderson is useful in delineating a specific fringe. This definition, realistic as it may seem, was fashioned for a particular fringe around a relatively small city (Williamsport, Penn.) which is characterized by particular demographic and topographic features.

**The Corvallis Fringe Defined**

In an effort to present the Corvallis rural-urban fringe as a delineable entity, the following definition has been determined. That area extending from the incorporated city limits outward to the point where commercial agricultural land use or wooded land tends to predominate, and includes that land where owner occupations seem to be urban oriented.
As each city or urban agglomeration tends to form with its own functional characteristics, which in turn determine somewhat the occurring settlement pattern, it becomes necessary to develop a working definition based upon these subscribed characteristics.

In the case of Corvallis, the inner boundary (incorporated city limits) and outer boundary (point where commercial agricultural land use or wooded land tends to predominate) of the fringe incorporates portions of those definitions given by Wehrwein, Anderson and Arpke. As the Corvallis fringe was delineated in terms of land use it was felt the fringe should be further defined to include owner occupations. In so doing, it became possible to include fringe areas which might have been excluded from a more generalized definition; to include, that is, part-time farming of larger acreages or larger acreages of idle land which are owned by persons whose occupations are urban oriented.
CHAPTER III

METHODOLOGY IN RURAL-URBAN FRINGE DELINEATION

Efforts made to establish a delineation procedure for the rural-urban fringe of all cities have not been notably successful. The techniques utilized for one purpose or to a particular fringe cannot, in many cases, have the same applicability to the fringe of another area.

As was pointed out in the last chapter, definitions of the fringe vary somewhat in degree, however, it is apparent that most of the definitions refer to essentially the same area or phenomena. The methodology involved in delineating the rural-urban fringe seems to present a quite different picture to that of the actual fringe areas. It will be the purpose of this chapter to discuss some methods which have been proposed or utilized in the actual delineation of fringes in the United States.

At least five methods of delineation have been used by various researchers. They are: (1) the selection of particular areas considered as typical of all fringe characteristics; (2) choice of area by selected statistical measures derived for minor civil divisions--such as townships--or other geographic units such as sections or subdivision boundaries; (3) choice of areas such as a county; (4) use of census areas such as urbanized areas and standard
metropolitan areas; and (5) delineation of the fringe on the basis of physical inspection and reconnaissance.

A number of studies have attempted to categorize certain aspects of the fringe through the use of selected "typical" neighborhoods within the fringe. In most cases, these studies did not actually delineate the fringe. Three approaches to studies of this nature can be found in Faust's study (12) of the Eugene, Oregon fringe; Kimball's (22) anthropological approach to the fringe; and Firey's (13) research on the Flint, Michigan fringe.

Perhaps the first attempt to delineate a fringe to any matter of degree was that made by Arpke (5) in 1942 on the Portland, Oregon urban periphery. Although he did not present an operational definition it is assumed that platted subdivisions formed the bases for delineation with townships and section lines forming the outer boundaries.

Although Andrews (1) (2) did not delineate either of his urban fringe areas around Madison or Janesville, Wisconsin, he did present several concepts which should be considered in a realistic delineation. His first premise is that "since the urban fringe is a periphery growth phenomenon of an urban agglomeration, its beginnings and endings are in no way associated with village and city political boundaries" (1, p. 170). Secondly, since the "urban-fringe represents the immediate expanding arms and edges of a
single organic city, its area and extent are not identical with the metropolitan district..." (1, p. 170). It should be noted that in cases where one is concerned with large cities, metropolitan census data may be useful in examining certain segments of the fringe. Association of the inner fringe boundary with village and city political boundaries is debatable. Anderson (3), like Andrews, contends that the inner boundary is not necessarily that of the political city. However, by definition, Arpke (5, p. 468) would disagree.

Rodehaver used, as a working definition, "that area in which the land is utilized in an urban manner, while at the same time certain attributes of the rural are present as well" (31. p. 50). The rural-urban fringe as delineated around Madison, Wisconsin, was comprised of 49 "sections" in the townships adjacent to the city itself. Those sections selected were ones in which certain non-farm phenomena were present at their greatest intensity. The criteria utilized in establishing the area comprised (1) the proportion of non-farm families to the total number of families in a given section; (2) the assessed valuation of land and buildings per acre; and (3) the density of non-farms per square mile, i.e., per township section.

Rodehaver is quick to point out one of the primary disadvantages of this method (this may also apply to similar delineation studies). That is, as one proceeds outward from an urban center,
the non-farm factors decline in intensity. The obvious procedure, then, is to concentrate analysis upon the area where the greatest intensity of factors can be found. The fringe then would not represent the total possible extent of the area; only the area of greatest intensity of non-farm dwellings.

Myres and Beegle (27) proposed a delineation method utilizing data which could be derived without difficulty from the census material. Their rural-urban fringe is based upon two principal elements: (1) the use of minor civil division units; and (2) the use of a derived population category, the Non-Village, Rural, Non-Farm population (this will be referred to from here on as NV-RNF).

Using the NV-RNF category is advantageous in that the persons representing this grouping appear, without much question, to be the fringe people. They live adjacent to cities which are classified as urban (incorporated places of 2,500 or more), yet they neither engage in full-time farming nor live in organized villages.

Myres and Beegle used the ratio of fifty percent or more of its people in the NV-RNF as inclusive of the rural-urban fringe. In delineating the Detroit rural-urban fringe, four categories of townships based on the proportion of NV-RNF persons were distinguished as follows: Category 1, 75-100 percent NV-RNF; Category 2, 50-74 percent NV-RNF; Category 3, 25-49 percent NV-RNF; and Category 4, adjacent rural townships having less than 25 percent
of the total population in NV-RNF class. In each case the incorporated villages were excluded as far as possible. In marking the outer fringe boundary, all townships were identified outward from the central city until a double ring of rural townships were reached. In several instances where isolated fringe-type townships occurred, they were excluded as being more properly linked to more remote urban places. In the case of Detroit the rural-urban fringe extended out from two to five townships, or a distance of from 12 to 30 miles.

This method is susceptible to criticism in that the smallest area of delineation of the outer fringe is the township, or in Rodehaver's case, the section. In areas surrounding large metropolises, this may be the only applicable way to proceed in that it allows a speedy survey of a large area. However, where the fringe would be contained within a township surrounding smaller cities, this method would have little value in delineation.

Anderson's thesis (3) on delineation of small cities is the best work so far on methodology. In delineating the rural-urban fringe of Williamsport, Pennsylvania, Anderson relied almost entirely on reconnaissance and inspection.

A map of the county in which Williamsport is located was used as the primary tool in the automobile reconnaissance. In addition to all main and primary roads, the map also indicated houses, businesses, schools, churches, factories, etc., as well
as many natural features including topography and water bodies.

Reconnaissance trips were made on primary roads to the point where large areas of farmland, wasteland or forests predominated. These points were marked on the map and intensive trips were begun into the interstitial territory along secondary roads and private lanes. Again, the points at which agricultural land use began to predominate were marked on the map.

The outer boundary, then, was placed according to several criteria. If the concentration of non-farm dwellings decreased with little or no increase in agricultural land uses, the outer boundary was moved to include the fairly thin non-farm settlement. On the other hand, if a definite break occurred in the concentration of non-farm houses with only scattered instances beyond, the line would be placed along the concentration. In several instances farmsteads were included within the fringe if concentrated settlement occurred beyond. The purpose here was to make a continuous fringe rather than have numerous islands beyond the main bulk of the fringe. After the initial outer-fringe line had been determined, several more trips were made into the area to determine if its position was correct.

The inner boundary was placed according to Anderson's definition of "the point where city services cease to be completed..." (3, p. 24). The corporate city limits was taken as the base line;
the fringe then being extended within the city limits or beyond, depending on the services available or the build-up of urban territory. Some of the characteristics which were considered in extending the fringe within the city limits were: lack of city water and/or sewage service; lack of curbs and/or sidewalks; and unpaved streets, and rural route mail service. Areas of mixed agricultural and urban land uses as well as undeveloped platted land were designated as fringe. The degree of urban land use determined whether the fringe might begin outside the corporate city limits.

Martin's study (26) of the Eugene-Springfield rural-urban fringe was, like Anderson's, carried out through inspection. Two factors which made it possible to define the study area were a map showing the location of single family residence for the entire Eugene-Springfield area, and natural barriers such as mountains and rivers which contained the fringe area. The fringe boundaries adapted for the Eugene-Springfield area were the city limits for the inner boundary, with section lines and certain natural barriers forming the outer boundary.

A review of the procedures used in delineating the rural-urban fringe indicates a preference for methods determined by the following: (1) size of the area to be studied; (2) size and homogeneity of townships, sections, or precincts for which data is available; and (3) the purpose of the study.
Anderson seemed to feel that inspection is the best method of delineating a fringe around cities of 50,000 or less; at least in Pennsylvania. Cities in this size group are too small to utilize census data which are available for urbanized areas around cities of 50,000 or more. This was also found to be the case with Martin's study of the Eugene-Springfield fringe where the fringe did not coincide even approximately with minor census divisions, or with the rural election precincts which were so large that the outlying portions were almost completely rural farm or forest in nature.

Myres and Beegle, on the other hand, used a NV-RNF criteria to develop areal units of a workable size. Here, however, we have a case--Detroit--where census data are readily available for townships affording reasonable homogeneity in the delineating factors. Where townships are found to be too large or interrupted by physical barriers, this method would have doubtful value.

The purpose of the study also seemed to be a determinant in methodology of delineation. Anderson was concerned with delineating the Williamsport rural-urban fringe from a sociological-dwellings-point of view and not of land use or for the purpose of conducting a questionnaire survey of the area. The inclusion of more factors, e.g., land use, in the determination of the fringe would probably have changed the area delineated.

Where delineation was secondary to an investigation of the
composition of population, the determination of a basic fringe boundary would be sufficient. This was the case with the studies by Martin, Myers and Beegle, Rodehaver, and Andrews.
CHAPTER IV

CORVALLIS - GROWTH AND ECONOMY

A city is the focal point of its environs, being both a product of and an influence on the surrounding region. Cities often have similar functions and patterns of growth, but each is unique in detail, having developed in response to its own social and economic needs, and characterized by its own history.

Within the immediate environs of a city lies the new living space called the rural-urban fringe. The inherent quality of the fringe is more urban than rural. Although containing its own distinctive characteristics, this "zone of intrusion" is the result of the ecological character of the city.

Corvallis From 1847 to 1910

The city of Corvallis is located in the west-central portion of the Willamette Valley immediately west of the Willamette River and astride the Marys River, an eastward flowing tributary (see Figure 2). The valley floor occupying the area south, east, and northeast of the city is an almost level plain, being interrupted occasionally by Willamette flood plain terraces and by minor tributary systems. The area west and southwest of the city is characterized by low, rolling hill land; to the north and northwest there
are spurs of the Coast range with relatively steep slopes and narrow valleys (see Figure 3).

The original townsite of Corvallis was located just north of the confluence of the Marys River and the Willamette River. Between the first platting in 1847 and 1857 the town was known as Marysville. The name of Marysville was officially changed to Corvallis in 1857 after the town was incorporated and chartered by the Territorial Legislature.

The early history of Corvallis was similar to that of many other early pioneer settlements of Oregon in that its founder, J. C. Avery, chose a location that had many natural requirements for a townsite. Of major importance, the Willamette River, and to some extent the Marys River, seemed to present a solution to the transportation problems that confronted so many of the early pioneer settlements. Corvallis was also considered to be the head of navigation on the Willamette River during this early period as rapids south of the city stopped river traffic to Eugene except during high water or with low draft boats (25, p. 10).

Commercial land transportation first became operative with the establishment of a stage line between Corvallis and Portland in the 1850's, and in 1859 this line was extended south to Junction City (25, p. 11-12). The first railroad between Corvallis and Portland was opened in the 1870's and extended to Junction City in
1890. In 1885 a second rail line was in operation to the coastal port of Yaquina (25, p. 21).

In 1886 the Oregon State Agricultural College, under the Morrill Act of 1862, was established at Corvallis. Between 1889 and 1893 the history of Corvallis was one of boom growth as the town was attempting to become a large city of business and industry. Among the first establishments during this period were five real estate offices, and several industries and companies for public improvement (25, p. VII, 1-8).

The period of boom ended with the depression of the mid-1890's. The closing of one bank and the failure of the Oregon Pacific Railroad Company with its lines to Yaquina marked the greatest loss of revenue to the community. At the end of the crisis the town had only two industries, a sawmill and flour mill, and was still small in terms of business and industry. The college, however, had been expanding during this period in both size and enrollment and was bringing money to the town from outside areas (25, p. VII, 14).

The population of Corvallis increased more or less steadily between the period of 1880 to 1910. The U. S. federal census figure for 1880 was 1,128, and by 1900 the population had increased to 1,817. In the ten year period after 1900 the population of the city had more than doubled, reaching 4,552 in 1910. This rather
rapid increase in population between 1900 and 1910 could probably be attributed more to a large annexation of areas north and west of the city in 1909 (see Figure 4) than to an actual increase in total population.

1940 to the Present

The city's population continued to increase between 1910 and 1940, reaching 8,392 in the latter period. It was not until the 1940's, however, that the population began to expand at a rate far exceeding any previous period. In 1950 the population of Corvallis had reached 16,207, an increase of nearly double that of 1940. This increase resulted largely from the growth of Camp Adair during World War II; from increased enrollment at Oregon State in the years following the war; from increased industrial expansion; and from the inclusion of the college students as Corvallis residents in the 1950 census for the first time.

Annexation played the principal role in population growth after 1950. Between 1909 and 1950 there had been no annexations to the city although considerable development had been occurring in the fringe area. From 1950 to 1964, however, annexation has occurred in every year except 1953 and 1957, with the largest additions occurring to the north, northeast, and south. Figure 4 shows annexation by years from the original town of Marysville to 1964.
Figure 4
CORVALLIS
ANNEXATION HISTORY
1857—1964
ORIGINAL TOWN OF
MARYSVILLE

Source: U.S.G.S. Quadrangle
when the last annexation occurred, forming the present city limits.  

Although annexation has occurred at a fairly rapid rate during the past 15 years, it has become apparent through this study that the present fringe areas seem to keep pace with annexations. This idea was verified by counting the dwelling units contiguous to the current city limits on the 1956 U. S. G. S. Quadrangle for Benton County and the 1957 U. S. G. S. Quadrangle for Linn County. Dwelling units were again counted on a set of 1962 aerial photographs and up-dated to the present by adding those units which had been built since that date. Table 2 shows the number of dwelling units for the two dates in the six section adjacent to the city (see Figure 6), and the percent change in population.

The estimated increase for the Corvallis fringe area for the nine year period was 67 percent. Growth was not evenly distributed and the range for the different sections was 44 percent to 148 percent. Assuming an average of 3.09 persons per household (U. S. Census of Population figure for Oregon) the estimated population for the fringe in 1956 was 3,009 and 4,236 in 1964.

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1 In January, 1965 a small piece of land southwest of the city was incorporated. As this annexation came after the actual field work and writing of this thesis the area has been included as part of the fringe.
Table 1 - Rural-Urban Fringe Population

<table>
<thead>
<tr>
<th>Section</th>
<th>Number of houses 1956 - 1957</th>
<th>1964</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>78</td>
<td>116</td>
<td>49</td>
</tr>
<tr>
<td>2</td>
<td>129</td>
<td>309</td>
<td>78</td>
</tr>
<tr>
<td>3</td>
<td>21</td>
<td>52</td>
<td>148</td>
</tr>
<tr>
<td>4</td>
<td>410</td>
<td>590</td>
<td>44</td>
</tr>
<tr>
<td>5</td>
<td>76</td>
<td>118</td>
<td>55</td>
</tr>
<tr>
<td>6</td>
<td>(45)</td>
<td>86</td>
<td>91</td>
</tr>
<tr>
<td>Total</td>
<td>759</td>
<td>1271</td>
<td>67 average</td>
</tr>
</tbody>
</table>

A second significant factor in the city's growth and expanding economy was the rapid development of Oregon State University. The importance of the University is in terms of employment, number of students, and income from research oriented industries, and "it is anticipated that future significant growth in the Corvallis urban area will occur because of the University and University-oriented research and development industries broadening the community's economic base" (11, p. 10).

The economic character of the city is reflected in the nature of the employment (see Table 2). In Corvallis the pattern of employment is dominated by professional services, primarily in connection with Oregon State University which was 42.7 percent of the total labor force of 7,574. Retail trade and personal services employed 14.2 and 9.0 percent of the labor force respectively. Durable goods manufacturing (largely forest products) was 5.5 percent. These four industry groups alone accounted for 71.4 percent of the
Table 2

EMPLOYMENT IN CORVALLIS BY INDUSTRY GROUP

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>2.1</td>
<td>1.9</td>
<td></td>
</tr>
<tr>
<td>Forestry and Fisheries</td>
<td>0.3</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td>Mining</td>
<td>0.1</td>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>4.6</td>
<td>4.3</td>
<td></td>
</tr>
<tr>
<td>Durable Goods Manufacturing</td>
<td>4.6</td>
<td>5.5</td>
<td></td>
</tr>
<tr>
<td>Non-Durable Goods Manufacturing</td>
<td>3.6</td>
<td>4.3</td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td>1.9</td>
<td>1.3</td>
<td></td>
</tr>
<tr>
<td>Communications</td>
<td>1.3</td>
<td>0.9</td>
<td></td>
</tr>
<tr>
<td>Utilities and Sanitary Services</td>
<td>1.3</td>
<td>0.9</td>
<td></td>
</tr>
<tr>
<td>Wholesale Trade</td>
<td>2.0</td>
<td>1.9</td>
<td></td>
</tr>
<tr>
<td>Retail Trade</td>
<td>1.0</td>
<td>0.9</td>
<td></td>
</tr>
<tr>
<td>Finance, Insurance, and Real Estate</td>
<td>2.3</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>Business and Repair Services</td>
<td>0.7</td>
<td>0.8</td>
<td></td>
</tr>
<tr>
<td>Personal Services</td>
<td>1.3</td>
<td>0.9</td>
<td></td>
</tr>
<tr>
<td>Entertainment and Recreation Services</td>
<td>0.6</td>
<td>0.7</td>
<td></td>
</tr>
<tr>
<td>Professional Services</td>
<td>0.6</td>
<td>0.7</td>
<td></td>
</tr>
<tr>
<td>Public Administration</td>
<td>4.0</td>
<td>4.1</td>
<td></td>
</tr>
<tr>
<td>Industry Not Reported</td>
<td>1.3</td>
<td>2.0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Persons Employed</th>
<th>1950</th>
<th>1960</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>120</td>
<td>149</td>
<td></td>
</tr>
<tr>
<td>Forestry and Fisheries</td>
<td>30</td>
<td>107</td>
<td></td>
</tr>
<tr>
<td>Mining</td>
<td>6</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>270</td>
<td>328</td>
<td></td>
</tr>
<tr>
<td>Durable Goods Manufacturing</td>
<td>270</td>
<td>619</td>
<td></td>
</tr>
<tr>
<td>Non-Durable Goods Manufacturing</td>
<td>324</td>
<td>324</td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td>109</td>
<td>109</td>
<td></td>
</tr>
<tr>
<td>Communications</td>
<td>102</td>
<td>102</td>
<td></td>
</tr>
<tr>
<td>Utilities and Sanitary Services</td>
<td>78</td>
<td>78</td>
<td></td>
</tr>
<tr>
<td>Wholesale Trade</td>
<td>113</td>
<td>140</td>
<td></td>
</tr>
<tr>
<td>Retail Trade</td>
<td>94</td>
<td>106</td>
<td></td>
</tr>
<tr>
<td>Finance, Insurance, and Real Estate</td>
<td>107</td>
<td>107</td>
<td></td>
</tr>
<tr>
<td>Business and Repair Services</td>
<td>158</td>
<td>136</td>
<td></td>
</tr>
<tr>
<td>Personal Services</td>
<td>159</td>
<td>136</td>
<td></td>
</tr>
<tr>
<td>Entertainment and Recreation Services</td>
<td>95</td>
<td>68</td>
<td></td>
</tr>
<tr>
<td>Professional Services</td>
<td>212</td>
<td>250</td>
<td></td>
</tr>
<tr>
<td>Public Administration</td>
<td>233</td>
<td>233</td>
<td></td>
</tr>
<tr>
<td>Industry Not Reported</td>
<td>307</td>
<td>148</td>
<td></td>
</tr>
</tbody>
</table>

Source: (6:16)
employment in Corvallis in 1960.

The lack of a large industrial complex in the vicinity of Corvallis and the fact that professional services, personal services, and retail trade account for nearly 66 percent of the city's employment would indicate a large percentage of the population in the middle and higher income brackets. Field observations in the fringe area tend to support this fact, as most residences observed would be classified as average and above in income.

A functional classification of cities based on the activity of greatest importance to each city was the subject of a study by Harris in 1943 (15, p. 86-99). His criteria for the selection of University towns was that the enrollment of the University equaled at least 25 percent of the city's population. According to Harris' criterion Corvallis would definitely be considered a University town, as present population figures place the enrollment of Oregon State University at 10,500, or 39 percent of the 26,440 population for the city as a whole.
DELINEATING THE CORVALLIS RURAL-URBAN FRINGE

Delineation of the Corvallis rural-urban fringe was based primarily on land use. The purpose in selecting land use as the delineation criterion was twofold. First, because the rural-urban fringe is generally conceived in terms of land use, and secondly, there were no definitive studies found in available literature in which land use had been selected as the primary criterion in delineating the fringe.

The method used in delineating the Corvallis fringe could, perhaps, be likened more to Anderson's than to procedures of the others explained previously. Although the criteria used in this thesis differed from his, the methodology of reconnaissance and inspection was almost the same.

Aerial photographs at a scale of 1" to 600" were used for the initial delineation of the fringe. The aerial photos were taken in June, 1963, and were of a late enough date to provide a reasonable account of the present settlement and land use pattern.

The city limits were first drawn on the photos. This served both as the inner boundary of the fringe and as a base line from which it was possible to proceed outward in establishing the outer boundary.
Placement of the outer boundary proved to be the major methodological problem encountered in delineating the fringe. Using the aerial photos, settlement patterns were located and lines drawn around what was believed would approximate the final outer boundary in terms of land use. In a number of instances along major arteries it was impossible to tell from the photos whether or not the dwelling units belonged to rurban dwellers or full-time commercial farms. Where there was doubt, the units were included and would be noted for special attention in the field inspection.

All public and semi-public land was delineated on the photos following ownership boundaries as closely as possible. Schools, golf courses, parks, churches, cemeteries, and municipal services which fell well within the delineated area were disregarded for the present. Public and semi-public land which extended beyond the outer fringe boundary was noted and would receive further attention during the field work, at which time it would be included or excluded depending upon its use and position to the fringe boundary.

A field inspection and reconnaissance followed the initial delineation of the fringe on the aerial photos. With the use of the aerial photos for location, trips were made out along all major arteries to points where large areas of farm land, waste land, or forests were encountered. Dwellings which were noted for special attention were observed and classified as rurban, part-time farming
or full-time farming.

The fringe was not extended into full-time farming areas unless some fairly dense settlement pattern was encountered beyond. In this case the boundaries ran roughly parallel to the roads until the extended settlements were reached; the line was then drawn on the aerial photos encircling the area.

The outer boundary was placed according to several criteria. If a definite break occurred in the settlement pattern with no concentration beyond, the line was placed on the outer edge of the concentration. If, however, the settlement pattern showed a gradual decrease in intensity the line was moved out to include the more thinly settled non-farm settlement. Part-time farms were also factors in establishing the outer boundary. If, for example, a thinly settled area was found to contain part-time or "gentlemen farmers" the area was considered part of the fringe. This was justified on the basis of income. If an ownership contained, for example, 50 acres which were grazed by several head of horses or cows, but the owner was known to obtain a major portion of his income from a non-farm source, the area was classified as rural-urban development and subsequently placed in the fringe.

Platted, non-developed land was also considered to be fringe area. In the one instance where this occurred adjacent to the city limits north of town, the land was found to be devoid of any
structures and grazed only intermittently. However, the land was subdivided and taxed as urban property for all intent and purposes. This, then, was the only instance in which a large private ownership not containing a dwelling was included in the fringe.

Once the outer boundary of the fringe had been established along the major arteries leading out of town, intensive reconnaissance of the interstitial territory was begun. Trips for careful landscape inspection were made from the city limits proceeding outward on all roads. The limits of axial growth were established and marked on the photos when agricultural land use of a commercial scale, waste land, or forest land began to dominate the landscape.

Once the inner and outer boundaries had been established on the aerial photos, it was then possible to locate the fringe on county tax maps of a 1" to 400" scale showing ownership boundaries and acreages. This was done by locating the property through which the fringe line ran on the photos and placing this boundary along the outer boundary of the land ownership on the county tax maps. Thus, land on the rural-urban fringe could be shown indicating complete ownership patterns.

Although commercial agricultural land is not considered a fringe phenomenon per se, inclusion of this land into the fringe was made when it was completely or nearly completely surrounded
by rurban settlement, and thus restricted or temporary in use. It was assumed that this land would be changed eventually to a rurban use. This eliminated the occurrence of scattered islands of non-fringe territory within the fringe area.

There were two inconsistencies in the criteria used for delineating the Corvallis fringe. Perhaps most noticeable was that of excluding Adair A.F.S., especially since the delineated fringe extended to within a quarter mile of the air base. This was believed defensible on the ground that the Station was in an area politically organized for urban living and containing many services available to an incorporated city, and was in fact a separate entity.

The second inconsistency occurred between Corvallis and Philomath on West Hills Road and Philomath Road. In both instances, there was an almost continuous pattern of residential homes, commercial establishments or industries fronting the two roads. A thinning of the settlement, however, did occur along both roads in an area that coincided roughly with the boundary separating the Corvallis School District from the Philomath School District.

Several interviews with residents in these two areas indicated owner's preference to reside in the school district where he was employed. This would allow his children to attend school in the same area, and bring about closer social ties between his family
and the community. Under these circumstances, then, the school
district boundary was chosen to represent the approximate outer
fringe along these two arteries, and ownership lines approximating
the district line were used to locate the exact boundary.

Once the fringe had been delimited on the tax maps in terms
of land ownership, a second field inspection was made in which
golf courses, parks, airport, institutional land, and commercial
and industrial land was noted. Except for large areas of state
owned land belonging to Oregon State University (see Figure 5) on
which no development had occurred and which was being used in a
rural manner, all areas were favored as being included as fringe
since they represented urban and/or fringe-oriented land uses,
and were located adjacent to or within the original delineated fringe.

The fringe is not static as people are continually moving into
or out of the area. The building of but one new dwelling along the
fringe periphery would result in a shifting of the fringe boundary.
If, therefore, a re-survey of the Corvallis fringe were to be made
at any time, a re-delineation of the fringe would, in all probability,
also have to be made. This study does, however, reflect the
trends in fringe growth.

The fringe does not completely enclose the city of Corvallis
(see Figure 5). The reasons for this vary, but they can best
be summed up under three categories: (1) some major physical
Figure 5

CORVALLIS
RURAL—URBAN FRINGE

--- FRINGE BOUNDARY
--- CITY LIMITS
----- STATE LAND OUTSIDE
FRINGE

Source: U.S.G.S. Quadrangle
barrier has acted to stop or channel the development. This has been the case in much of the non-fringe land east of Corvallis where the Willamette River itself and the occurrence of floods from the river definitely have restricted development; (2) where land is in State ownership (Oregon State University) and subsequent development of an urban nature is restricted, which has been especially true immediately east and west of the city (see Figure 5); and (3) by definition of the Corvallis rural-urban fringe where commercial agricultural land, or idle or wooded land was not considered to be fringe land in terms of use. This type of land use occurs because of the owner's reluctance to sell or develop either because he wishes to remain in his present capacity or because demand for the land has not been great enough to stimulate development.
CHAPTER VI

LAND USE ON THE CORVALLIS FRINGE

Factors influencing the form of group residential development and land use are numerous and complex involving the entire cultural fabric of society. This is especially so in the rural-urban fringe, an area that is characterized by extreme heterogeneity, a lack of any type of orientation in most cases, and a continuing succession of uses in which elements of an advancing order may lie next to elements of a receding order.

From the node of the Corvallis urban area, the fringe extends outward, reaching its farthest point along the major arteries linking the city to the surrounding countryside and communities. Density tends to be higher in the areas nearer the nodal point, and decreases as one travels out from that point, so that a star-shaped pattern is apparent when viewed in its entirety. This pattern is of course deformed in places by obstacles such as topography, rivers, railroads, and nearness to other urban communities, however, the actual pattern will often come close in approaching the theoretical pattern.

The first development in the present fringe area were farms with their rectangular boundaries bordering the growing node of Corvallis. These were defined by lanes leading to the farm houses...
and the boundaries which often terminated at the foot of the hill land or other physical feature.

The first wave of urban influence came in the form of roads and highways, followed closely by subdivision of entire farm acreages on the periphery of the city or by sale of farm property through metes- and -bounds fronting the highways. This wave of development brought in the residences, service stations, industrial complexes, greenhouses, restaurants, taverns, golf courses, an airport, schools, churches and cemeteries. The second wave of succession came following the development of the frontage areas and saw development shift to the small lanes leading into the interstitial territory from the main arteries.

The third wave of succession was the 'leapfrogging' of subdivisions and individual development away from the periphery of the city to the furthest sectors of the fringe as better roads provided quick and easy access to and from these more distant points.

While all three waves of succession have and are occurring on the Corvallis fringe, the pattern of this succession is definitely uneven, occurring at various rates in different areas of the fringe. Consequently, various sectors of the fringe often lack the homogeneity which would characterize the fringe in its entirety.

As delineation of the fringe was based primarily on land use it became necessary at the outset to distinguish between several
land uses exhibiting similar characteristics. The primary concern here was with agricultural land use, and more specifically with the distinction between full-time farming and part-time farming, and between part-time farming and the growing of crops strictly for home consumption. In most cases the various categories were determined by field observation and in several instances operators or knowledgable persons aware of the type of farming being conducted helped determine land use.

Agricultural land use on a full-time commercial scale was determined as such if places were of three acres or more, had a well-kept appearance, and the land was in horticultural crops, orchards, grain, or was intensively grazed by dairy or beef cattle. Farms were generally considered to be part-time when under three acres, and/or when it was believed that the type of farming being conducted would not bring the operator an income exceeding the cost of the operation. In many instances small garden plots were observed adjacent to residences, and in all probability the products were used for home consumption, ruling out part-time farming.

The raising of several head of livestock, especially horses, was a fairly common occurrence throughout the fringe area. Acreages on which this practice occurred ranged from less than one to over 100 in size. In all but one case these places were classified as residential because there were not enough livestock to constitute
these places as being part-time farms. Where horses were noticed, they were probably for family enjoyment, and where cattle were noticed, in all probability they were for home consumption. In one instance a large herd of cattle was noticed, however, as the owner is a well-to-do lumberman and raises the cattle as a part-time enterprise, the farm was classified as part-time.

The fringe, as it has been delineated in this thesis, is represented by six distinguishable sections. Figure 6 shows the sectional breakdown of the fringe. Each section will be discussed as individual units within the chapter, and will include an enlarged land ownership map indicating land use patterns. A complete legend for the Section Maps appears in Figure 7.

Section 1

Section one includes that area northeast of Corvallis along Highway 20 and Seavy Road (see Figure 8). The rural-urban residential build-up in this area is fairly new. The rush of development which occurred during the past eight years (1956-1964) seems to have subsided, and only three homes were noted in the process of construction.

This section of the fringe includes portions of both the Willamette flood plain and upper bench land. Residential development on the flood plain has been restricted to an area along Seavy Road.
Figure 6

CORVALLIS
RURAL-URBAN FRINGE

Numbers Represent Fringe Sections
--- FRINGE BOUNDARY
--- CITY LIMITS

Source: U.S.G.S. Quadrangle
### LEGEND FOR SECTION MAPS

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Figure 8

Section Map 1

LAND USE

Scale

0  1/4  1/2
Miles

5 Acres

Legend: See Figure 7

Source: Watskill Maps and County Assessor's Land Ownership Maps
Although Seavy Road nearly bisects the Willamette Dale Farm subdivision, the only built-up area occurs near the intersection of Seavy Road and Highway 20 on a slightly elevated portion of the flood plain where flooding is infrequent. This area contains a moderate income development of newer non-farm dwellings (see Figure 9), and several converted farm dwellings and full-time farm units. It will probably be sometime before development occurs to the west of the present development as the Southern Pacific Railroad traverses the area making adjacent settlement undesirable. Land use in this area is presently limited to grain crops and native pasture.

A portion of the Willamette Dale Farm subdivision east of Highway 20 contains the only commercial establishment within the fringe. This is a small gas station, and a combination golf driving range and miniature golf course.

Figure 10 shows the sharp rise of the flood plain terrace on the upper benchland along Highway 20 north of the Willamette Dale Farm subdivision. Development on the benchland has been much more intensive than on the flood plain. The projection of fringe along the highway contains a moderate income development, with most dwelling units occurring on former agricultural land.

West of the highway lies the Green Acres subdivision, an area not yet fully developed and containing new and old non-farm and part-time farm residences as well as a scattering of
Figure 9: A grouping of medium-income, tract style homes on a slightly elevated portion of the floodplain in the Willamette Dale Farms subdivision.

Figure 10: Commercial agriculture on the flood plain north of Garden Road. The fringe boundary follows Highway 20 along the telephone poles in the left of the photo. The flood plain terrace and a portion of the built-up area on the upper benchland can be seen in the background.
commercial agricultural land. Residential development has not occurred in a continuous pattern along the highway front, and commercial agricultural land often lies adjacent to residential homes as can be seen in Figure 11.

East of the highway and adjacent to the Green Acres subdivision lies the most densely settled area in this section of the fringe. Homes again are in the medium income group, however, nearly all of them are new and tract-like in appearance. There are only a few plots of land as yet undeveloped and part-time farming is not practiced although several residences had small home-garden plots. Some of the homes in this grouping may be seen in Figure 12.

The northern-most extension of the fringe in the area includes the Children's Farm Home under sponsorship of the Women's Christian Temperance Union. Several types of agriculture are practiced here, however, the income from the sale of products seldom exceeds the cost of the projects. There are at present 84 permanent residents on the farm, although this varies from year to year as can be seen from the 1955 figure of 215.

High school and junior high students in this area and other areas of the fringe attend school in the city of Corvallis. Grade school children at the farm home attend school at the farm and all others attend a newly built school centrally located within the fringe (see Figure 8).
Figure 11: The fringe boundary forming northern end of the Green Acres subdivision includes the home in the background, but not the agricultural land in the foreground.

Figure 12: These homes lie across the street from the Green Acres subdivision. Most houses have been built away from the highway as can be seen by the vacant land in the foreground.
Section 2

The lobe of fringe extending north along Highland View Drive, and including the area along Lewisburg Road, Mountain View Drive, U. S. 99W, and Crescent Valley Drive represents primarily a conversion of woodland and grassland area to residential land occupancy. This area is a rapidly growing district, represented by new dwellings of moderate to high income (Figure 13).

Present development north of the Lewisburg Road is occurring most rapidly on subdivided land. The Country Estates subdivision represents the oldest of the three subdivisions in this area, being first platted in 1962 and at present contains 26 homes. A portion of this development with house types may be seen in Figure 14. Figure 15 shows completed homes and homes under construction in the Mountain View Acres subdivision, and a house under construction in the Mountain View Terrace subdivision can be seen in Figure 16.

Other development occurring north of Lewisburg Road has been through metes-and-bounds land sales of wood land or open grazing land with acreage from less than one to about five in size. The nature of this area can be seen in Figure 17. The acres lying within the Mountain View Drive loop and noted as woodland on the section map is potentially good residential land and will probably
Figure 13
Section Map 2
LAND USE
FOR LEGEND SEE FIGURE 7
Scale
0 - 1/4 Miles
1/4 - 1/2
1/2 - 1
1 - 2
1 - 4
MT. VIEW TERRACE SUBDIVISION
COUNTRY ESTATES SUBDIVISION
LEWISBURG ROAD
LEWISBURG
CITY WATER TANK
LIMITS
Source: Keischer Maps and County Assessor's Land Ownership Maps
Figure 14: Houses in the Country Estates subdivision. Development here is occurring more rapidly than in any other area of this section.

Figure 15: High and medium income homes in the newly developed Mountain View Acres subdivision.
Figure 16: A house under construction in the thickly forested Mountain View Terrace subdivision.

Figure 17: A view of the area at the intersection of Lewisburg Road with Mt. View Drive. Dwellings in this area are located on several acres, and the keeping of horses is common.
become so in the near future; at present however, there is only one small dirt road leading into the area (Figure 13).

Lewisburg, the only unincorporated village within the fringe, is located at the intersection of Lewisburg Road and U. S. 99W (see Figure 18). The village was built about the time of World War II and consists of a small grocery store-service station-garage complex. Further development was eclipsed by its proximity to the city of Corvallis.

The projection of fringe along Elliott Road and U. S. 99W from the Lewisburg area south represents a particularly impression mixture of rural-urban land uses. A portion of this area is shown in Figure 19. Various forms of low and medium income dwellings, commercial traffic-attracted services, light industry, a trailer park, church, cemetery, commercial agricultural land, and a grade school make up this portion of the fringe.

The only residential development lying adjacent to the city limits occurs along Highland Way. Development here has been limited primarily to acreages fronting Highland Way. Lots within the Highland Park subdivision offer a good view of the valley to the east, however, a lack of ground water has been a restrictive factor in the number of homes built.

A good example of the initial succession of agricultural land use to residential land, and the farmers' willingness to part with
Figure 18: The village of Lewisburg. The grocery store-service station-garage complex can be seen in the left of the photo. A new grade school can be seen in the center of the building complex to the right.

Figure 19: A trailer park south of Lewisburg on U. S. 99W. The large building seen in the picture is a light industry making roofing tar.
Figure 20: A high income home in the Crescent Valley Drive area. This home is situated on 20 acres of land, most of which is used for the grazing of the three horses in the foreground.

Figure 21: A nursery on Crescent Valley Drive. The nursery is surrounded on three sides by agricultural land.
Figure 22: A view along Crescent Valley Drive across the street from the nursery in Figure 21.

Figure 23: The cleared portion of the hill in the background forms part of an undeveloped subdivision on Crescent Valley Drive.
land through metes-and-bounds sale can be seen on Section Map 2 along Highland Way between the Highland Park subdivision and Lewisburg Road.

The cluster of properties along Crescent Valley Drive represents a less mature portion of the fringe where density is low. Land ownership ranges from several acres to about 20 acres in size. The major land uses here are part-time farming or the keeping of livestock, mainly horses.

Section 3

The extension of fringe northwest of the city along Kings Road, Witham Hill Road, and Ponderose Drive contains a low density residential and part-time farming area (see Figure 24). Topography in this section of the fringe is the steepest encountered in any of the fringe areas. This, and the fact that ground water is very difficult to obtain, have been major factors limiting a more dense settlement pattern.

The eastern edge of the fringe along Kings Road contains a number of older, low to medium income residences which form the outer edge of those contained within the city limits. Almost all residential development along Kings Road had been limited to the area between the road and the city limits. Property ownership immediately north of Kings Road is in large acreages and include
Figure 24

Section Map 3

LAND USE
FOR LEGEND SEE FIGURE 7

Scale
0 1/4 1/2 Miles

Legend: See Figure 7

Source: Metsker Maps and County Assessor's
Land Ownership Maps
for the most part part-time farms. The Mulkey subdivision has not been developed although originally platted in 1911.

The fringe area east of Witham Hill Road between Kings Road and the city limits is of mixed land use with part-time farming, a developing subdivision (Woodland Park), and a cemetery occurring side by side. West of the cemetery lies a new 100 unit apartment complex. A lack of ground water seems to be the limiting development factor here, and water must be trucked in for both the apartment units and subdivision. Figures 27 and 28 show portions of the apartment units and subdivision respectively.

Residential development north of the Kings Road-Witham Hill intersection has begun only in the last several years and density is still low. Several areas in the higher portions of the hill land command good views of the surrounding area and development will, in all probability, occur at a rapid rate in the future. The largest single private ownership in the fringe is located in this area. A portion of its property was recently sold and subdivided (Glen Ridge Estate), and one home has been built and occupied, while another is under construction. Until about 1959 the large ownership was being farmed commercially, however, the present owner, who works for a local real estate office, boards about eight horses and the area has been classified as part-time farm. A portion of this acreage containing the owner's home and barn can be seen in
Figure 25: Super Market in the foreground is situated within the city limits adjacent to Kings Road. The barn in the background is located on a part-time farm within the fringe.

Figure 26: The barn and grass land is a portion of the part-time farm seen in Figure 25. Several residential homes on less than one acre each can be seen in the background.
Figure 27: A portion of the University Park. The 100 units of this apartment housing were built primarily to serve the students of Oregon State University.

Figure 28: A newly built home in the Woodland Park subdivision.
Figure 29: A view of the undeveloped Mulkey subdivision looking south. The city limits follows generally along the bottom of the ridge in the background.

Figure 30: The farm house and barn here have recently been converted from full-time agriculture to non-agricultural use following the sale of this property.
Figure 31: A high income home located on North 47th Street.
Figure 30.

The area along North 47th Street is being developed slowly, and at present seven homes occupy land along this street. A view of one of the newer homes can be seen in Figure 31.

Section 4

West of Corvallis lies the Country Club Hill-West Corvallis section of the fringe (see Figure 32). This portion of the fringe exhibits a number of features which set it off from the other areas around Corvallis.

The outer fringe boundary encompasses an area of definitely mixed rural and urban, commercial and residential land uses. Here are full and part-time farms, high and low status housing, a country club, heavy and light industry, a milk farm, grain farms and livestock grazing.

It should also be noted that much of this land west of Corvallis is the only section outside of the city limits which has been zoned. Figure 33 is a map of the zone restrictions. No comparison of the zoned areas and present land use will be made here, as the recentness of the zoning (1962) has not allowed any apparent changes in land use, and the zoning itself, for the most part, seems to be based upon already existing land uses.

The area bounded by Marys River to the east, the city limits
Section Map 4

LAND USE
FOR LEGEND SEE FIGURE 7
Scale 1/4 1/2
Miles

Acres

Source: Metsker Maps and County Assessor's
Land Ownership Maps
WEST CORVALLIS ZONING DISTRICT

Figure 33

PR — Public Reserve
Ag — Agriculture, Grazing, or Timber
RS — Suburban
RI — Single-Family Residential
R2 — Duplex-Family Residential
C2 — Commercial (Neighborhood)
C3 — Commercial
M2 — Light Industrial

Scale
0 1000 Feet

Source: West Corvallis Zoning District Map
and Country Club Way to the north, and Country Club Place to the west is known as the Country Club Hill district. Land use is definitely urban, containing, for the most part, high income residents (see Figure 34 for subdivisions in this area). Here, the slope of the land becomes more inclined to form a medium-sized hill which contains most of the Country Club Hill. Dwelling units on the more level land adjacent to the city limits and Brook Lane are low to medium in income. As one proceeds southward up the hill, high income residences are rapidly encountered. Two of the typical homes can be seen in Figures 35 and 36. The only large mixing of land uses occurs near the cemetery where residences, the Country Club Golf Course and the cemetery lie adjacent to each other. Figure 37 is a view from the Country Club Hill northward showing the golf course in the center foreground.

Some aspects of the commercial agricultural land occurring east of South 43rd Street can be seen in Figure 38. Although commercial agricultural land is generally not considered a fringe phenomena, it was included here as it has been nearly completely bounded by residential settlement and is slowly undergoing a transition to residential use. Some idle land can also be found adjacent to the agricultural land as can be seen in Figure 39. As late as 1963 this land was grazed by milk cows belonging to a small dairy. The dairy has since gone out of the business and the land stands
Section Map 4a
COUNTRY CLUB HILL SUBDIVISIONS
For legend see Figure 7
Source: City of Corvallis Map with lots and blocks
Figure 35: A high income home in the Country Club Hill area.

Figure 36: A high income home in the Country Club Hill area.
Figure 37: A view north from the Country Club Hill area. A portion of the Country Club golf course can be seen in the foreground. Beyond the golf course to the base of the hills in the background lies the West Corvallis section of the fringe.

Figure 38: Part-time and commercial agricultural land within the West Corvallis section of the fringe south of Highway 20. The hill in the background forms a part of the Country Club Hill area.
idle and presumably will be used for residences in the future.

A portion of the Pleasant View Fruit Farm subdivision can be seen in Figure 40. Originally commercial agricultural land, this subdivision is currently undergoing still further platting and residential build-up as witnessed by the area south of the Country Club Way-South 43rd Street intersection in Figure 32.

One of the most densely settled portions of the entire fringe occurs within the triangle formed by Philomath Road, West Hills Road, and South 43rd Street. Dwellings in this area represent, for the most part, a low to medium income group. Figure 41 is a typical home.

A mixture of traffic-attracted industries, residential and idle land can be found along Philomath Road, and the combinations or proximity of dwellings and businesses are often unattractive. Figure 42 shows some traffic-attracted commercial establishments on the south side of Philomath Road which include a second hand store, drive-in restaurant, garage, and beyond this residential dwellings. Other types of commercial establishments or industries along Philomath Road include a church, tavern, auto wrecking yard, and a mink farm. Most of the industries or commercial services appear to have been among the first to build along this road, while residential dwellings are represented by both new and old structures.
Figure 39: Idle land north of Country Club Way which has just recently gone out of commercial agricultural use.

Figure 40: Commercial agricultural land within the Pleasant View Fruit Farm subdivision. The dwellings form a portion of the build-up occurring along Country Club Way.
Figure 41: A medium income home fronting Highway 20.

Figure 42: Commercial build-up fronting Highway 20.
West of North 43rd Street and south of Reservoir Road the fringe occupies the area from North 43rd Street to the top of a low ridge paralleling the road (Figure 43). Although some property is still farmed, most of the area is in transition to residential use (see Figures 43 and 44).

The land fronting North 43rd Street north of Reservoir Road is occupied in part by a lumber mill, the County Fair Grounds, a former farm dwelling, and a trailer part (see Figure 32). A portion of the trailer park can be seen in Figure 45.

Most of the area east of North 43rd Street and north of West Hills Road is in agricultural land owned by Oregon State University. Because of its ownership and subsequent land use it was delineated out of the fringe. Figure 46 is a view of the University Dairy Barn in this area.

On the north side of Reservoir Road from its intersection with North 43rd Street lies a large lumber mill, a view of which can be seen in Figure 47. The mill seems ideally situated in terms of location to good paved roads and railroad with a spur running into the mill. Further industrial development in the area seems unlikely at present, however, as the steepness of topography, already existing facilities, and zoning ordinances (south of the road) will act as barriers.

The extension of the fringe from the mill along Reservoir
Figure 43: Dwelling units occurring on ridge along West Hills Road west of North 43rd Street. Agricultural land in foreground has been nearly surrounded by residential build-up.

Figure 44: View north from same location as Figure 43 showing homes in the West Hills Terrace subdivision.
Figure 45: Trailer park on North 43rd Street. The dwelling in the foreground is a home-store complex.

Figure 46: Oregon State University land showing the Dairy Barn.
Figure 47: A lumber mill near the intersection of North 43rd Street with Reservoir Road.
Road and them along West Hills Road includes the West Corvallis city water reservoir, a machine making shop, and a cluster of non-farm and part-time farm dwelling.

Section 5

Three separate fringe areas actually represent what will be called here the South Corvallis fringe. These are: (1) the area lying immediately east of Marys River to the city limits; (2) the area west of the city limits extending in several places to the Willamette River; and (3) the ribbon of development occurring to and including the city airport along U. S. 99W (Figure 48).

The general topography of the area is extremely level with the only exceptions occurring along river or stream courses. The area for the most part is better adapted to agriculture than residential use as much of the land experiences occasional winter flooding. If flooding does not occur the water table is generally at surface level throughout most of the winter months.

The string of residential dwellings lying between Marys River and the city limits represents an old, low-income grouping interrupted in places by idle or part-time farm use. The remaining portion of the fringe includes a public park and golf course, portions of which can be seen in Figure 49.

Along Gallagher Road and Hall Lane the fringe contains an
impressive mixture of land uses. A number of heavy industries occupy the narrow strip of land between Gallagher Road and the Willamette River. Included here is a sand and gravel company, a fiber products company (see Figure 50), and a sewer pipe and conduit company.

South of the industrial complex along Hall Lane may be found a cemetery, residential dwellings of low income, and at the end of Goodnight Road, a city park. Figures 51 and 52 are views looking north from the point where the city limits intersects Park Drive; the same barn may be seen in both pictures. Figure 51 shows the back side of several houses facing Hall Lane in the fringe area, while Figure 52 is of idle land and residences located within the city limits.

Willamette Park, at the end of Goodnight Road, contains some picnic facilities but none for overnight camping. A view within the park looking south in Figure 53 shows a portion of the Willamette River and in the background a part of the pumping station for the city water supply.

The ribbon of fringe extending south of the city limits along U. S. 99W to the airport indicates a sale of farm property through metes-and-bounds. Nearly all land surrounding the fringe is in commercial agriculture.

In most cases these dwellings are new and of moderate
Figure 49: A portion of the public golf course in South Corvallis. To the right of the building is a public park.

Figure 50: A portion of the industrial complex along Gallagher Road.
Figure 51: A rear view of several homes facing Hall Lane within the fringe.

Figure 52: A view from the same spot as Figure 51 indicating land use within the city limits.
Figure 53: A view within the Willamette Park of the Willamette River. Part of the Corvallis water treatment plant can be seen extending into the river in the background.

Figure 54: A rear view of small acreage, medium income homes along U. S. 99W.
Figure 55: This home and the grazing area for the horses is located on about one acre of land, adjacent to the Corvallis Airport along U. S. 99W.

Figure 56: The large building in the background is part of an auto wrecking yard on U. S. 99W adjacent of the city limits. The land in the foreground is not part of the fringe, and the fringe boundary parallels the highway.
Figure 57: A plywood mill north of the Airport Road near U.S. 99W.

Figure 58: A view south of the Airport Road showing the building complex at the Corvallis Airport.
income. The backside of three houses facing U. S. 99W near the airport can be seen in Figure 54. A front view of a house across the highway from the Airport Road turnoff is shown in Figure 55.

Traffic-attracted industries have not developed as one might expect along U. S. 99W. An auto wrecking yard near the city limits can be seen in Figure 56, and the only other commercial establishments fronting the highway include a gas station and a nursery. Although several industries have located on Airport Road, plans were drawn in 1964 for the use of some 145 additional acres as an industrial park. At present, however, only one industry, the Timber Access Industry, has occupied a portion of this new tract.

Section 6

Figure 59 shows the ribbon of fringe development which extends east of Corvallis along Highway 34, Peoria Road, and the Colorado Lake Road. Topography in this area is generally level, and for the most part settlement has occurred only along the higher ground of the slightly undulating flood plain and in several instances, along the front portions of the upper benchland.

Along Highway 34 a rather unique settlement pattern is occurring. Here, the fringe has been restricted entirely to the south side of the highway between the city limits and the Colorado Lake Road. Two factors seem partially responsible. First, the area
lying between the Willamette River and Peoria Road north of the highway is owned by Oregon State University and is presently used for agricultural experimental purposes. Secondly, the area lying north of the highway between Peoria Road and the Colorado Lake Road is good commercial farm land and occasionally flooded. The only dwelling units here are farm homes which already occupy the few slightly higher areas.

Settlement south of Highway 34 and along Peoria Road represents a mixed arrangement of dwellings with full-time farm houses having been converted to part-time use, old low-income dwellings adjacent to new high-income dwellings, and a platted subdivision and commercial establishments occurring (Figure 60).

The string of homes along Peoria Road is a low to medium income area with former and full-time farms mixed with non-farm residences. Development is occurring along this road as several of the homes were newly finished and one home under construction was noticed. Figure 61 depicts two of the newer homes.

The projection of fringe along the south side of Highway 34 contains a low density, moderate income development of newer non-farm dwellings and former and current farm dwellings. It lessens in intensity at the outer end. A recently platted subdivision (Wes Terra) occupies an area near the highway on the upper bench-land. Several homes in this subdivision can be seen in Figures 62
Figure 60: A vegetable stand fronting Highway 34 east of Corvallis.

Figure 61: Two recently built, medium income homes along Peoria Road.
Figure 62: A high-income home on the floodplain terrace of the Wes Terra subdivision.

Figure 63: Three newly built homes within the Wes Terra subdivision. These homes are located on the upper benchland.
Figure 64: The built-up area of the West Linn subdivision. This subdivision is completely surrounded by agricultural land.

Figure 65: An owner-built home along the Colorado Lake Road.
The fringe along Colorado Road is composed entirely of residential dwellings most of which are of medium income. Land in this area is slightly higher than to the west and developers have begun to take advantage of this occurrence. Figure 64 is of the built-up area in the newly developed West Linn subdivision. A family-built house (built by self and/or family labor) adjacent to the subdivision can be seen in Figure 65. This house would be considered above average for most family-built homes in the fringe.

A new bridge over the Willamette River connecting Corvallis with Highway 34 was completed in 1964, and construction is now in progress to widen the highway through and beyond the fringe area. What effect this will have on the development pattern is not known, however, good access has been instrumental in fringe development so further development in this section of the fringe can be anticipated.
CHAPTER VII

SUMMARY AND CONCLUSION

In the past it has been the case of geographers, sociologists, political scientists, and others to divide settlement patterns into rural and urban sectors. The principal basis for this splitting is the use of an explanatory device, the rural-urban continuum, which places the rural society at one end and the urban society at the other. In an attempt to arrive at a clear conceptualization of the place of the fringe on the continuum, three hypotheses are advanced:

(1) The place of the rural-urban fringe on a continuum is represented within a single rural-urban distribution;

(2) The rural-urban fringe represents that area in which the rural and urban sectors have overlapped, and inherent qualities of both sectors are apparent—providing a confused mixture of land uses.

(3) The rural-urban fringe represents a third sector, distinct from the rural and urban, in which characteristics of both are to be found, yet with new ones found only in the rural-urban fringe.

The weight of these hypotheses, how unsophisticated they may be, does support certain broad concepts of the fringe. As with most generalizations, however, a major methodological
problem is encountered when utilizing such criteria in delineation.

Various investigators of the fringe have illustrated their concepts through theoretical or descriptive definitions. A cursory examination of the literature reveals that the boundaries of the rural-urban fringe vary widely, which in turn reveals contrasts in the approach through which researchers delineate and explore the fringe area.

Several illustrative examples of the fringe boundary would include the following. For the inner boundary: outward from the economic city; outward from the point where full city services cease to be available; and, outward from the political boundaries of the central city. For the outer boundary: extends to areas of predominantly agricultural activity; outward to the area devoted to agriculture; and, outward to the point where agricultural land uses predominate (which includes waste lands and wooded areas).

In delineating the Corvallis fringe, the inner boundary was fixed as the political boundary of the city, and the outer boundary as that point where commercial agricultural land use or wooded land tended to predominate, and included that land where owner occupations seemed to be urban oriented.

The methodology involved in delineating the rural-urban fringe does not, in most instances, correspond with the definitions which have been proposed for the fringe area. At least five
methods have been used by various researchers. They are:

(1) The selection of particular areas considered as typical of all fringe characteristics.

(2) Choice of area by selected statistical measures derived for minor civil divisions--such as township--or other geographic units such as sections or subdivision boundaries.

(3) Choice of areas such as a county.

(4) Use of census areas such as urbanized areas and standard metropolitan areas.

(5) Delineation of the fringe on the basis of physical inspection and reconnaissance.

Of the five methods involved in delineation, it is felt that only number five--based on physical inspection and reconnaissance--would provide the researcher a true areal concept of the extent of the fringe by observing first hand the various intensities of land use and the transition along the continuum from the urban to the rural sectors. The first four methods of delineation tend to be either too restrictive and not include the entire fringe area, or too lax and include rural areas not considered to be fringe by definition.

While it is felt that the delineation procedure used in establishing the Corvallis rural-urban fringe is the best method so far proposed in indicating the true extent of the fringe, this method
does have certain disadvantages. The land use classification method used here is applicable in delineating the fringe of a small sized city, e.g., 26,440 for the case of Corvallis. However, were this same method to be used in delineating the fringe of a city with 50,000, 100,000 or more the task would become nearly impossible for one man, and, depending upon the size of the city, it is doubtful if this method would be worth the time of an entire research team. The choice of a delineation procedure then would depend on the estimated size of the area, the man power available in conducting the field research, and the length of time to be spent in delineation. In any case, where one may wish an exact delineation, and especially where delineation is to be made of the fringe of a small sized city, the procedure used in this study is felt to be the best method so far proposed.

To observe the structure of residential fringe development at close range, one should enlarge the scale of the study area and superimpose in map or graphic form the spatial patterns of land use. In the case of Corvallis, land use was the defining criterion used in an attempt to clearly reflect the heterogeneous nature of the fringe and the form and trends of spatial development.

The most familiar form of rural-urban growth to this observer was the linear type which extended along the main highways just beyond the limits of dense settlement of the city proper. These
occupied areas were usually identified by metes-and-bounds development. Within the interstitial areas adjacent to the city and in isolated, compact areas toward the outer extremities of fringe growth could be found moderate to high income, partially developed subdivisions. The appearance of isolated residences, and part-time and full-time farms along the main highways and side roads within the fringe is the final distinct physical settlement form.

The development of commercial uses in the fringe centers around four principal types which may be classified as: (1) businesses attracted to main highway traffic and converging on the central city; (2) businesses indigenous to the fringe and which were seeking direct patronage of fringe residents; (3) industrial uses requiring large amounts of land not available within the city, or where cheaper land, lower taxes, and more favorable transportation facilities are available; and (4) those commercial ventures such as the golf course, airport, and parks which choose locations in the fringe due to a need for large, single blocks of land which are still relatively close to the patronage of the city.

In describing the configurations of the rural-urban fringe pattern, a brief consideration of industries, institutions, transportation, and physical features should be noted. In many instances, their properties have acted as barriers and hence rigid channelizers of later residential expansion. Various industries have
assumed this role to some extent in the "nuisance", and "look" they may present to adjacent residential development. Institutions, such as Oregon State University, established their location during the early history of the city, and thus have acted as rigid channelizers of later residential expansion. While both industries and institutions are of major importance in channeling growth, they do, in some instances, tend to attract residential settlement whose occupants are either employees of the plant of institution.

Residential settlement, industries, and institutions have all been influenced by and, in turn, have influenced the evolving transportation pattern of the fringe. The evolution of this pattern has naturally brought with it problems of adjustment. This is especially so where transportation was already frozen into a spoke-like service network and fluid settlement was not allowed to develop. Physical barriers are nearly self-explanatory. Here, rivers, flood plains, and steepness of topography have placed definite limitations and restrictions on the settlement pattern.

The key to a successful delineation based on physical inspection is the competence of the observer. He should not only be able to distinguish between the rural and urban sectors at the extremes of the continuum, but also between the two as they intermingle. A clear conception, then, of the types of phenomena which are characteristic of the study area are essential, as well as an understanding
of the fringe forming processes which include a prior knowledge of the history and function of the city.

In view of the relatively recent decentralization of cities and increase in rural-urban fringe settlement it is becoming more apparent, to this author at least, that concentrated research be given to the fringe composition. For only through intensive research will it be possible to gain even the most empirical understanding of the growth processes and problems encountered in the fringe area. Inherent in, and perhaps the first step to these research studies is the need for an adequate delineation procedure upon which it will be possible to note the fringe as an integral unit.

While a number of delineation procedures by various researchers have been presented in this thesis, it is the opinion of this author that the methodology involved in delineating the Corvallis rural-urban fringe through inspection and reconnaissance is the best so far applied in establishing what is considered the true fringe area.


